
PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

USE OF VOLUNTARY PUBLIC ACCESS AND HABITAT INCENTIVE PROGRAM FUNDS FOR THE ILLINOIS RECREATIONAL ACCESS PROGRAM



United States Department of Agriculture
Farm Service Agency

Final
May 2011

**United States Department of Agriculture
Farm Service Agency**

FINDING OF NO SIGNIFICANT IMPACT

Use of Voluntary Public Access and Habitat Incentive Program Funds for the Illinois Recreational Access Program

May 2011

The United States Department of Agriculture Farm Service Agency (FSA) on behalf of the Commodity Credit Corporation (CCC) has prepared a Programmatic Environmental Assessment (PEA) to evaluate the environmental consequences associated with providing the State of Illinois Voluntary Public Access and Habitat Incentive Program (VPA-HIP) grant funds. The VPA-HIP is a new program authorized by the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) that provides grants to States and tribal governments to encourage owners and operators of privately held farm, ranch, and forest land to voluntarily open land for public access for outdoor recreation activities such as hunting, fishing, hiking, wildlife watching, and other outdoor activities. Distribution of VPA-HIP funds is administered by the State or tribal government that receives the grant.

The State proposes to use VPA-HIP grant funds to implement the Illinois Recreational Access Program (IRAP), a new public access program on private lands. The purpose of the Proposed Action is to provide incentives to Illinois landowners to permit outdoor recreationists access to their land. In Illinois, 95 percent of the land is privately owned; with more than 27 million acres (nearly 75 percent) of the total land area used as farmland. This leaves less than 2,300 square miles, or about 4.1 percent of total land area in Illinois available for outdoor recreational activities, limits access for outdoor recreation, and creates a huge demand for additional opportunities. The Proposed Action is needed to increase hunting, fishing and other outdoor recreational opportunities throughout the State. VPA-HIP funds would also allow the State to fund an IRAP Coordinator, provide contractual assistance to the Soil and Water Conservation Districts to promote the program and target and enroll landowners, make annual access lease payments, develop printed informational materials, and provide payments for hunting habitat restoration and enhancements.

Proposed Action

The Illinois Department of Natural Resources (IDNR) proposes to use \$1,484,750 in VPA-HIP grant funds over a three-year period to implement the IRAP. These funds would be used to leverage \$1,498,560 in other State, Federal, and private funds and in-kind services to provide increased outdoor recreational opportunities in the State. IRAP would initially target owners and operators of privately-held farm, ranch and forest land enrolled in the Illinois Conservation Reserve Enhancement Program (CREP); however, all landowners with qualified lands statewide would be eligible for enrollment. The IRAP would provide incentive payments to eligible private landowners for three-year leases to: (1) provide the public with increased access to lands for hunting, fishing and other outdoor recreational opportunities; (2) establish habitat management plans; and (3) in certain instances fund hunting habitat improvements. Program objectives are to provide six to 10 public canoe and boat access sites on public navigable waters (specifically in the Kankakee and Iroquois rivers), 25 stream miles and 900 acres of impounded waters for

walk-in fishing, an additional 300 sites for public youth turkey hunting, an additional 500 acres for youth deer hunting, and an additional 1,000 acres for deer hunting.

VPA-HIP funds would also be used to fund a position for the IRAP Coordinator with the Sangamon County Soil and Water Conservation District (SWCD); supplement State SWCD offices' outreach, facilitate landowner enrollment and access; provide informational materials on the IRAP such as regulation booklets, access location maps and press releases; install access signs on enrolled property; and produce program performance reports.

Reasons for Finding of No Significant Impact

In consideration of the analysis documented in the PEA and the reasons outlined in this Finding of No Significant Impact (FONSI), the Proposed Action would not constitute a major Federal action that would significantly affect the human environment. Therefore, an environmental impact statement will not be prepared. The determination is based on the following:

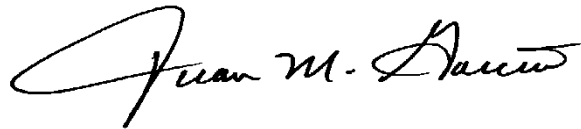
1. The Proposed Action as outlined in the PEA would provide beneficial impacts to both recreation and economic resources as a result of the increased amount of land available for public use and monies from these activities injected into local economies. Moreover, expanding lands available for wildlife-associated recreation would benefit vegetation and wildlife by maintaining suitable habitat rather than converting the land to another incompatible use.
2. Potential beneficial and adverse impacts of implementing the Proposed Action have been fully considered within the PEA. No significant adverse direct or indirect effects were identified, based on the resource analyses provided in the PEA.
3. The Proposed Action would not involve effects to the quality of the human environment that are likely to be highly controversial.
4. The Proposed Action would not establish a precedent for future actions with significant effects and does not represent a decision in principle about a future consideration.
5. The Proposed Action does not result in cumulative significant impacts when considered with other actions that also individually have insignificant impacts. Cumulative impacts of implementing the Proposed Action were determined to be not significant.
6. The Proposed Action would not have adverse effects on threatened or endangered species or designated critical habitat. In accordance with Section 7 of the Endangered Species Act, the effects of implementing the Proposed Action on threatened and endangered species and designated critical habitat were addressed in the PEA.
7. The Proposed Action does not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Determination

In accordance with the National Environmental Policy Act and FSA's environmental regulations at 7 Code of Federal Regulations (CFR) Part 799 and implementing the regulations of the Council on Environmental Quality at 40 CFR Parts 1500-1508, I find the Proposed Action is not a major Federal action significantly affecting the quality of the human environment. Barring any new data identified during public and agency review of the PEA that would dramatically change the analysis presented in the

PEA or identification of a significant controversial issue, the PEA and FONSI are considered final 30 days after their approval and release to the public. Therefore, no environmental impact statement will be prepared.

Approved:



May 23, 2011

Juan M. Garcia
Acting Deputy Administrator for Farm Programs
Farm Service Agency
U.S. Department of Agriculture

Date

COVER PAGE

- Proposed Action:** The United States Department of Agriculture (USDA), Commodity Credit Corporation (CCC) and the State of Illinois proposes to use Voluntary Public Access and Habitat Incentive Program (VPA-HIP) grant funds of \$1.4 million over the three-year grant period to leverage State, private in-kind, and other Federal funds to implement the new Illinois Recreational Access Program (IRAP). The IRAP would provide annual incentive payments to eligible private landowners for three-year access leases, habitat improvement, signage, a program coordinator position, public outreach, and performance reporting requirements. The Farm Service Agency (FSA) administers the VPA-HIP on behalf of the CCC. The VPA-HIP is a new program authorized by the Food, Conservation, and Energy Act of 2008 that provides grants to States and tribal governments to encourage owners and operators of privately held farm, ranch, and forest land to voluntarily open land for public access for outdoor recreation activities such as hunting, fishing, hiking, wildlife watching, and other outdoor activities.
- Type of Document:** Programmatic Environmental Assessment
- Lead Agency:** Farm Service Agency (on behalf of CCC)
- Sponsoring Agency:** Illinois Department of Natural Resources
- Further Information:** Debbie Bruce
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Springfield, IL 62702
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- Comments:** This Programmatic Environmental Assessment was prepared in accordance with the Farm Service Agency National Environmental Policy Act implementation procedures found in 7 Code of Federal Regulations 799, as well as the National Environmental Policy Act of 1969, Public Law 91-190, 42 USC 4321-4347, 1 January 1970, as amended.
- The FSA will provide a public review and comment period prior to any final decision. An electronic copy of this Programmatic Environmental Assessment will be available for review at: <http://public.geo-marine.com> or at <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ecrc&topic=nep-cd>.
- Written comments regarding this assessment may be submitted to:
Illinois VPA-HIP PEA Comments
c/o Geo-Marine, Inc.
2713 Magruder Blvd Suite D
Hampton, VA 23666
Or emailed to E-mail: IllinoisPEA@geo-marine.com

EXECUTIVE SUMMARY

BACKGROUND

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) proposes to provide Voluntary Public Access and Habitat Incentive Program (VPA-HIP) grant funds to the State of Illinois for implementation of the Illinois Recreational Access Program (IRAP). The VPA-HIP is a new program authorized by the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) that provides grants to States and tribal governments to either expand existing or create new public recreation access programs. Funds may also be requested to provide incentives for eligible private landowners to improve habitat on enrolled lands. Incentives encourage owners and operators of privately held farm, ranch, and forest land to voluntarily open land for public access for outdoor recreation activities such as hunting, fishing, hiking, wildlife watching, and other outdoor activities. The VPA-HIP grant award process is administered by the USDA Farm Service Agency on behalf of the CCC. The VPA-HIP programs are administered by the State or tribal government that receives the grant.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The State proposes to use VPA-HIP grant funds to implement the IRAP, a new public access program on private lands. The purpose of the Proposed Action is to provide new recreational access opportunities for Illinois landowners and outdoor recreationists. In Illinois, 95 percent of the land is privately owned; with more than 27 million acres (nearly 75 percent) of the total land area as farmland. This leaves less than 2,300 square miles, or about 4.1 percent of total land area in Illinois available for outdoor recreational activities, limits access for outdoor recreation, and creates a huge demand for additional opportunities. The Proposed Action is needed to increase hunting, fishing and other outdoor recreational opportunities throughout the State. VPA-HIP funds would also allow the State to fund an IRAP Coordinator, contractual assistance to the Soil and Water Conservation Districts (SWCD) to promote the program and target and enroll landowners, make annual access lease payments, develop printed informational materials, and provide payments for hunting habitat restoration and enhancements.

PROPOSED ACTION

Under the Proposed Action, Illinois Department of Natural Resources (IDNR) would use \$1,484,750 in VPA-HIP grant funds over a three-year period to implement the IRAP. These funds would be used to leverage \$1,498,560 in other State, Federal, and private funds and in-kind services to provide increased outdoor recreational opportunities in the State. IRAP would initially target owners and operators of privately-held farm, ranch and forest land enrolled in the Illinois Conservation Reserve Enhancement Program (CREP); however, all landowners with qualified lands statewide would be eligible for enrollment. The IRAP would provide incentive payments to eligible private landowners for three-year leases to: (1) provide the public with increased access to lands for hunting, fishing and other outdoor recreational opportunities; (2) establish habitat management plans; and (3) in certain instances fund hunting habitat improvements. Program objectives are to provide six to 10 public canoe and boat access sites on public navigable waters (specifically in the Kankakee and Iroquois rivers), 25 stream miles and 900 acres of impounded waters for walk-in fishing, an additional 300 sites for public youth turkey hunting, an additional 500 acres for youth deer hunting, and an additional 1,000 acres for deer hunting. A detailed recreational access plan and recommended habitat improvements and management activities would be developed for each site enrolling in the program.

VPA-HIP funds would also be used to fund a position for the IRAP Coordinator with the Sangamon County Soil and Water Conservation District (SWCD); supplement State SWCD offices' outreach, facilitate landowner enrollment and access; provide informational materials on the IRAP such as regulation booklets, access location maps and press releases; install access signs on enrolled property; and produce program performance reports.

The IRAP would be comprised of three campaigns to provide new hunting and fishing opportunities:

1. Fishing, Canoeing, and Boating Access Campaign that would focus on providing walk-in fishing access on impoundments and fishing, canoeing and boat access on public navigable waters. Initially, access points for fishing, canoeing and boating on public navigable rivers would be targeted to the Kankakee and Iroquois rivers, but access points adjacent to public navigable waters statewide would be eligible. The initial focus for impoundment fishing access would be within the Kankakee River Watershed, but qualified lands statewide would also be eligible for enrollment.
2. Youth Turkey Hunting Campaign would provide access to turkey hunters under the age of 16.
3. Large Landowner Campaign would target large landowners for access to their private lands for hunting, fishing and other outdoor recreational activities.

The IRAP would initially target owners and operators of privately-held farm, ranch and forest land enrolled in the Illinois CREP; however, landowners with qualified lands would be eligible for enrollment statewide. Enrollment of lands in the Fishing, Canoeing, and Boating Access Campaign would initially target landowners with impoundments and walk-in stream access in the Kankakee River Basin and target canoe and boating access to the Kankakee River and the public portion of the Iroquois River. Lands that would potentially be enrolled in IRAP would be evaluated by IDNR staff or the IDNR Contractual Access Coordinator to ensure there is adequate fish or game habitat, and the site has the potential for the recreational use for which it is offered.

NO ACTION ALTERNATIVE

Although it would not serve the purpose and need for the Proposed Action, a No Action Alternative has been carried forward as the baseline against which the potential impacts arising from the Proposed Action can be measured. The No Action Alternative is analyzed in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] §1502.14(d)). Under the No Action Alternative, VPA-HIP grant funds would not be utilized and the IRAP would not be implemented.

ENVIRONMENTAL CONSEQUENCES

The environmental consequences of the Proposed Action and No Action Alternative are addressed in this PEA and summarized in Table ES-1.

Table ES-1. Summary of Environmental Consequences

Resource	Proposed Action Alternative	No Action Alternative
Biological Resources	<p>Expanding lands available for wildlife-associated recreation under the Proposed Action Alternative would benefit vegetation and wildlife by maintaining suitable habitat rather than converting land to another incompatible use. Providing hunting and fishing opportunities potentially could decrease game and fish populations to unsustainable levels. This potential would be minimized by IDNR hunting and fishing permitting regulations. Further, agency specialists would conduct a site-specific evaluation to determine the appropriate type of recreation for individual lands proposed for enrollment, and the appropriate number of users engaged in other recreational activities such as wildlife viewing and hiking, minimizing potential adverse effects to wildlife and vegetation.</p> <p>Site-specific evaluation of lands proposed for enrollment by IDNR qualified personnel would determine the potential for the presence of protected species. If protected species would likely be present, IDNR would consult with the U.S. Fish and Wildlife Service. If an authorized recreational activity on the land proposed for enrollment would potentially impact a protected species, it would not likely be approved. No adverse effects to protected species would likely occur.</p>	<p>If VPA-HIP funds would not be used, the IRAP would not be implemented. The additional benefits of the Proposed Action Alternative in expanding acreage maintained in suitable wildlife habitat in the State would not be realized.</p>
Water Resources	<p>The Proposed Action implementing IRAP statewide would benefit surface and ground waters, wetlands, and floodplains by establishing healthy vegetative covers through hunting habitat improvements. Vegetative</p>	<p>The No Action Alternative would not provide VPA-HIP funds to leverage other funding sources needed to launch IRAP. The IRAP would not be implemented, depriving Illinois of the modest vegetative habitat</p>

Table ES-1. Summary of Environmental Consequences (cont'd)

Resource	Proposed Action Alternative	No Action Alternative
Water Resources (cont'd)	covers reduce erosive runoff leading to sedimentation and pollutant offloading to nearby waters, improving water quality and aquatic habitat. Vegetative covers also reduce runoff velocity, allowing water to percolate and replenish groundwater, and alleviate flooding that erodes floodplains. Temporary minor impacts to water resources could occur from ground disturbance associated with habitat improvements, but this would be minimized by employing measures to maintain adequate ground cover, litter, and canopy, and use of silt fencing.	improvement benefits that would increase water resource quality.
Soil Resources	The modest hunting habitat improvements attained by implementation of the Proposed Action would increase stable vegetative covers in Illinois, protecting soil from wind and water erosion, and increasing soil quality. Temporary impacts to soil resources could occur from ground disturbance associated with habitat improvements, however, they would be minimized by measures to reduce soil compaction, temporary erosion control blankets, and stockpiling topsoil for re-use.	The IRAP would not be implemented under the No Action Alternative, resulting in the modest benefits of the program to soil unrealized.
Recreation	Under the Proposed Action, long-term positive impacts to outdoor recreational activities are expected from implementation of IRAP by expanding opportunities for fishing, hunting, boating, and wildlife viewing activities. The majority of land in Illinois is privately held, and public recreation lands, especially near major urban centers, cannot support the demand for outdoor recreation in the State. Program objectives are to provide six to 10 public canoe and boat access sites on public navigable waters, 25 stream miles and 900 acres	Under the No Action Alternative, the IRAP would not be implemented. Thus there would be no change to existing recreational resources and the goal of ensuring additional fishing, boating, hunting, and wildlife viewing opportunities statewide would not be fulfilled.

Table ES-1. Summary of Environmental Consequences (cont'd)

Resource	Proposed Action Alternative	No Action Alternative
Recreation (cont'd)	of impounded waters for walk-in fishing, an additional 300 sites for public youth turkey hunting, an additional 500 acres for youth deer hunting, and an additional 1,000 acres for deer hunting. IRAP would also fund public outreach to ease the public's access to participating landowner locations.	
Socioeconomics	The IRAP augmented by the USDA VPA-HIP funds would be a slight economic benefit to both local economies and the statewide wildlife-associated recreation economy of \$2.4 billion. Providing additional recreational access to private lands would also attract more out of state recreationists, benefiting local and statewide economies. Implementation of the Proposed Action Alternative would have long-term socioeconomic benefits for employment and income with no associated negative effects such as large population movements.	If no funding under the USDA VPA-HIP would be used by the State of Illinois, IRAP would not be implemented. No additional local or statewide economic benefits associated with IRAP and increased wildlife-associated recreation would occur.
Environmental Justice	The Proposed Action Alternative would not have highly adverse disproportionate impacts to environmental justice populations. Under Federal law, the USDA prohibits discrimination on the basis of race, color, religion, national origin, age, sex, or disability. Minority and low income populations would have equal access to participate in IRAP if their land meets the eligibility criteria of suitable habitat and recreational value. Further, enrolled participants in the IRAP must grant equal access to all sportspersons with a valid hunting and/or fishing license, or wildlife watchers, based on their agreement to wave liability and conform to posted use conditions.	No highly adverse disproportionate impacts to environmental justice populations would occur. IDNR would continue to take measures to expand informational, educational, and interpretive outreach opportunities to culturally, economically and ethnically diverse constituencies, however, additional recreational opportunities offered by IRAP would not occur.

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ACRONYMS AND ABBREVIATIONS

1-EQ	Environmental Quality Programs for State and County Offices Rev. 2
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
BMP	Best Management Practices
CAA	Clean Air Act
CCC	Commodity Credit Corporation
CEC	Commission for Environmental Cooperation
CERP	Comprehensive Environmental Review Process
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CP	Conservation Practice
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSP	Conservation Stewardship Program
CWA	Clean Water Act
CWS	Community Water Supply
EI	Erodibility Index
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
ERS	Economic Research Service
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
FSA	Farm Service Agency
GRP	Grassland Reserve Program
HEL	Highly Erodible Lands
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
ILCS	Illinois Compiled Statutes
IRAP	Illinois Recreational Access Program
LIP	Landowner Incentive Program
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MGD	Million Gallons Per Day
MHI	Median Household Income
MLRA	Major Land Resource Areas

ACRONYMS AND ABBREVIATIONS (cont'd)

NASS	National Agricultural Statistics Service
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NRCS	Natural Resources Conservation Service
ORV	Off-road Vehicle
OSLAD	Open Space Lands Acquisition and Development
PCB	Polychlorinated Biphenyls
PEA	Programmatic Environmental Assessment
PL	Public Law
RFA	Request for Applications
ROI	Region of Influence
RUSLE2	Revised Universal Soil Loss Equation
SCORP	State Comprehensive Outdoor Management Plan
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TSI	Timber Stand Improvement
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VPA-HIP	Voluntary Public Access and Habitat Incentive Program
WHIP	Wildlife Habitat Incentives Program
WRP	Wetlands Reserve Program

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Background

The United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC) proposes to provide Voluntary Public Access and Habitat Incentive Program (VPA-HIP) grant funds to the State of Illinois for implementation of the Illinois Recreational Access Program (IRAP). The VPA-HIP is a new program authorized by the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) that provides grants to States and tribal governments to encourage owners and operators of privately held farm, ranch, and forest land to voluntarily open land for public access for outdoor recreation activities such as hunting, fishing, hiking, wildlife watching, and other outdoor activities. The VPA-HIP programs are administered by the State or tribal government that receives the grant.

1.1.1 The Voluntary Public Access and Habitat Incentive Program

The CCC regulations for VPA-HIP have been established in an interim rule (Federal Register [FR] 39135-39143). The VPA-HIP grant funds are awarded through a competitive Request for Applications (RFA) process in which States and tribal governments may request VPA-HIP funds in order to either expand existing or create new public access programs. Funds may also be requested to provide incentives for eligible private landowners to improve habitat on enrolled lands. The Farm Service Agency (FSA), on behalf of the CCC, evaluates applications to determine eligibility of the applicant and whether the application is complete and sufficiently meets the requirements of the RFA (FSA 2010a). In accordance with the 2008 Farm Bill, funding priority would be given to applications that address the program objectives:

- Maximize participation by landowners
- Ensure the land enrolled in the program has appropriate wildlife habitat
- Provide incentives to strengthen wildlife habitat improvement on lands enrolled in the Conservation Reserve Enhancement Program (CREP)
- Supplement other funding and services provided by other Federal, State, tribal government, or private resources that is provided in the form of cash or in-kind services
- Provide information to the public of the location of public access land

A State's grant amount would be reduced by 25 percent if migratory bird hunting opening dates are not consistent for both residents and non-residents. The VPA-HIP does not preempt liability laws that may apply to activities on any property related to VPA-HIP grants (*Ibid.*).

1.1.2 The Conservation Reserve Enhancement Program

CREP was established in 1997 under the authority of the Conservation Reserve Program (CRP) to address agriculture-related environmental issues by establishing conservation practices (CPs) on privately owned agricultural lands using funding from Federal, State, and tribal governments as well as non-government sources. CREP addresses State designated high priority conservation issues in defined geographic areas such as watersheds. Producers who voluntarily enroll their eligible lands in CREP receive financial and technical assistance for establishing CPs on their land. In addition, property owners receive annual rental payments based upon the enrolled acreage. Once eligible lands are identified, site-specific environmental reviews and consultation with and permitting from other Federal agencies are completed as appropriate in accordance with FSA's Handbook: *Environmental Quality Programs for State and County Offices Revision 2* (1-EQ) (FSA 2009a). Conservation plans developed by qualified personnel are required for all

enrolled CREP lands, and any changes to the plans must be documented in writing and submitted for approval prior to implementing a proposed activity. The potential environmental impacts of the Illinois CREP have been recently evaluated under NEPA in the Supplemental Programmatic Environmental Assessment for the Illinois CREP Amendment (FSA 2010b). This Programmatic Environmental Assessment (PEA) tiers from the earlier CREP Supplemental PEA in considering potential environmental impacts of the IRAP on enrolled CREP lands.

1.1.3 Existing Outdoor Recreation Grant Programs

The State of Illinois currently does not have a program designed to obtain public access to private lands for outdoor recreational activities. The State does have several outdoor recreation grant programs such as the Federal Land and Water Conservation Fund (LWCF) and the Open Space Lands Acquisition and Development (OSLAD) program (Illinois Department of Natural Resources [IDNR] 2009). The LWCF uses Federal grant funds for land acquisitions for State and local parks, while the OSLAD program uses State-generated funds to provide basic, close-to-home outdoor recreation such as land for parks, ball fields and playgrounds. Illinois also has other outdoor recreation grant programs that use both Federal and State funds to support activities such as trails and paths for bicycles, snowmobiles and off-highway vehicles, and for the construction of boat access facilities.

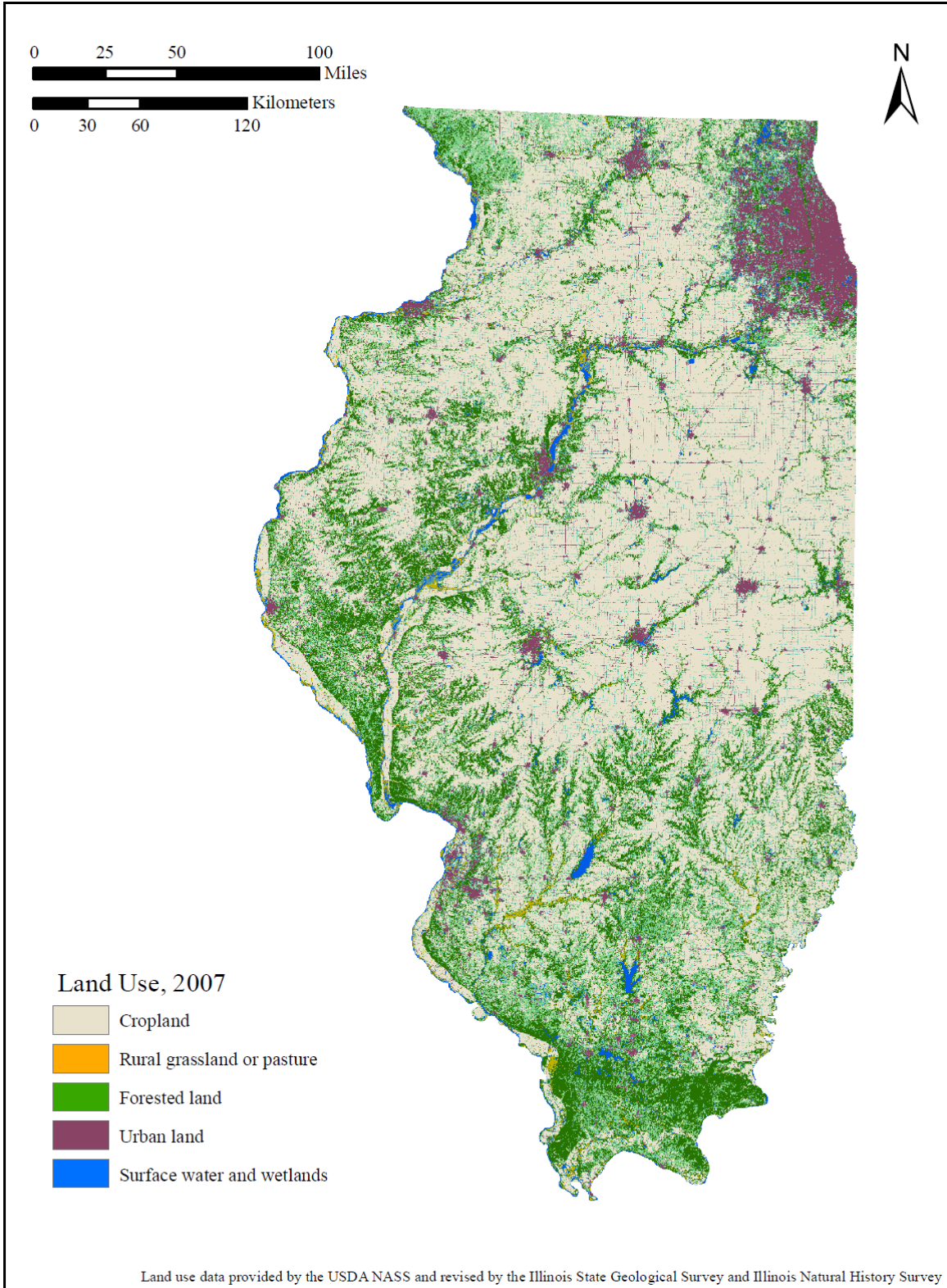
1.1.4 Regulatory Compliance

This PEA is prepared to satisfy the requirements of the National Environmental Policy Act (NEPA; Public Law [PL] 91-190, 42 U.S. Code [U.S.C.] 4321 et seq.); implementing regulations adopted by the Council on Environmental Quality (CEQ; 40 Code of Federal Regulations [CFR] 1500-1508); and FSA implementing regulations, Environmental Quality and Related Environmental Concerns – Compliance with NEPA (7 CFR 799). A variety of laws, regulations, and Executive Orders (EO) apply to actions undertaken by Federal agencies and form the basis of the analysis prepared in this PEA. These include but are not limited to:

- National Historic Preservation Act (NHPA)
- Endangered Species Act (ESA)
- Clean Water Act (CWA)
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations
- EO 11988, Floodplain Management
- EO 11990, Protection of Wetlands
- Clean Air Act (CAA)

1.2 Purpose and Need

The State proposes to use VPA-HIP grant funds to implement the IRAP, a new public access program on private lands. The purpose of the Proposed Action is to provide new recreational access opportunities for Illinois landowners and outdoor recreationists. In Illinois, 95 percent of the land is privately owned; with more than 27 million acres (nearly 75 percent) of the total land area as farmland (Figure 1-1) (National Agricultural Statistics Service [NASS] 2011). This leaves less than 2,300 square miles, or about 4.1 percent of total land area in Illinois available for outdoor recreational activities, limits access for outdoor recreation, and creates a huge demand for additional opportunities. The Proposed Action is needed to increase hunting, fishing and other outdoor recreational opportunities throughout the State. VPA-HIP



Source: NASS 2007

Figure 1-1. Illinois Land Cover

funds would also allow the State to fund an IRAP Coordinator, contractual assistance to the Soil and Water Conservation Districts to promote the program and target and enroll landowners, make annual access lease payments, develop printed informational materials, and provide payments for hunting habitat restoration and enhancements.

1.3 Organization of the PEA

This PEA assesses the potential impacts of the Proposed Action and the No Action Alternatives on potentially affected environmental and socioeconomic resources. Chapter 1 provides background information relevant to the Proposed Action, and discusses its purpose and need. Chapter 2 describes the Proposed Action and alternatives. Chapter 3 describes the baseline conditions (i.e., the conditions against which potential impacts of the Proposed Action and alternatives are measured) for each of the potentially affected resources, and describes potential environmental consequences to these resources. Chapter 4 includes analysis of cumulative impacts and irreversible and irretrievable resource commitments. Chapter 5 discusses mitigation measures. Chapter 6 presents a list of the preparers of this document and Chapter 7 contains a list of persons and agencies contacted during the preparation of this document. Chapter 8 contains references. Appendix A contains copies of the agency coordination letters. Appendix B lists the Federal and State threatened and endangered species. Information on Illinois' impaired waterbodies is listed in Appendix C.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Proposed Action

The State proposes to use \$1,484,750 in VPA-HIP grant funds over a three-year period (\$528,250 in the first year and \$478,250 the following two years) to implement the IRAP. These funds would be used to leverage \$1,498,560 in other State, Federal, and private funds as well as in-kind services to provide increased outdoor recreational opportunities in the State.

Through IRAP, VPA-HIP funds would be used to provide annual incentive payments to eligible private landowners for three-year access leases and contractual technical assistance for habitat improvements. In some instances, financial assistance would be provided for habitat improvement. VPA-HIP funds would also be used to partially fund a position for the IRAP Coordinator with the Sangamon County Soil and Water Conservation District (SWCD); supplement SWCD outreach, management of landowner enrollment and access facilitation with SWCDs; provide informational materials on the IRAP such as regulation booklets, access location maps and press releases; install access signs on enrolled property; and produce program performance reports. The new program would initially target land enrolled in the Illinois CREP (Table 2-1; Figure 2-1); however, landowners with qualified lands statewide would be eligible for enrollment. VPA-HIP grant funds would not be used for funding IDNR personnel, purchasing of necessary supplies and equipment, instream technical assistance, or fisheries habitat improvements and management.

Table 2-1. Counties within the Illinois and Kaskaskia Watersheds and Enrolled CREP Acreage

County	CREP Acreage	County	CREP Acreage	County	CREP Acreage	County	CREP Acreage
Adams	235.6	Ford	1,991.0	Livingston	7,086.0	Perry	0
Bond	70.4	Fulton	5,272.0	Logan	5,597.4	Piatt	461.7
Brown	2,172.9	Greene	5,061.7	Macon	1,609.1	Pike	758.6
Bureau	2,229.1	Grundy	903.6	Macoupin	1,908.3	Putnam	2,828.8
Calhoun	77.5	Hancock	3,660.4	Madison	0	Randolph	0
Cass	7,719.4	Henderson	0	Marion	0	Sangamon	7,870.8
Champaign	1,038.7	Henry	8.0	Marshall	766.8	Schuyler	9,836.7
Christian	4,297.0	Iroquois	10,114.0	Mason	2,355.5	Scott	2,699.9
Clinton	12.1	Jefferson	0	McDonough	3,628.0	Shelby	285.0
Coles	0	Jersey	485.9	McHenry	0	St. Clair	0
Cook ¹	-	Kane	8.1	McLean	2,481.1	Stark	1,514.2
DeKalb	1,066.4	Kankakee	1,094.2	Menard	3,281.7	Tazewell	5,073.3
DeWitt	1,911.1	Kendall	72.4	Monroe	0	Vermilion	84.4
Douglas	0	Knox	7,458.2	Montgomery	165.5	Warren	457.3
DuPage ¹	-	Lake	0	Morgan	3,029.7	Washington	0
Effingham	0	LaSalle	2,210.5	Moultrie	0	Will	100.9
Fayette	0	Lee	83.5	Peoria	2,171.9	Woodford	2,568.5
						Total	127,874.8

Source: FSA 2011

¹Not listed in the State Continuous Signup/CREP Monthly Summary Report

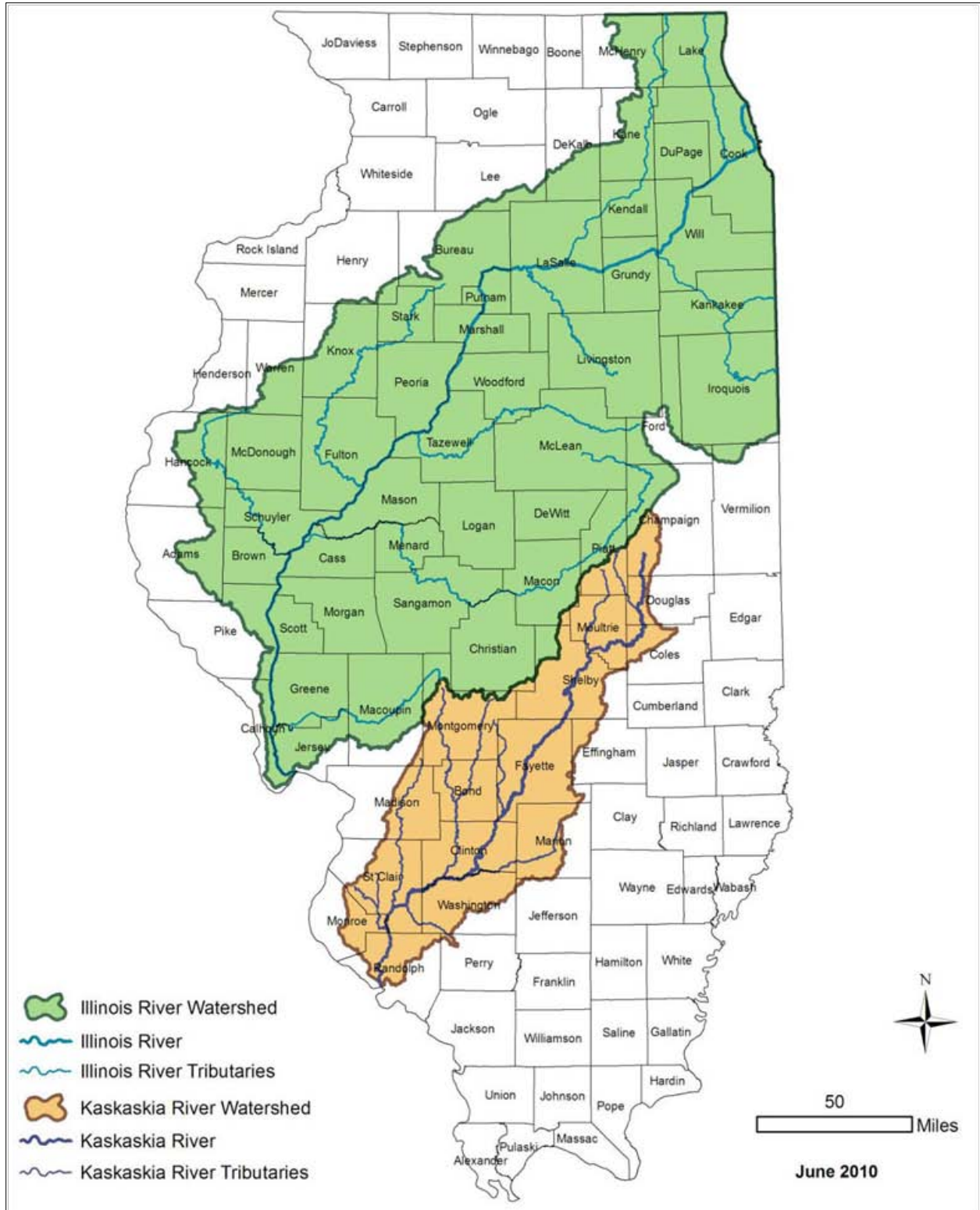


Figure 2-1. Illinois CREP Area (Illinois River and Kaskaskia River Watersheds)

2.1.1 Eligible Lands

The IRAP would initially target owners and operators of privately-held farm, ranch and forest land enrolled in the Illinois CREP; however, landowners with qualified lands would be eligible for enrollment statewide. Enrollment of lands in the Fishing, Canoeing, and Boating Access Campaign would initially target landowners with impoundments and walk-in stream access in the Kankakee River Basin and target canoe and boating access to the Kankakee River and the public portion of the Iroquois River, although boat access to other public waters as depicted in Figure 2-2 would be eligible statewide. Lands that would potentially be enrolled in IRAP would be evaluated by IDNR staff or the IDNR Contractual Access Coordinator to ensure there is adequate fish or game habitat, and the site has the potential for the recreational use for which it is offered. Sites that are being offered for walk-in fishing, or canoeing and boating access, would be visited by a Fisheries Biologist to evaluate the riparian, instream habitat and to ensure the fishery can support sport fishing.

2.2 Public Involvement and Agency Coordination

The IDNR would manage the distribution of VPA-HIP grant funds for the implementation of IRAP, including public outreach. Several organizations have been and continue to be involved in promoting IRAP. These include, but are not limited to:

- USDA FSA and Natural Resources Conservation Service (NRCS)
- Illinois State FSA Office
- U.S. Fish and Wildlife Service (USFWS)
- Illinois Department of Agriculture
- Illinois Farm Bureau
- Illinois SWCDs

Agencies and organizations contacted concerning this PEA and the notification letter for the availability of the Final PEA is provided in Appendix A.

A Notice of Availability (NOA) for the Final PEA was advertised in State newspapers to announce a 30-day public comment period beginning on May 24, 2011. A public website was created that provides program information, copies of the Final PEA and signed Finding of No Significant Impact (FONSI) or Decision Notice, and an electronic form for submitting comments via the internet. Barring any new data identified during public and agency review of the PEA that would dramatically change the analysis presented in the PEA or identification of a significant controversial issue, the PEA and FONSI are considered final 30 days after their approval and release to the public.

2.3 Resources Eliminated from Analysis

CEQ regulations (40 CFR §1501.7) state that the lead agency shall identify and eliminate from detailed study the issues which are not important or which have been covered by prior environmental review. In accordance with 40 CFR §1501.7, issues eliminated from detailed analysis in this PEA are listed below.

Noise

Implementing the Proposed Action would not permanently increase ambient noise levels at or adjacent to the access areas. While implementing IRAP would increase traffic, boating and hunting in some locations, the associated noise from these activities would be intermittent and dispersed. There may be some slight increases in noise levels associated with habitat improvement activities, but these would be



Source: Illinois Office of Water Resources 2009

Figure 2-2. Illinois Public Waters

minor, temporary, and would cease once habitat improvement activities are complete. Therefore, noise has been eliminated from detailed analysis.

Air Quality

The Proposed Action is not expected to impact either local or regional air quality. Temporary minor impacts to local air quality as a result of soil disturbance during habitat improvement projects would not differ measurably from those resulting from continued use of the land for agriculture, and would not exceed ambient air quality standards. Since implementation of IRAP with VPA-HIP grant funds would not result in impacts to the attainment, non-attainment, or maintenance status of any of the State's airsheds, this issue has been eliminated from further study in this PEA.

Sole Source Aquifers

Sole source aquifers are underground water sources that provide at least 50 percent of the drinking water consumed within the overlying area. The State of Illinois does not contain any sole source aquifers and therefore this resource can be excluded from this analysis.

Coastal Zones

Illinois' Coastal Zone Management Plan takes a watershed approach in determining compatibility of land uses within the coastal program area (IDNR 2011a). The Illinois coast extends 63 miles along Lake Michigan from its northern border with Wisconsin to its eastern border with Indiana, and has a landward area of approximately 110 square miles. The coastal program area itself does not extend beyond the Lake Michigan watershed, with the majority of this area being highly urbanized. Moreover, the rivers and drainage in this area have been engineered to divert flow away from Lake Michigan. Therefore, there would be no direct, indirect, or cumulative impacts to the State's coastal zone resources.

Transportation

The Proposed Action has little potential to impact transportation on a local, regional, or State level. While traffic may increase slightly in areas in which new lands are enrolled in IRAP, the lands that would be enrolled are predominately rural and widely dispersed. Therefore, transportation has been eliminated from further analysis.

Human Health and Safety

There would be no adverse impacts to human health and safety under the Proposed Action. The Proposed Action would implement IRAP and make private lands available for outdoor related activities. Some of these activities such as hunting and boating have some inherent safety risks. Illinois requires all individuals born on or after January 1, 1980 to either have a valid Hunter Education Certificate of Competency issued by the State or present evidence that they held a valid license the previous year, and encourages all others to attend a Hunter Education Course. Similarly, Illinois also provides boating education courses and requires operators to meet minimum age requirements to be allowed to operate a motorboat.

Prime and Unique Farmland

The Proposed Action would not remove any land from agricultural production; therefore, the Farmland Protection Policy Act of 1981 is not applicable.

Cultural Resources

Prior to enrollment into IRAP, a site-specific environmental evaluation must be completed to ensure compliance with the NHPA. It would determine the potential for the proposed recreational activities to affect historic properties, the need for an inventory, and if resources were found, consultation with the State Historic Preservation Officer would be completed regarding the eligibility of resources found for the National Register of Historic Places, potential effects of the undertaking, and measures to take effects into account. Every effort would be made to avoid any adverse effects; however, if such effects were anticipated to occur, the proposed activities would not likely be approved. Lands enrolled in CREP have already been evaluated for potential effects to historic properties in accordance with 1-EQ, and in many instances, earth disturbing conservation practices have been installed. The Conservation Plan would be re-evaluated prior to enrollment of CREP lands in IRAP, including any potential for effects to historic properties. The Proposed Action does not allow for the purposeful destruction of any cultural resources. Therefore, cultural resources have been eliminated from detailed study in this PEA.

2.4 Alternatives Selected for Analysis

2.4.1 Proposed Action Alternative

Under the Proposed Action Alternative, IDNR would use \$1,484,750 in VPA-HIP grant funds over a three-year period to implement the IRAP. These funds would be used to leverage \$1,498,560 in other State, Federal, and private funds and in-kind services to provide increased outdoor recreational opportunities in the State. The IRAP is a new public access program that would be implemented by the State to meet the need to increase the amount of land accessible to the public for outdoor-related recreational activities and would be administered by the IDNR. IRAP would initially target owners and operators of privately-held farm, ranch and forest land enrolled in the Illinois CREP; however, all landowners with qualified lands statewide would be eligible for enrollment. The IRAP would provide incentive payments to eligible private landowners for three-year leases to: (1) provide the public with increased access to lands for hunting, fishing and other outdoor recreational opportunities; (2) establish habitat management plans; and (3) in certain instances fund hunting habitat improvements. Program objectives are to provide six to 10 public canoe and boat access sites on public navigable waters (specifically in the Kankakee and Iroquois rivers), 25 stream miles and 900 acres of impounded waters for walk-in fishing, an additional 300 sites for public youth turkey hunting, an additional 500 acres for youth deer hunting, and an additional 1,000 acres for deer hunting. A detailed recreational access plan and recommended habitat improvements and management activities would be developed for each site enrolling in the program.

For lands enrolled in CREP that would also be enrolled in IRAP, the previously completed site-specific environmental evaluation for CREP would be consulted, and planned IRAP activities evaluated in accordance with FSA's 1-EQ process for any additional potential environmental effects. Further, the existing CREP Conservation Plan would be modified to include approved IRAP activities as detailed in the recreational access plan. For lands not enrolled in CREP, the State would accomplish a Comprehensive Environmental Review Process (CERP). The CERP is a tool used by IDNR to meet NEPA compliance requirements for individual State-funded projects. It is IDNR's policy to require CERP applications for all land disturbing activities, unless those activities are covered by CERP exemptions. If the work to be done in an individual project is not addressed by an exemption, the Federal Aid Division of the USFWS would be contacted to determine if additional NEPA compliance actions would be needed.

VPA-HIP funds would also be used to fund a position for the IRAP Coordinator with the Sangamon County SWCD; supplement State SWCD offices' outreach, facilitate landowner enrollment and access; provide informational materials on the IRAP such as regulation booklets, access location maps and press releases; install access signs on enrolled property; and produce program performance reports.

The IRAP would be comprised of three campaigns to provide new hunting and fishing opportunities:

1. Fishing, Canoeing, and Boating Access Campaign that would focus on providing walk-in fishing access on impoundments and fishing, canoeing and boat access on public navigable waters. Initially, access points for fishing, canoeing and boating on public navigable waters would be targeted to the Kankakee and Iroquois rivers, but access points adjacent to public navigable waters statewide would be eligible. The initial focus for impoundment fishing access would be within the Kankakee River Watershed, but qualified lands statewide would also be eligible for enrollment.
2. Youth Turkey Hunting Campaign would provide access to turkey hunters under the age of 16.
3. Large Landowner Campaign would target large landowners for access to their private lands for hunting, fishing and other outdoor recreational activities.

2.4.2 No Action Alternative

Under the No Action Alternative, the IRAP would not be implemented using VPA-HIP funding. The absence of Federal funding would hinder the ability of Illinois to implement this new program and, since Illinois does not currently have a private lands access program, the amount of land accessible for outdoor recreation opportunities would remain limited. The No Action Alternative does not meet the purpose and need of the Proposed Action, but is being carried forward for analysis in accordance with CEQ regulations in order to provide a baseline against which the impacts of the Proposed Action can be assessed.

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3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Biological Resources

Biological resources include all plant and animal species and the habitats in which they occur. For this analysis, biological resources are divided into the following categories: vegetation, wildlife, and protected species and critical habitat. Vegetation and wildlife refer to the plant and animal species, both native and introduced, which characterize a region. For this analysis, noxious weeds are not discussed since habitat management provisions in the recreational access plan required by the program would include control of such species. Protected species are those Federally designated as threatened or endangered and protected by the ESA (16 U.S.C. §§1531-1544). Further protection to the vast majority of bird species is provided by the Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§703-711). The USFWS designates critical habitat as essential for the recovery of specifically listed threatened and endangered species, and like those species, is protected under the ESA. Additional protection for some species not recognized as rare by the Federal Government is afforded by the State's Endangered Species Protection Act (520 Illinois Compiled Statutes [ILCS] §§10/1-11).

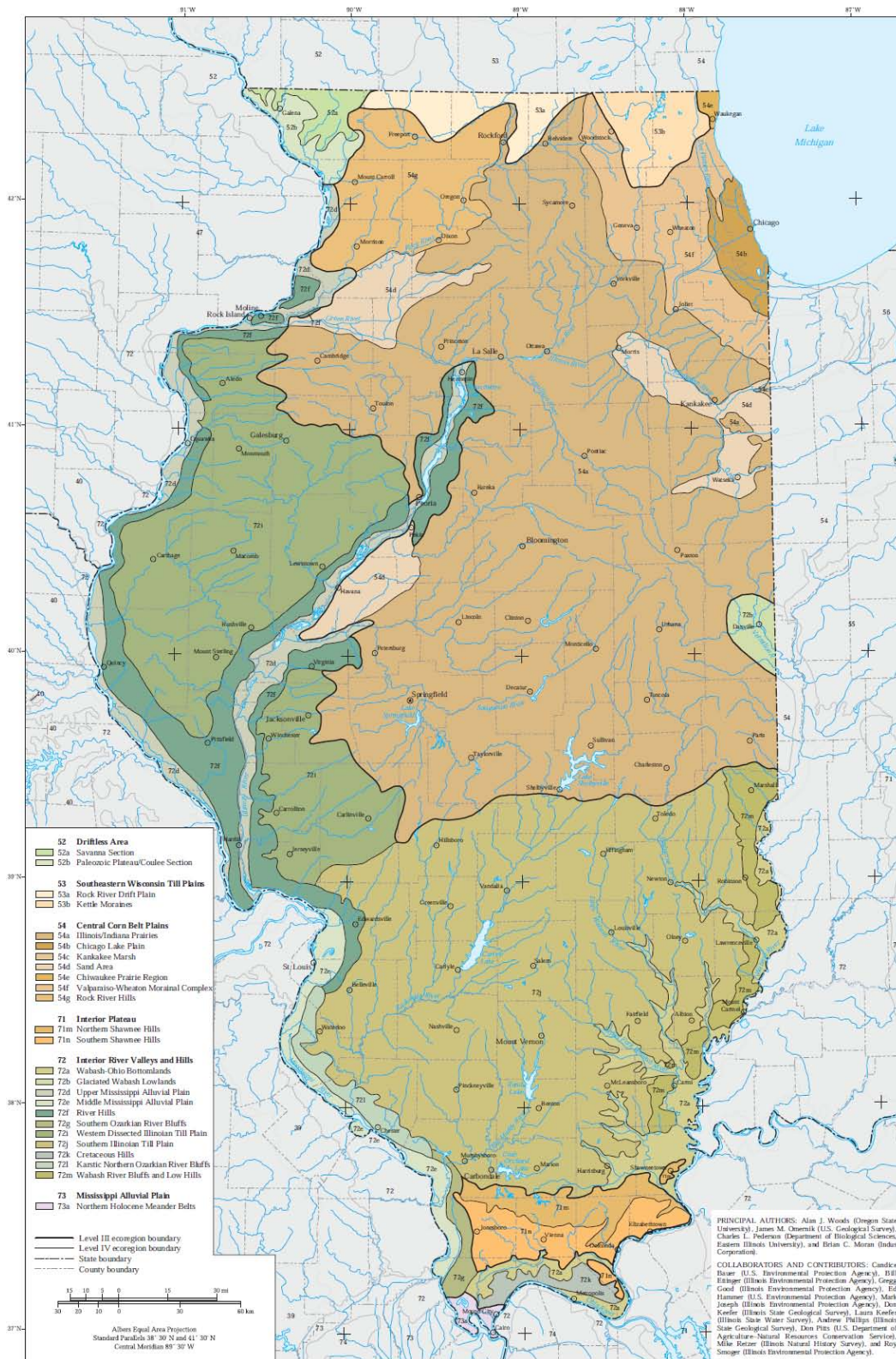
The organizing principle of this analysis of biological resources is based upon ecoregions defined by the Commission for Environmental Cooperation (CEC 1997). Ecoregions are areas of relatively homogenous soils, vegetation, climate, and geology, each with associated wildlife adapted to that region. Illinois is wholly located within one CEC Level I Ecoregion, the Eastern Temperate Forest. This ecoregion may be further subdivided in Illinois to Level III classes defined as the Driftless Area (52), Southeastern Wisconsin Till Plains (53), Central Corn Belt Plains (54), Interior Plateau (71), Interior River Valleys and Hills (72), and the Mississippi Alluvial Plain (73) (Woods *et al.* 2006). Figure 3-1 displays these ecoregions and Table 3-1 presents a brief description of the major characteristics of these regions.

3.1.1 Affected Environment

As previously stated, 95 percent of the land in Illinois is privately owned; with more than 27 million acres (75 percent) of the total land area as farmland (NASS 2011; see Figure 1-1). There are less than 1.5 million acres, or about 4.1 percent of total land area, in Illinois available for outdoor recreational activities; limiting access for outdoor recreation and creating a huge demand for additional opportunities.

3.1.1.1 Vegetation

Climate greatly affects vegetation type and the health and vigor of plants. The average length of the growing season, or freeze-free period, in the State of Illinois ranges from approximately 160 days in the north to 190 days in the south (Angel 2009). Average annual precipitation ranges from over 48 inches in southern Illinois to less than 32 inches in the northern part of the State (Angel 2009; NASS 2011).



Source: Woods et al. 2006

Figure 3-1. Ecoregions of Illinois

Table 3-1. Level III Ecoregions within Illinois

Ecoregion	Description
Driftless Area (52)	The hilly uplands of the Driftless Area easily distinguish it from surrounding ecoregions. Much of the area consists of a deeply dissected, loess-capped, bedrock dominated plateau. The region is also called the Paleozoic Plateau because the landscape's appearance is a result of erosion through rock strata of Paleozoic age. Although there is evidence of glacial drift in the region, its influence on the landscape has been minor compared to adjacent ecoregions. In contrast to adjacent ecoregions, the Driftless Area has few lakes, most of which are reservoirs with generally high trophic states. Livestock and dairy farming are major land uses and have had a major impact on stream quality.
Southeastern Wisconsin Till Plains (53)	The Southeastern Wisconsin Till Plains support a mosaic of vegetation types, representing a transition between the hardwood forests and oak savannas of the ecoregions to the west and the tallgrass prairies of the Central Corn Belt Plains (54) to the south. Like the Central Corn Belt Plains, land use in the Southeastern Wisconsin Till Plains is mostly cropland, but the crops are largely forage and feed grains to support dairy operations, rather than corn and soybeans for cash crops. The ecoregion has a higher plant hardiness value and a different mosaic of soils than ecoregions to the north and west.
Central Corn Belt Plains (54)	Extensive prairie communities intermixed with oak-hickory forests were once native to the glaciated plains of the Central Corn Belt Plains. Beginning in the nineteenth century, the natural vegetation was gradually replaced by agriculture. Farms are now extensive on the dark, fertile soils of the Central Corn Belt Plains and mainly produce corn and soybeans; cattle, sheep, poultry, and, especially hogs, are also raised, but they are not as dominant as in the drier Western Corn Belt Plains to the west. Agriculture has affected stream chemistry, turbidity, and habitat.
Interior Plateau (71)	The Interior Plateau is a diverse ecoregion extending from southern Indiana and Ohio to northern Alabama. Rock types are distinctly different from the coastal plain sediments and alluvial deposits of ecoregions to the west, and elevations are lower than the Appalachian ecoregions to the east. Mississippian to Ordovician-age limestone, chert, sandstone, siltstone and shale compose the landforms of open hills, irregular plains, and tablelands. The natural vegetation is primarily oak-hickory forest, with some areas of bluestem prairie and cedar glades. The region has a diverse fish fauna.
Interior River Valleys and Hills (72)	The Interior River Lowland is made up of many wide, flat-bottomed terraced valleys, forested valley slopes, and dissected glacial till plains. In contrast to the generally rolling to slightly irregular plains in adjacent ecological regions to the north, east, and west, where most of the land is cultivated for corn and soybeans, a little less than half of this area is in cropland, about 30 percent is in pasture, and the remainder is in forest. Bottomland deciduous forests and swamp forests are common on wet lowland sites, with mixed oak and oak-hickory forests on uplands. Paleozoic sedimentary rock is typical and coal mining occurs in several areas.

Table 3-1 Level III Ecoregions within Illinois (cont'd)

Ecoregion	Description
Mississippi Alluvial Plain (73)	This riverine ecoregion extends from southern Illinois, at the confluence of the Ohio River with the Mississippi River, south to the Gulf of Mexico. It is mostly a broad, flat alluvial plain with river terraces, swales, and levees providing the main elements of relief. Soils are typically finer-textured and more poorly drained than the upland soils of adjacent Ecoregions, although there are some areas of coarser, better-drained soils. Winters are mild and summers are hot, with temperatures and precipitation increasing from north to south. Bottomland deciduous forest vegetation covered the region before much of it was cleared for cultivation. Presently, most of the northern and central parts of the region are in cropland and receive heavy treatments of insecticides and herbicides. Soybeans, cotton, and rice are the major crops.

Source: Woods *et al.* 2006

Vegetation types in Illinois range from the dunes, beaches, and wet prairies along Lake Michigan, to upland forests, tallgrass prairies, and forested wetlands (IDNR 2001). Forestland found in Illinois covers 4.4 million acres and is predominately (97 percent) hardwoods (IDNR 2011b; IDNR 2011c). There are four distinct forest types in Illinois: bottomland forest; upland deciduous forest; coniferous forest; and southern Illinois lowland forest (IDNR 2011c). These are composed of the following principal forest cover types: Oak-Hickory (53 percent); Elm-Ash-Cottonwood (22 percent); Maple-Beech (20 percent), Pine (3 percent), and Oak-Gum-Cypress (2 percent) (University of Illinois Extension 2011a).

Illinois is also home to extensive agriculture in which approximately 75 percent of land area in the State is utilized by farms, and 89 percent of that land could be used to grow crops (NASS 2011). Therefore, much of the native vegetation in the State has been replaced with agricultural crops. Illinois crop production in harvest acreage in 2010 includes: corn (12,400,000 acres), soybeans (9,050,000 acres), winter wheat (295,000 acres), grain sorghum (33,000 acres), oats (30,000 acres), alfalfa (340,000 acres) and other hay (260,000 acres), snap beans (11,100 acres), sweet corn (7,500 acres), and potatoes (5,600 acres) (*Ibid.*). Cropland, particularly cornfields, provides habitat and food for many species, including a wide range of birds, geese, snakes, small mammals and rodents.

3.1.1.2 Wildlife

The climates and habitats of Illinois support about 54,000 species, including about 400 bird species, 200 fish species, and 60 mammal species (IDNR 2011b). The diverse natural communities found in the six Level III Illinois Ecoregions provide habitat for a wide array of wildlife species. From the prairie grasslands in the north to the oak-hickory forests and bottomland deciduous forests to the south, the local variations in altitude, terrain, soil type, and rainfall create numerous niches and habitats that meet the needs of a variety of species (Woods *et al.* 2006).

The Illinois Comprehensive Wildlife Conservation Plan and Strategy report (IDNR 2005) estimates current percent cover of upland and bottomland forest habitat at 12.9 percent of the State; open woodland, savanna, and barrens at 1.7 percent, grasslands at 11.7 percent, wetlands at 0.8 percent, and lakes and ponds at 1.2 percent of the State. In Illinois, about 75 percent of native wildlife species require forest habitat for a portion of their lifecycle (University of Illinois Extension 2011a). Common mammals found in the State include white-tailed deer (*Odocoileus virginianus*), fox squirrel (*Sciurus niger*), plains pocket

gopher (*Geomys bursarius*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and river otter (*Lontra canadensis*). Wild turkey (*Meleagris gallapavo*), a variety of woodpeckers, songbirds, waterfowl, and many species of amphibians, reptiles, fishes, and invertebrates are also commonly found throughout the State (University of Illinois Extension 2011b).

Of particular relevance to the Proposed Action are the many game species found in Illinois. White-tailed deer occur in every county of the State and are currently more abundant than when European settlers first arrived in Illinois (University of Illinois Extension 2011b). Habitat loss and over-hunting had eliminated wild turkey from Illinois by 1910 (*Ibid.*). However, with successful reintroduction and management efforts beginning in 1959, approximately 150,000 wild turkeys can now be found in the State and inhabiting every county (*Ibid.*). Other game species in Illinois include rabbits (*Sylvilagus* spp.), squirrels (*Sciurus* spp.), doves (*Zenaida macroura*), quail (bobwhite; *Colinus virginianus*) and pheasant (*Phasianus colchicus*) (IDNR 2010a). Principal sport fish are the muskellunge (*Esox masquinongy*), northern pike (*Esox lucius*), walleye (*Sander vitreus*), sauger (*Sander canadensis*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), warmouth (*Lepomis gulosus*), striped bass (*Morone saxatilis*), white bass (*Morone chrysops*), yellow bass (*Morone mississippiensis*), sunfish (*Lepomis* spp.), crappie (*Pomoxis* spp.), trout and salmon (Salmonidae) paddlefish (*Polyodon spathula*), catfish (Ictaluridae), yellow perch (*Perca flavescens*), freshwater drum (*Aplodinotus grunniens*) and carp (*Cyprinus carpio*) (IDNR 2011d). With the exception of endangered or threatened species, State fishing regulations also allow the take of baitfish, crayfish (Cambaridae), turtles and bullfrogs (*Rana catesbeiana*).

Hunting, trapping and fishing in Illinois are regulated by the IDNR to assure conservation and enhancement of the resources, while providing for maximum enjoyment. Statutes provide the framework by which hunting, trapping and fishing opportunities are administered. Detailed regulations are set forth in administrative rules that are suited to local site conditions and situations. These are monitored and enforced in the same manner as the provisions of the statutes and are subject to the same penalties (IDNR 2010a; IDNR 2011d).

3.1.1.3 Protected Species

As of 2005, approximately 15 percent of Illinois' native mammal species are designated as threatened or endangered and in need of special Federal and/or State protection. The same applies to almost 40 percent of the bird species, more than 25 percent of all reptiles, almost 20 percent of all amphibians, and almost 40 percent of freshwater mussels (IDNR 2005). Critical habitat for threatened and endangered species, as determined by the USFWS, is also protected under the ESA.

Currently, the USFWS has identified 17 threatened and endangered wildlife species and nine plant species in the State (Illinois Endangered Species Protection Board 2011; USFWS 2011a). These species are listed in Appendix B. Critical habitat has been designated in Illinois for the Indiana Bat (*Myotis sodalis*) at Blackball Mine in LaSalle County, for Hine's emerald dragonfly (*Somatochlora hineana*) in seven areas within the Des Plaines River drainage in Will, Cook, and Dupage Counties, and for the Great Lakes breeding population of the piping plover (*Charadrius melodus*) in Lake County (USFWS 2011b).

Additionally, the Illinois Endangered Species Protection Board regulates state designated threatened and endangered species and updates listings at least once every five years (Illinois Endangered Species Protection Board 2011). The State of Illinois currently protects 105 endangered and 47 threatened

wildlife species, and 251 endangered and 81 threatened plants species (*Ibid.*). Species protected under the State endangered species law are included in Appendix B.

IDNR has identified additional species of greatest conservation need in the Illinois Comprehensive Wildlife Conservation Plan and Strategy. These are species with “small populations, declining populations, populations dependent on rare or vulnerable habitats and indicative of the health and diversity of the State’s wildlife and habitat resources” (IDNR 2005).

3.1.2 Environmental Consequences

Impacts to biological resources would be considered significant if implementation of an action or program resulted in reducing plant or wildlife populations to a level of concern, removing land with unique vegetation characteristics, or “take” of a protected species or critical habitat as defined by the ESA.

3.1.2.1 Vegetation

Proposed Action

Under the Proposed Action Alternative, IDNR would use VPA-HIP grant funds to implement IRAP to increase public access to private lands for fishing, hunting and other outdoor related activities. IRAP funds would be used to provide technical and in some cases financial assistance for hunting habitat improvements. Initially, land enrolled in CREP and areas along the Kankakee River would be targeted, but all areas within the State would be eligible. Allowing access to private lands for outdoor recreational activities such as hunting or walk-in fishing under the Proposed Action is not likely to have long-term, negative impact on vegetation. Actions taken for hunting habitat improvement such as timber stand improvement (TSI), exotic plant control, and development of forest management plans would maintain the health of the field-forest habitat, reduce wildfire fuel, and remove invasive and noxious plants from the habitat. These improvements would provide long-term, positive impacts to vegetation through soil enrichment and natural function restoration. Moreover, lands enrolled in IRAP would not be converted to agricultural production for the duration of the contract.

Some short-term negative impacts may occur as a result of ground disturbing activities associated with habitat improvement projects. However, these activities would be limited to forest habitat improvement programs such as TSI and exotic plant control including actions such as tree cutting and trimming, slash removal, grading or tilling. These measures may result in temporary minor increases in vegetation disturbance. However, these impacts would be mitigated through adherence to NRCS TSI guidelines and best management practices (BMPs) that include measures to maintain adequate ground cover, litter and canopy, control erosion and reduce soil compaction, and controlling the introduction of invasive species.

Enrolling land in IRAP under the Proposed Action would benefit vegetative communities by maintaining, and in some cases improving, suitable hunting habitat and precluding their conversion into another incompatible use. Each area considered for enrollment in IRAP would be evaluated by IDNR staff or the IDNR Contractual Access Coordinator to ensure there is adequate fish or game habitat, and the site has the potential for the recreational use for which it is offered. Sites offered for walk-in fishing, or canoeing and boating access would be visited by a Fisheries Biologist to evaluate the riparian, instream habitat and to ensure the fishery can support sport fishing. There would be no significant negative impacts to vegetation under the Proposed Action.

No Action Alternative

Under the No Action Alternative, VPA-HIP grant funds would not be used for the implementation of IRAP to increase access to private lands for hunting, fishing and other outdoor recreational activities in the State or for hunting habitat improvements. As such, the long-term positive impacts to vegetation associated with maintaining and improving adequate hunting habitat would not be realized.

3.1.2.2 Wildlife

Proposed Action Alternative

Under the Proposed Action Alternative, IDNR would use VPA-HIP grant funds to implement IRAP to increase public access to private lands for fishing, hunting and other outdoor related activities. IRAP funds would be used to provide technical and in some cases financial assistance for hunting habitat improvements. Allowing access to private lands for outdoor recreational activities such as hunting or walk-in fishing under the Proposed Action may increase the potential for impacting game species. However it is not likely to have long-term, negative impact on wildlife or game species populations because these activities would be conducted in accordance with Illinois State fish and game laws. Further, bag and creel limits, which are established through analysis of wildlife population trend data and harvest numbers, would continue to be managed through the sales of State licenses. Actions taken for hunting habitat improvement such as TSI, exotic plant control and development of forest management plans would maintain the health of the field-forest habitat, reduce wildfire fuel, and remove invasive and noxious plants from the habitat. These improvements would provide long-term, positive impacts to wildlife through improved food and cover availability. Improved habitat combined with the potential for improved deer population control would result in an enhanced distribution of resources for all species. Moreover, lands enrolled in IRAP would not be converted to agricultural production for the duration of the contract.

Some short-term negative impacts may occur as a result of ground disturbing activities associated with habitat improvement projects. However, these activities would be limited to hunting habitat improvement programs such as TSI and exotic plant control including actions such as tree cutting and trimming, slash removal, grading or tilling. These measures may result in temporary minor increases in wildlife disturbance, displacement and stress; however, this impact would in most cases be localized, temporary, and would cease once habitat improvement activities are complete.

Enrolling land in IRAP under the Proposed Action would benefit wildlife communities by maintaining, and in some cases improving, suitable hunting habitat and precluding their conversion into another incompatible use. As previously discussed, each area considered for enrollment in IRAP would be evaluated by IDNR personnel to assess the quality of the habitat and ensure there is adequate fish or game habitat, and the site has the potential for the recreational use for which it is offered. There would be no significant negative impacts to wildlife under the Proposed Action.

No Action Alternative

Under the No Action Alternative, VPA-HIP grant funds would not be used for the implementation of IRAP to increase access to private lands for hunting, fishing and other outdoor recreational activities in the State or for hunting habitat improvements. As a result, the long-term positive impacts to wildlife associated with hunting habitat improvement projects would not be realized.

3.1.2.3 Protected Species

Proposed Action Alternative

Under the Proposed Action, Illinois would use VPA-HIP funds to implement IRAP. Funds would be used to meet the public demand in Illinois for increased access to outdoor recreation opportunities. This would open more private land in Illinois to outdoor recreational activities, which also helps ensure that the land is maintained as natural habitat. Federal and State laws prohibit many activities that would disturb or kill protected species. The hunting of some protected species is allowed, yet this is regulated by IDNR through controlled hunt tags that only allow the harvest of a certain number of individuals each year based on population sizes.

Temporary minor negative impacts could occur during habitat improvement projects as a result of noise or other disturbance. As discussed above, analysis on the proposed lands would address site-specific impacts prior to enrollment and would also assess the potential for the presence of protected species. If protected species would likely be present, IDNR personnel would consult with the USFWS. If any negative impacts are identified from the proposed activity that cannot be alleviated, it is not likely that the proposed activity would be approved. Enrolling land in IRAP under the Proposed Action would benefit protected species by maintaining suitable habitat and precluding conversion into another incompatible use. There would be no significant negative impacts to protected species and their associated habitats under the Proposed Action.

No Action Alternative

Under the No Action Alternative, VPA-HIP grant funds would not be used to implement IRAP, and no incentives for private landowners for public access and to implement habitat improvement measures would be provided. Therefore, protected species would not benefit from the long-term positive impacts associated with habitat improvement. Lands not enrolled in IRAP may also be converted to other uses, decreasing the availability of suitable habitat.

3.2 Soil

Soils are a natural body made up of weathered minerals, organic matter, air and water (Brady and Weil 1996). This body of inorganic and organic matter is home to a wide variety of fungi, bacteria, insects, reptiles, amphibians and mammals, as well as the growth medium for terrestrial plant life. Soil plays a key role in determining the capacity of a site for bio-mass vigor and production (physical support, air, water, temperature moderation, protection from toxins, and nutrient availability). Soils also determine a site's susceptibility to erosion (by wind and water), and a site's flood attenuation capacity.

The organic and mineral component of soils is a product of mineral weathering, organic matter decay and balance, and soil moisture dynamics. The rate of weathering (mineral breakdown and organic matter accumulation or loss and decay) is determined by parent materials (the initial organic materials and rock), climate (precipitation and temperature), living organisms (plants, animals, microbes and humans), topography, and time. The process of soil formation is a dynamic and on-going process. Generally speaking, soil weathering or development is slowed by cold weather and lack of moisture; inversely, hot and moist climates accelerate soil development. Soil weathering increases from north to south across the State due to increasing temperatures and slows from east to west due to decreased precipitation.

Soils vary in texture, depth, and organic matter. Soil texture refers to mineral particle size. Mineral particle sizes are broadly classified as sand, silt, clay or a combination of the three. Sand is the coarsest

(largest) particle size, silt is intermediate, and clay is the finest (smallest) particle size. Soil texture and the amount of organic matter directly influence soil shear strength, nutrient holding capacity, and permeability. Soils with fine texture (clay) typically have greater shear strength than more coarse soils. Organic carbon levels also enhance particle aggregation and therefore strengthen soils shear strength.

Soil scientists refer to a soil's fitness for any given function as soil quality or soil health. Soil functions include: protect ground and surface water, protect air quality, resist soil erosion, protect bio-diversity, support plant production, support animal production, and food safety. Soil properties that influence these functions include: soil nutrient levels, water holding capacity, permeability, gas exchange, microbial abundance, and structural stability (*Ibid.*).

Soil erosion is a naturally occurring event and erosion rates are relatively slow. Natural or geologic erosion rates seldom exceed soil development rates. It is estimated that the natural erosion rate for the corn belt of the U.S. is approximately 0.1 mega grams per hectare per year or 0.04 metric tons/acre/year. Soil and vegetation disturbance created by man greatly accelerate erosion rates. The average erosion rate on cropland in the U.S. is 13.2 metric tons/hectare/year (5.3 metric tons/acre/year), 132 times the natural erosion rate (*Ibid.*). Poor farming practices such as cultivating steep slopes, not planting on contours, no wind breaks, and overgrazing are a major factor in accelerating erosion. The detrimental effect of soil loss is compounded by the fact that erosion removes the topsoil first, which is the layer with the highest organic matter content and where the most biological activity occurs. Once this nutrient rich layer of soil is gone, plant growth decreases and erosion increases significantly.

Soils susceptible to erosion are identified using the Erodibility Index (EI). The EI provides a numerical expression of the potential for a soil to erode based on factors such as topography and climate. The index value is derived from the Revised Universal Soil Loss Equation (RUSLE2) for water erosion, and the Wind Erosion Equation for wind erosion. Highly erodible lands (HEL) are those with an index value of eight or higher (NRCS 2009a). A list of soils considered highly erodible are developed and maintained on a county level by NRCS.

3.2.1 Affected Environment

Illinois is within three major land resource areas (MLRA) defined by USDA: (1) the Northern Lake States Forest and Forage Region; (2) the Lake States Fruit, Truck Crop, and Dairy Region; and (3) the Central Feed Grains and Livestock Region (NRCS 2006). A description of the soil orders found within these MLRAs is found in Table 3-2.

The majority of Illinois is within the Central Feed Grains and Livestock Region. Alfisols, Entisols, Inceptisols, and Mollisols are the dominant soils in this region (*Ibid.*). There are localized areas of Histosols on flood plains and in wetlands. The major soil resource concerns in this region are water erosion, wetness, and management of organic matter content and soil productivity. The Northern Lake States Forest and Forage Region is found in the north central portion of the State along the Wisconsin border. The soils in this region are predominantly Histosols, Alfisols, and Mollisols (*Ibid.*). The major soil concerns in this region include water erosion on cropland, surface water quality, stormwater management, drainage of wet soils, and protection and restoration of wetland wildlife habitat. The Lake States Fruit, Truck Crop, and Dairy Region are found in two relatively small areas within the State. Both are adjacent to the Indiana border: one is along Lake Michigan and the second is slightly further south of the first. Prevalent soils in this region are Mollisols, Entisols, Alfisols, Histosols, and Spodosols (*Ibid.*). The major soil resource concerns in this region include wind and water erosion, soil wetness, soil moisture management, and soil fertility and productivity.

The Mollisols and the Alfisols are by far the most extensive in Illinois. Mollisols occupy about 45 percent of the State's land area and are most extensive in central and northern Illinois. The Alfisols predominate in southern Illinois and occupy about 45 percent of the State. Entisols include most of the light-colored, recently deposited alluvial soils in southern and western Illinois and occupy about seven percent of the State. Inceptisols occupy about two percent of the State and Histosols (which occur in bogs and marshes) mostly in western Illinois. Ultisols are found in less than one percent of the State (NRCS 2010).

Table 3-2. Soil Order Descriptions

Order	Description
Alfisols	A dark surface horizon mineral soil, similar to Mollisols however, lacking the same level of fertility and more acidic.
Entisols	This soil order is relatively un-weathered. These soils have no diagnostic horizon development. Often found on floodplains, glacial outwash areas and other areas receiving alluvial materials.
Histosols	Soils high in organic carbon. Dark surface profile. Often associated with wetlands.
Inceptisols	Soils of the humid and sub humid region. Weathering has created minimal diagnostic differentiation in the soil column.
Mollisols	Dark colored mineral soils developed under grassland conditions. Rich in nutrients, very fertile. Associated with America's corn belt.
Spodosols	These soils have undergone significant weathering. Organic carbon, aluminum and often iron has been translocated to a lower horizon referred to a spodic horizon. These soils are acidic and may have deleterious levels of aluminum in the subsoil.
Ultisols	Highly weathered soils found in hot, moist regions. Typically acidic and low in available nutrients.

Source: Brady 1990

3.2.2 Environmental Consequences

Significant impacts to soils would occur if implementation of the Proposed Action resulted in permanently increasing erosion and stream sedimentation, or affected unique soil conditions.

3.2.2.1 Proposed Action Alternative

Under the Proposed Action Alternative, IDNR would use VPA-HIP grant funds to implement IRAP to increase public access to private lands for fishing, hunting and other outdoor related activities. IRAP funds would be used to provide technical and financial assistance for certain forest habitat improvements. The implementation of IRAP would maximize public access for outdoor recreational activities, ensure appropriate wildlife habitat exists on enrolled lands, provide incentives to improve habitats on enrolled lands, and implement a public outreach program for IRAP. Allowing access to private lands for outdoor recreational activities such as hunting or walk-in fishing under the Proposed Action is not likely to have long-term, negative impact on soil resources. Hunting habitat improvement activities would maintain the health of the field-forest habitat, reduce wildfire fuel, and remove invasive and noxious plants from the habitat. These improvements would provide long-term, positive impacts to soil resources through soil

and stream bank stabilization, and reduced potential for erosion and runoff. Moreover, lands enrolled in IRAP would not be converted to agricultural production for the duration of the contract.

Some short-term negative impacts may occur as a result of ground disturbing activities associated with habitat improvement projects. However, these activities would be limited to forest habitat improvement programs such as TSI and exotic plant control including actions such as tree cutting and trimming, slash removal, grading or tilling. These measures may result in temporary minor increases in soil compaction, and wind and water erosion. These impacts would be mitigated through adherence to NRCS TSI guidelines and BMPs that include measures to maintain adequate ground cover, litter, and canopy, and reduce soil compaction.

3.2.2.2 No Action Alternative

Under the No Action Alternative, VPA-HIP grant funds would not be used for the implementation of IRAP to increase access to private lands for hunting, fishing and other outdoor recreational activities in the State or for hunting habitat improvements. As such, the long-term positive impacts associated with habitat improvement projects would not be realized.

3.3 Water Resources

The principal law governing pollution of the nation's surface water resources is the Federal Water Pollution Control Act of 1972, or CWA. The Act utilizes water quality standards, permitting requirements, and monitoring to protect water quality. The U.S. Environmental Protection Agency (EPA) sets the standards for water pollution abatement for all waters of the U.S. under the programs contained in the CWA but, in most cases, gives qualified States the authority to issue and enforce permits. For this analysis, water resources include surface water quality, groundwater, wetlands, and floodplains.

Surface waters are defined by EPA as waters of the United States and are primarily lakes, rivers, estuaries, coastal waters, and wetlands. Impaired waters are those surface waters with levels of pollutants that exceed State water quality standards. Every two years, States must publish lists (referred to as 305(b) lists) of those rivers, streams, and lakes that do not meet their designated uses because of excess pollutants. Total maximum daily loads (TMDLs) of pollutants for the listed waterbodies must be established by the State and approved by EPA (2008). States also assess the trophic level of surface waters. The trophic level is a measure of nutrients and biological productivity and ranges between oligotrophic (low nutrient) and excessive (hyper) eutrophy (Cole 1994). Eutrophic lakes have a high level of nutrients, which increases the amount of biologic productivity, mesotrophic have moderate levels of nutrients, whereas hypertrophic lakes have excessive amount of nutrients which commonly leads to algae blooms and oxygen depletion.

Groundwater is the water that is stored in, and moves through, spaces in underground layers of soil, sand and rock until it reaches a layer of rock through which it cannot easily penetrate (U.S. Geological Survey [USGS] 2001). The underground soil or rock through which water can easily move is an aquifer. The speed at which water moves through an aquifer is dependent on size of the spaces in the soil or rock and how these spaces are connected. The water in aquifers is brought to the surface through a spring, or is discharged into lakes and streams. It can also be brought to the surface through a well. Groundwater is recharged by rain and snow melt, and also seeps from the bottom of lakes and streams. Shortages occur when groundwater is used faster than it is recharged. In Illinois, the major sources of groundwater

pollution include commercial and agricultural operations, fertilizer and pesticide applications, above- and belowground storage tanks, septic systems, waste piles, and surface impoundments (EPA 2000).

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) as areas characterized by a prevalence of vegetation adapted to saturated soil conditions and identified based on specific soil, hydrology, and vegetation criteria defined by USACE (1987). Riparian wetlands are associated with running water systems found along rivers, creeks, and drainage ways, and have a defined channel and floodplain.

Floodplains are defined 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 one percent chance of being equaled or exceeded in any given year. Activities within a floodplain have a potential to affect the flooding of lands downstream of the activity. Based on EO 11988 Floodplain Management, Federal agencies are required to avoid, to the extent possible, adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development. The floodway is the channel of the river or stream and parts of the floodplain that adjoins the channel that efficiently carry and discharge floodwater. The fringe is that portion of the floodplain outside of the floodway. Development or improvement is subject to different regulations depending upon their location within the floodplain. Floodplains provide for flood and erosion control support that helps maintain water quality and contribute to sustaining groundwater levels. Floodplains also provide habitat for plant and animal species, recreational opportunities and aesthetic benefits.

3.3.1 Affected Environment

3.3.1.1 Surface Water Quality

Illinois has abundant water resources. There are approximately 119,244 miles of streams within the State's borders, including major rivers such as the Big Muddy, Cache, Des Plaines, Embarras, Fox, Illinois, Kankakee, Kaskaskia, Rock, Sangamon, and Vermilion rivers. In addition, 911 miles of large rivers form the State's western (Mississippi River), eastern (in part, Wabash River), and southern (Ohio River) borders (Illinois Environmental Protection Agency [IEPA] 2010). More than 91,400 inland lakes and ponds exist in Illinois, 3,256 of which have a surface area of six acres or more (*Ibid.*). About three-fourths of Illinois' inland lakes are man-made, including dammed stream and side-channel impoundments, strip-mine lakes, borrow pits, and other excavated lakes. Natural lakes include glacial lakes in the northeastern counties, sinkhole ponds in the southwest, and oxbow and backwater lakes along major rivers.

The IEPA monitors water quality in programs that assesses streams and lakes for the following designated uses: aquatic life, primary contact (i.e., swimming), secondary contact (i.e., recreation), public and food processing water supply, fish consumption, indigenous aquatic life, and aesthetic quality (*Ibid.*). The degree of support (attainment) of a designated use in a particular stream segment or lake is determined by an analysis of various types of information, including biological, physicochemical, physical habitat, and toxicity data. Of the stream miles assessed for designated uses aquatic life use was fully supported in 63.2 percent (*Ibid.*). Of the 142,571 lake acres assessed for aquatic life use in 2010, 91.3 percent were rated as Fully Supporting as compared to 69.4 percent Fully Supporting in 2008, and 53.6 percent Fully Supporting in the 2006 reporting cycle. Major impairments are fecal coliform bacteria impairing swimming (primary contact) use, mercury and polychlorinated biphenyls (PCBs) in fish tissue impairing fish consumption use, and low dissolved oxygen, high nutrients, excessive siltation, physical-habitat alterations, and high suspended solids which impair aquatic life use. The major potential sources of

impairment are atmospheric deposition of toxics, agriculture, hydromodification, municipal point sources, urban runoff/storm sewers, surface mining, and impacts from hydrostructure flow regulation/modification (*Ibid.*). Appendix C presents the major causes of impairment of Illinois streams and lakes.

3.3.1.2 Groundwater

There are approximately 5,534 groundwater dependent public water supplies in the State of Illinois, of which 1,271 are community water supplies (CWSs; Groundwater Protection Council 2007). The Groundwater Protection Council estimates approximately 2.8 million residences of the State are served by these community water supplies. There are an additional seven community water supplies that utilize a surface water/groundwater mixture that serves an estimated half a million individuals, and approximately 400,000 individuals receive water from private wells (*Ibid.*). Of the CWSs in the State, approximately 70 percent are confined aquifers that have natural geologic protection from surface and near surface activities (IEPA 2000). However, the remaining 30 percent of CWSs withdraw water from unconfined aquifers that are susceptible to surface activities. Point and nonpoint pollution is degrading groundwater quality; in several agricultural areas the quality of shallow aquifer groundwater has been degraded by the repeated application of agricultural chemicals. It is estimated that nearly 10 percent of the CWS wells in the State could be impacted by one of the three assessed contaminant groups: volatile organic/aromatic compounds; nitrate; and herbicides (immunoassay alachlor and triazine).

According to the USGS, Illinois uses approximately 15.2 billion gallons of fresh water per day (Kenny *et al.* 2009). Only a small percentage (1,210 million gallons per day (MGD)) is from groundwater sources. Irrigation uses most of the groundwater with over 479 MGD (40 percent), followed by public water supplies use at 406 MGD (34 percent). Industrial (self-supplied) users withdraw slightly more than 128 MGD (11 percent), followed by domestic users, which includes private well usage, at 101 MGD (eight percent), and livestock/aquaculture consumers at 44 MGD (three percent). Mining (both fresh and saline) accounts for 41 MGD (three percent), and thermoelectric users round off the bottom of this list with approximately seven MGD (one percent) of groundwater usage in the State (*Ibid.*).

3.3.1.3 Wetlands

There are approximately 1.25 million acres of wetlands in Illinois, only about three-fourths of that (917,765 acres) are considered natural, the remaining are wetlands that have been modified or created by dikes (IDNR 2010b). Southern Illinois currently contains 49 percent (approximately 612,300 acres) of the State's total wetland resources. Twenty-nine percent (approximately 357,900 acres) are located in central Illinois. Northern Illinois, once home to a vast amount of the State's wetland acreage, now only contains the remaining 22 percent (approximately 283,500 acres). More than 93.7 percent of these wetlands are palustrine systems (e.g., swamps, marshes and bogs), and the remaining are lacustrine (lakes and ponds) and riverine systems. Currently, over half of the counties in Illinois have less than two percent of their land area occupied by natural wetlands. Over 57 percent (approximately 519,300 acres) of the State's remaining natural wetlands are located in southern Illinois. Most of these are located in the basins of the Big Muddy River, the lower and middle portions of the Kaskaskia River, the Little Wabash River, and along the Mississippi River between Reily Lake and Cairo. Northern Illinois contains about 22 percent (approximately 201,400 acres) of the State's natural wetlands. The remaining 21 percent (approximately 196,900 acres) are located in central Illinois (*Ibid.*).

3.3.1.4 Floodplains

As mentioned above, floodplains have several key functions, including storing excess runoff, slowing water flow, recharging wetlands and aquifers, and reducing erosion. Two key elements of flooding are rainfall intensity and duration (USGS 2011), and in some regions, rapid melting of snow. Topography, soil conditions and ground cover are also important factors. Flooding occurs when there is a prolonged rainfall over several days, intense rainfalls over a short period of time, substantial snow pack melts rapidly, or when debris blocks the flow of rivers and streams. In addition, lands converted from fields or woodlands to roads and parking lots lose their ability to absorb water, and these impervious surfaces increase runoff. Efforts to reduce flood events include river channelization, construction of dams and levees, river/stream bank protection, establishment of floodways, and removal of debris which clog channels (*Ibid.*). Other methods for reducing flood events include restoration and enhancement of floodplains by reconstructing topographic diversity, increasing the duration of inundation and saturation, and re-establishing native vegetation (NRCS 2009b).

3.3.2 Environmental Consequences

Impacts to water resources would be considered significant if implementation of the Proposed Action resulted in changes to water quality, threatened or damaged unique hydrologic characteristics, or violated established laws or regulations.

3.3.2.1 Proposed Action

Under the Proposed Action, IDNR would use VPA-HIP grant funds to leverage against other Federal, State, and private in-kind funds to implement IRAP. IRAP would increase the amount of private lands accessible to the public for outdoor recreational activities such as hunting, fishing, and canoeing. Grant funds would also be used to provide technical and financial assistance for hunting habitat improvements. VPA-HIP funds would not be used for instream improvements or boat and canoe launch construction. Increasing the amount of private lands accessible to the public for outdoor recreational activities such as hunting or walk-in fishing under the Proposed Action is not likely to have long-term, negative impacts on water resources. Actions taken for hunting habitat improvement such as TSI, exotic plant removal, and development of forest management plans would maintain field-forest habitat health, reduce wildfire fuel, and remove invasive and noxious plants. Improvement activities would also stabilize soils and stream banks, and maintain vegetation for the retention of sediment, excess nutrients, and other pollutants from lands adjacent to surface waters. Because of the interaction between surface water and groundwater, improvements that would reduce nutrients and pollutants in surface water would provide similar benefits for groundwater. Maintaining floodplain vegetation would reduce flood flows, maintain hydrology, and reduce the potential for flood damage. Moreover, lands enrolled in IRAP would not be converted to agricultural production for the duration of the contract; consequently there would be no increase in the use of agricultural chemicals on these lands.

Some short-term negative impacts may occur as a result of ground disturbing activities associated with habitat improvement projects. However, these activities would be limited to hunting habitat improvement programs such as TSI and exotic plant control that include actions such as tree cutting and trimming, slash removal, grading or tilling that may result in temporary and minor increases in erosion and sedimentation. These impacts would be mitigated through adherence to NRCS TSI guidelines and BMPs that include measures to maintain adequate ground cover, litter, and canopy and reduce soil compaction.

3.3.2.2 No Action Alternative

Under the No Action Alternative, VPA-HIP grant funds would not be used for the implementation of IRAP to increase public access to private lands for hunting, fishing and other outdoor recreational activities in the State. Likewise, hunting habitat improvements would not occur. As a result, water quality would not benefit from the long-term positive impacts associated with habitat improvement programs. Lands not enrolled in IRAP may also be converted to agricultural production, increasing the potential for sedimentation and runoff of agricultural chemicals into adjacent waterbodies.

3.4 Recreation

Outdoor recreation generally includes leisure pursuits engaged in outside, especially in natural or semi-natural settings out of town. Popular outdoor activities in Illinois include pleasure walking, picnicking, bicycling, playground use, hiking, camping, hunting, fishing, wildlife/bird-watching, sailing and off-road vehicle (ORV) use, and other recreational and wildlife-based pursuits (IDNR 2009). This PEA is limited to recreation activities that would be affected by one or all of the three IRAP campaigns: Fishing, Canoeing, and Boating Access Campaign; Youth Turkey Hunting Campaign; and Large Landowner Campaign. The primary activities included would be fishing, hunting, boating (including canoeing and kayaking), and wildlife observation.

3.4.1 Affected Environment

Currently, approximately 1.4 million acres (about 4.1 percent of total land area in Illinois) is available to the public for outdoor recreational activities. Outdoor recreational lands and facilities providers include Federal, State, county, non-profit, and private commercial enterprises (IDNR 2009). Recreational opportunities on Federal, State, and county properties are generally more natural resource-based; whereas park districts and municipalities mostly offer community-based outdoor recreation, and non-profit and private businesses offer activities that are not generally available at public sites (*Ibid.*). Federal recreational lands available to the public in Illinois include national forests, national wildlife refuges, and recreation areas on several large Federal reservoirs. State recreational lands available to the public include State parks, fish and wildlife areas, conservation areas, forests, trails, natural areas, and historic sites. County recreational lands available to the public include forest preserves, conservation areas, and parks.

National and state-by-state demand for outdoor recreation activities is assessed every five years by the USFWS and U.S. Census Bureau (USCB). The survey collects information on the number of anglers, hunters, and wildlife watchers and how often they participate in these activities in the United States (USFWS/USCB 2008). Based on the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation for Illinois, 3.1 million Illinois residents and nonresidents 16 years old and older fished, hunted, or observed wildlife in the State. Of the total number of survey participants, 873,000 fished, 316,000 hunted, and 2.6 million participated in wildlife-watching activities. In addition, there were 325,000 six to 15 year-olds who fished, 45,000 of this age group who hunted, and 2.4 million of this age group who observed wildlife.

According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation for Illinois the total number of people participating in fishing, hunting, and wildlife observation decreased from six million recreationists in 1996 to 4.6 million in 2001 to the 3.1 million in 2006 (*Ibid.*). Proportional decreases occurred in each category of outdoor recreation.

A separate State survey also tracks the level of participation of various outdoor recreational activities in support of development of the State Comprehensive Outdoor Management Plan (SCORP; IDNR 2009). In 2008, research studies were conducted to provide updated data for the 2009-2014 SCORP. This study indicated that statewide 45.4 percent of survey participants fished, 18.8 percent of participants hunted, 58.2 percent observed wildlife, 30.7 percent motor-boated, and 22.8 percent canoed or kayaked. In support of fishing and boating, there were an estimated 527 piers and docks statewide in 2008 (*Ibid.*).

Consumptive outdoor recreation (hunting and fishing) is regulated by the IDNR and State licenses are required to fish or hunt within Illinois. During the 11 years from 1999 to 2009, IDNR sold an average of 289,000 fishing and hunting licenses with a fluctuation of up to seven percent annually (Lischka *et al.* 2011). The greatest number (300,000) of licenses was sold in 2004 and the least number (280,000) was sold in 2005 (*Ibid.*). The number of licenses sold does not represent the number of hunters and anglers in the State, as many individuals purchase multiple licenses and many nonresidents purchase State licenses.

Limited access to hunting areas has been cited as an issue for hunters in Illinois hunter harvest surveys (Lischka *et al.* 2006, 2008, 2011; Miller 2002, 2003). In the 2001-2002 Illinois Hunter Harvest Report (Miller *et al.* 2003), 28 percent of survey participants strongly agreed that access to private lands is the greatest problem facing Illinois hunters, and in the most recent Illinois hunter harvest survey available (Lischka *et al.* 2011), an average of 18.7 percent of survey participants reported finding it somewhat difficult or very difficult to find a place to hunt in the State. The 2009-2010 survey indicated 82 percent of hunters currently hunt on private land and 18 percent hunt on public land.

3.4.2 Environmental Consequences

Impacts to recreation would be considered significant if they severely reduced, increased, or removed the amount of land available for public recreation or significantly degraded the quality of the recreational experience. Impacts to environmental conditions such as air, water, or biological resources within or near public recreational land in such a way to affect its use would also be considered significant.

3.4.2.1 Proposed Action Alternative

The Proposed Action Alternative would provide beneficial impacts to recreational resources in Illinois. Implementation of the IRAP is expected to reduce the number of recreationists that have had difficulty accessing private lands by providing additional access points for walk-in fishing on impoundments and fishing, canoeing and boat access on public navigable waters; improving hunting access for youth turkey hunters; and increasing the area of private lands available for fishing, hunting, boating, and other wildlife-oriented recreational activities. Additionally, this program would increase public awareness of recreational opportunities by postings signs and conducting outreach through County SWCD offices and by other partners, and on SWCD and CREP partner websites. Some habitat improvements may temporarily limit access to enrolled lands until they are firmly established.

3.4.2.2 No Action Alternative

Under the No Action Alternative, the new IRAP would not be implemented. Additional USDA VPA-HIP grant funds would not be used to create the program that would provide incentives for private landowners to implement habitat improvement measures suitable for allowing public access for recreational purposes, and increase public awareness through public outreach. Therefore, under the No Action Alternative there would be no change to existing recreational resources, and the goal of increasing access to hunting, fishing and other outdoor recreational activity opportunities in the State would not be fulfilled.

3.5 Socioeconomics and Environmental Justice

Socioeconomic analyses generally include detailed investigations of the prevailing population, income, employment, and housing conditions of a community or Region of Influence (ROI). The socioeconomic conditions of a ROI could be affected by changes in the rate of population growth, changes in the demographic characteristics of a ROI, or changes in employment within the ROI caused by the implementation of the Proposed Action.

Socioeconomic resources examined in this document include statewide population, demographics, and income characteristics of Illinois. The basic characteristics of outdoor recreational economics in the State are also described in this section.

3.5.1 Affected Environment

3.5.1.1 Population and Demographics

Recently available 2010 Census data indicates Illinois increased in population from 12.41 million in 2000 to 12.83 million in 2010, a growth of 3.3 percent (411,339) (USCB 2011a). The State had the largest numeric increase in the region over the last decade. In the Metropolitan Statistical Area of Chicago-Joliet-Naperville Illinois-Indiana-Wisconsin, population increased 4.0 percent (463,210) over the 2000 Census level. Among the 10 most populous counties in the nation, Cook County, Illinois declined 3.4 percent (-182,066) in population between 2000 and 2010. Among the 10 fastest growing counties in the U.S., Kendall County, Illinois increased the most at 110.4 percent (60,192) over the last decade to a total of 114,736 persons (*Ibid.*). However, the majority of Illinois counties experienced population losses, with those counties along the margins of Lake Michigan witnessing population increases (USCB 2011b).

According to the American Community Survey 2005-2009, 49.2 percent of the persons living in Illinois were male and 50.8 percent female, with a median age of 35.9 years (USCB 2011c). In 2010, the USDA Economic Research Service (ERS) estimated about 1.67 million persons lived in rural Illinois and 11.15 million lived in urban areas of the State (ERS 2011).

3.5.1.2 Employment and Income

The median household income (MHI) of Illinoisans in 2009 has been estimated at \$55,222, slightly below the U.S. MHI of \$51,425 (ERS 2011). In 2010, per capita income of Illinoisans was \$43,159, an increase of 3.2 percent over 2009, ranked 11th highest in the nation (Bureau of Economic Analysis [BEA] 2011a). A total of 7,269,581 persons were employed in the State in 2009 (BEA 2011b), decreasing to an average of 5,614,600 non-farm workers in 2010 (Bureau of Labor Statistics [BLS] 2011a). In 2008, approximately 0.865 million jobs were rural and 6.79 million jobs were urban in the State (ERS 2011). In 2009, net farm income for the State was about \$3.64 billion. Illinois experienced the 4th largest increase in employment in the nation, adding 76,600 jobs over the last year. Of that, Chicago area employment added 40,000 jobs, up 1.0 percent over the last year (February to February) (BLS 2011b).

In 2009, the State's gross domestic product was \$621.1 billion, which ranked 5th highest in the nation (BEA 2011c). The major nonfarm employment sectors in Illinois include trade, transportation and utilities, followed by government, educational and health services, professional and business services, manufacturing, and leisure and tourism (Illinois Department of Employment Security 2011).

3.5.1.3 Recreation

According to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation conducted by the USFWS and USCB (2008), 3.1 million residents and nonresidents spent \$2.4 billion dollars on

wildlife recreation in the State in 2006. Of that total, \$616 million was generated from trip related expenditures and \$1.6 billion spent on equipment purchases, licenses, contributions, land ownership and leasing, and other items. It was estimated that 873,000 thousand people fished, 316,000 hunted, and 2.6 million persons took part in wildlife watching activities. The average expenditure per resident and non-resident angler was \$834, with an average trip expenditure per day of \$17. A resident and non-resident hunter average expenditure was \$1,196 with an average daily trip expenditure of \$28. Wildlife watching residents and non-residents spent on average \$419 per participant and averaged trip expenditures of \$36 per day (*Ibid.*).

Southwick Associates, Inc. and D.J. Case & Associates (Southwick *et al.* 2008) undertook a survey of a randomly selected 4,000 CRP participants (including CREP) throughout the U.S. to evaluate how CRP acreage was being used for recreational purposes. For the 74 percent overall rate of CRP respondents, the study found that 57 percent of the respondents allowed some portion of their CRP acreage to be used for recreational purposes, with the most common uses being hunting (89 percent), wildlife viewing (44 percent), hiking (23 percent), fishing (7 percent), and various other recreational uses. Ten percent of the affirmative CRP participants received income from the recreational use of their CRP acreage. The study found that CRP enrollment has an indirect effect in determining whether to lease property for recreational purposes, as the average CRP participants received \$1.90 per acre before enrollment, while after enrollment, that average increased to \$6.13 per acre. They extrapolated this result to indicate that if all CRP acreage at the time was used to generate recreational income, then approximately 36.0 million acres would generate \$28.9 million. Without CRP, the study estimated that value to be about \$7.6 million, or approximately \$21 million less than with the CRP enrollment (*Ibid.*).

3.5.2 Environmental Consequences

A significant impact to socioeconomic conditions can be defined as a change that is outside the normal or anticipated range of those conditions that would flow through the remainder of the economy and community, creating substantial adverse effects in housing, employment, demographic trends, and business sectors. Generally, small percentage changes in individual attributes would not likely result in significant impacts at the county-level of analysis. Changes to the statewide or national economy of greater than recreation's normal contribution could be considered significant, as this could affect the general economic climate of other industries on a much greater scale.

Additional changes in demographic trends such as population movements would be considered significant if a substantial percentage of the population were to enter or leave a particular area based on the changing economic conditions associated with the alternatives analyzed, rather than unrelated projected changes or changes generated by economic activities as a whole.

3.5.2.1 Proposed Action Alternative

Under the Proposed Action, a total of \$1,484,750 in VPA-HIP grant funds would be expended over the three-year grant period (\$528,250 in the first year and \$478,250 the following two years) to supplement \$1,498,560 State, private in-kind, and other Federal funds to implement the IRAP statewide, and increase public awareness about the program. The program would offer three-year lease agreements at the following rates:

- Impounded Surface Water - \$12/acre to \$65/acre per year depending on the size of the impoundment, quality of fishery, and proximity to a large urban area

- River Access - \$1,000 to \$2,500 per year dependent upon the size of the area, access, location, and need for property improvements
- Stream Access- \$500/acre to \$2,500/acre per stream mile per year for walk-in access depending upon quality of the fishery, and proximity to a large urban area
- Youth Turkey Hunting and Public Hunting Access - \$1.50/acre to \$35/acre depending upon the size, location, and hunt quality potential

The IDNR estimates up to \$225,000 per year would be spent on landowner contracts, and \$150,000 per year on habitat improvements, for a total of \$1,125,000. Remaining funds would be spent on a Contractual Access Coordinator, outreach efforts, signage, and reporting.

The IRAP augmented by the USDA VPA-HIP funds would be a slight economic benefit to both local economies and the statewide wildlife-associated recreation economy. The IRAP would contribute modest benefits to the estimated statewide annual wildlife-associated recreational economy of \$2.41 billion (USFWS/USCB 2008). Providing new access to privately-held lands would also attract more out of state recreationists, benefiting the local and statewide economies. Implementation of the Proposed Action Alternative is expected to have long-term socioeconomic benefits for employment and income, with no associated negative effects such as large population movements.

3.5.2.2 No Action Alternative

If VPA-HIP funding was not utilized, the IRAP program would not be implemented. No additional local or statewide economic benefits associated with the IRAP and increased wildlife-associated recreation would occur.

3.6 Environmental Justice

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires Federal agencies to consider as a part of their action, any disproportionately highly adverse human health or environmental effects to minority and low-income populations. Agencies are required to ensure these potential effects are identified and addressed.

The FSA defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (FSA 2009a). In this context, fair treatment means that no group of people should bear a disproportionate share of negative environmental consequences resulting from a Federal action.

Consideration of the potential consequences of the Proposed Action for environmental justice requires three main components:

- A demographic assessment of the affected community to identify the presence of minority or low-income populations that may be potentially affected;
- An integrated assessment of all potential impacts identified to determine if any result in a disproportionately highly adverse impact to these groups; and
- Involvement of the affected communities in the decision-making process and the formation of any mitigation strategies.

The FSA’s guidance issued in 1-EQ [Rev. 2] defines a minority population by race, ethnicity, or a combination of these two classifications such that a minority population can be described as being

composed of the following population groups, singly or in combination, exceeding 50 percent of the population in an area:

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black
- Hispanic

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

3.6.1 Affected Environment

The 2010 Census population data indicates approximately 29 percent of the population in Illinois are minorities (Table 3-3). Those affiliated with American Indian and Alaskan Native Alone, Hispanic or Latino, Asian Alone, or Some Other Race Alone or Two or More Races increased as a percentage of the total population between 2000 and 2010. Percentage of Black or African American Alone and Native Hawaiian or Pacific Islander Alone affiliated individuals declined during the last 10 years (USCB 2011d).

In 2009 the poverty rate in Illinois was 12.4 percent (USCB 2011e), with 15 percent of the poor living in rural settings and 13 percent urban poor (ERS 2011). Nationally, the 2009 poverty rate reached 14.3 percent, and 31 states sustained increases in both the number and percentage of people in poverty compared to that experienced in 2008 (USCB 2010a). The poverty threshold established in 2010 by the USCB was \$22,162 for a family of four with two children under the age of 18 years (USCB 2010b).

3.6.2 Environmental Consequences

Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards and has equal access to the decision-making process. Significant environmental justice impacts would result if access to decision-making documents were denied or if any adverse environmental effects occurred from an action that would disproportionately and highly adversely affect minority or low-income populations.

3.6.2.1 Proposed Action Alternative

Under the Proposed Action Alternative, no highly adverse disproportionate impacts to environmental justice populations would occur. Under Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972, the USDA prohibits discrimination on the basis of race, color, religion, national origin, age, sex, or disability.

Entry into the IRAP would be voluntary and its scale would be statewide. Minority and low income populations would have equal access to participate in the program if their land meets the eligibility criteria of suitable habitat and recreational value. Enrolled participants in the IRAP must grant equal access to all sportspersons with a valid hunting and/or fishing license, or wildlife watchers, based on their agreement to waive liability and conform to posted use conditions.

Table 3-3. Illinois Population by Race 2010

Race	Total	Population Percent	Change (Percent) 2000-2010
White Alone	7,165,562	71.5	+0.6
Black or African American Alone	1,335,818	14.5	-0.6
American Indian and Alaskan Native Alone	30,488	0.3	+41.8
Hispanic or Latino	1,304,397	15.8	+32.5
Asian Alone	455,228	4.6	+38.6
Native Hawaiian and other Pacific Islander Alone	3,127	*	-12.1
Some Other Race Alone	562,510	6.7	+19.2
Two or More Races	148,720	2.3	+23.4

Source: USCB 2011d
 Notes: * negligible data

Equal opportunity to participate in programs of the IDNR and those funded by the USDA CCC is available to all individuals regardless of race, sex, national origin, disability, age, religion or other non-merit factors. It is the IDNR’s policy to make all decisions regarding recruitment, hiring, promotions, other personnel practices, contract or grant awards without discrimination based upon race, color, religion, sex, age, physical or mental disability, marital status, ancestry, national origin, military status, political affiliation or other factors which cannot be lawfully used as the basis for an employment, contract or grant decision. This departmental policy extends to all activities and programs which are conducted statewide by other agencies, institutions, organizations or political subdivisions where service and/or financial assistance are made available by the department through contracts or other arrangements using Federal or State funds (IDNR 2011e).

3.6.2.2 No Action Alternative

Under the No Action Alternative, VPA-HIP funding would not be used and the IRAP would not be implemented. Other programs offering recreational opportunities administered by IDNR would continue as currently implemented, with no changed conditions that may affect environmental justice populations.

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4.0 CUMMULATIVE EFFECTS

4.1 Introduction

The CEQ regulations stipulate that the cumulative effects analysis within a PEA 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. The 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 affected by the Proposed Action and other programs or projects. 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.

4.2 Past, Present, and Reasonably Foreseeable Actions

In this PEA, the affected environment for consideration of direct and indirect impacts includes the entire State of Illinois where landowners of private lands are eligible to enter into IRAP agreements with the State. For the purposes of this analysis, the goals and plans of Federal programs designed to provide incentives for public recreation access to private lands and those that mitigate the risks of degradation of natural resources on private lands are the primary sources of information used in identifying past, present, and reasonably foreseeable actions. In addition to VPA-HIP grant funds, the State of Illinois maintains and implements numerous Federal programs authorized under the Farm Bill to conserve and enhance the natural resources of the State. These programs include, but are not limited to Wildlife Habitat Incentive Program (WHIP), Environmental Quality Incentives Program (EQIP), Wetlands Reserve Program (WRP), Grassland Reserve Program (GRP) and the Conservation Stewardship Program (CSP). Other Federal programs are sponsored by the USFWS such as the Landowner Incentive Program (LIP) and Partners for Fish and Wildlife, and the Federal Highway Administration (FHWA) for recreational trails (Table 4-1).

4.2.1 Cumulative Effects Matrix

The incremental contribution of impacts of the Proposed Action, when considered in combination with other past, present, and reasonably foreseeable actions, are expected to add positively to the long-term cumulative impacts to biological, recreation and socioeconomic resources in the proposed use of VPA-HIP grant funds for the implementation of the IRAP. Past, present, and reasonably foreseeable actions are considered generally for each resource included within Section 3.0 of this PEA and are presented in Table 4-2.

Table 4-1. Federal and State Conservation Assistance Programs

Program	Summary
Landowner Incentive Program (USFWS and IDNR)	The LIP is a partnership between Federal/State governments and private landowners. This program provides financial incentives and technical advice to private landowners for the improvement, restoration and protection of habitat for at-risk species on private lands.
Partners for Fish and Wildlife (USFWS)	The primary purpose of this program in Illinois is working with others to restore and enhance fish and wildlife habitat on private lands; restoring habitat for migratory birds, threatened and endangered species, interjurisdictional fish and other wildlife; restoring habitat within the watersheds of our national wildlife refuges; and maximizing voluntary participation. The program provides technical and financial assistance to landowners that voluntarily increase the wildlife habitat value of the lands.
Recreational Trails Program (FHWA and IDNR)	FHWA grants are administered by States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. Each State administers its own program, usually through a State resource or park agency. Each State develops its own procedures to solicit and select projects for funding. Each State has a State Recreational Trail Advisory Committee to assist with the program. Funding priorities in Illinois are for non-motorized trail uses such as equestrian, hiking, cross-country ski, mountain bike and water trails or projects promoting the American Discovery and Grand Illinois Trails.

Sources: IDNR 2009, 2011f; USFWS 2011c

Table 4-2. Cumulative Effects Matrix

Resource	Past and Present Actions	Proposed Action	Future Actions	Cumulative Effects
Biological Resources	Positive impacts to vegetation, wildlife and protected species would result from past and present actions as an outcome of maintaining suitable wildlife habitat under other State and Federal programs for conservation of private lands. However, the added benefits of implementing the IRAP statewide would not occur.	Under the Proposed Action, positive impacts to wildlife and protected species would occur as a result of an increased amount of private lands being maintained as suitable wildlife habitat. While the amount of accessible public and private land, and the number of persons using it would increase, bag and creel limits would continue to be managed in accordance with Illinois State fish and game laws. Vegetation would benefit from IRAP habitat improvements including TSI, invasive species control and removal, and development of forest management plans.	Continued enrollment of private lands in the IRAP is likely to have positive impacts on vegetation, wildlife and protected species from improved habitat.	Long-term positive impacts to biological resources would occur from the Proposed Action and other known and reasonably foreseeable actions.
Water Resources	Long-term positive impacts to water quality are expected to result from programs that improve wildlife habitat on privately held lands. The goal of many of these programs is to improve surface and groundwater quality, restore wetlands and stabilize floodplains. However, greater benefits attained from	Long-term positive impacts to surface and groundwater quality would occur from habitat improvements as proposed under IRAP. Healthier, diverse vegetative covers would reduce runoff and decrease pollutant loading to surface waters and wetlands by increasing filtration of precipitation and	Continued enrollment of privately held cropland, ranchland and forestland in IRAP would have positive impacts to water resources, similar to those described for the Proposed Action.	Positive long-term cumulative impacts to surface water quality including wetlands, groundwater quality, and floodplain stabilization are expected to result from the Proposed Action and other past present and reasonably foreseeable future actions.

Table 4-2. Cumulative Effects Matrix (cont'd)

Resource	Past and Present Actions	Proposed Action	Future Actions	Cumulative Effects
Water Resources(cont'd)	statewide implementation of IRAP would not be realized under past and present actions.	melting snow. Benefits to floodplains would accrue from reduced runoff velocity that increases bank erosion.		
Soil Resources	Long-term positive impacts to soils result from past and present programs that create vegetative habitat on privately held lands. Permanent vegetative cover results in reduced erosion. However, greater benefits to soils associated with implementation of IRAP statewide would not occur under past and present actions.	Long-term positive impacts to soils are expected to result from stabilization achieved by establishing permanent vegetation.	Continued implementation of habitat improvements on private lands to enhance recreation and other conservation programs would benefit soils in both the short and long term.	Positive long-term impacts to soil resources are expected to result from the Proposed Action and other known and reasonably foreseeable actions.
Recreation	Positive impacts to recreation would result from past and present actions on largely public lands. Few other programs besides USDA's agricultural land conservation programs provide financial incentives to private landowners to implement habitat improvements to support public recreation on those lands, or permit public access for recreational purposes.	Under the Proposed Action, long-term positive impacts to outdoor recreational activities are expected from implementation of IRAP by expanding opportunities for fishing, hunting, boating, and wildlife viewing activities. The majority of land in Illinois is privately held, and public recreation lands, especially near major urban centers, cannot support the demand for outdoor recreation in the State.	Continued enrollment of private lands in the IRAP is likely to have positive impacts on recreational activities similar to those described for the Proposed Action.	Long-term positive impacts to recreation would occur from the Proposed Action and other known and reasonably foreseeable actions.

Table 4-2. Cumulative Effects Matrix (cont'd)

Resource	Past and Present Actions	Proposed Action	Future Actions	Cumulative Effects
Socioeconomics	Past and present programs that offer monetary compensation to private landowners for allowing recreational access to public and private lands would continue. However, the slight economic benefit to local and statewide wildlife and water-related recreational economies from additional IRAP participants would not occur.	A slight economic benefit to both local and statewide economies would occur under the Proposed Action from enrolling recreational lands in IRAP dispersed throughout the State. Moreover, increased public awareness of the IRAP is expected to increase usage of recreational lands, both from in-state and out-of-state recreationists and contribute to the statewide annual wildlife and fishing and boating-associated recreational economy.	Continued enrollment of private lands in IRAP is likely to have potential impacts to socioeconomics described for the Proposed Action.	Positive, long-term direct and indirect cumulative impacts to local economics are expected to result from the Proposed Action, along with past, present, and future actions.
Environmental Justice	No highly adverse disproportionate impacts to environmental justice populations would occur. IDNR would continue to take measures to expand informational, educational, and interpretive outreach opportunities to culturally, economically and ethnically diverse constituencies	As with past and present actions, no highly adverse disproportionate impacts to environmental justice populations would occur under the Proposed Action. Providing public recreation opportunities on private lands would benefit environmental justice populations as well as the public at large.	Continued enrollment of private lands in IRAP is likely to have potential impacts to environmental justice similar to those described in past and present actions.	Positive, long-term direct and indirect cumulative impacts to environmental justice populations are expected to result from the Proposed Action, along with past, present, and future actions.

4.3 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 would result.

5.0 MITIGATION

5.1 Introduction

The purpose of mitigation is to avoid, minimize, or eliminate negative impacts on affected resources. CEQ regulations (40 CFR §1508.20) state that mitigation includes:

- avoiding the impact altogether by not taking a certain action or parts of an action;
- minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- compensating for the impact by replacing or providing substitute resources or environments.

5.2 Roles and Responsibility

CEQ regulations state that all relevant reasonable mitigation measures that could improve a project should be identified, even if they are outside the jurisdiction of the lead agency or cooperating agencies. This serves to alert agencies or officials who can implement these extra measures, and will encourage them to do so. The lead agency for this Proposed Action Alternative is FSA.

5.3 Mitigation

There are no expected major negative impacts associated with utilizing VPA-HIP grant funds for the implementation of IRAP. Prior to enrollment into IRAP, a site-specific environmental evaluation by the IDNR Contractual Access Coordinator would be completed to determine the habitat and species present. Sites that are being offered for walk-in fishing, or canoeing and boating access would be visited by a Fisheries Biologist to evaluate the riparian, instream habitat and to ensure the fishery can support sport fishing. A detailed recreational access plan and recommended habitat improvements and management activities would be developed for each site enrolling in the program. Lands enrolled in CREP have already been evaluated for potential effects to TES, wetlands, and historic properties in accordance with 1-EQ, and in many instances CPs have already been installed. In these instances, the Conservation Plan would be re-evaluated prior to enrollment of CREP lands in IRAP, including the potential for negative impacts. Further, the existing CREP Conservation Plan would be modified to include approved IRAP activities as detailed in the recreational access plan. In those site-specific instances where a wetland, threatened or endangered species, or a cultural resource may be present, consultation with the appropriate lead agency would identify the potential severity of the impact and devise measures required to eliminate or reduce the negative impacts to those sensitive resources.

IRAP habitat improvement activities may result in temporary impacts to vegetation and wildlife during activities associated with TSI and exotic plant removal such as tree cutting and trimming, slash removal, and tilling. However, they may be mitigated by adherence to TSI guidelines, erosion control and BMPs such as maintaining adequate ground cover, litter, and canopy, and reducing soil compaction.

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Appendix A

AGENCIES COORDINATION LETTER

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2713 Magruder Blvd., Suite D • Hampton, VA 23666

Phone: 757-873-3702 • Fax: 757-873-3703

www.geo-marine.com

May 23, 2011

To: [See Section 7 Agencies Contacted List]

Re: Final Programmatic Environmental Assessment for the use of Voluntary Public Access and Habitat Incentive Program grant funds for the Illinois Recreational Access Program

Dear [Agency] :

The United States Department of Agriculture, Farm Service Agency (FSA) on behalf of the Commodity Credit Corporation has prepared a Programmatic Environmental Assessment (PEA) to assess the impacts of using Voluntary Public Access and Habitat Incentive Program (VPA-HIP) grant funds for the implementation of the Illinois Recreational Access Program (IRAP). The VPA-HIP is a new program authorized by the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) that provides grants to States and tribal governments to encourage owners and operators of privately held farm, ranch, and forest land to voluntarily open land for public access for outdoor recreation activities such as hunting, fishing, hiking, wildlife watching, and other outdoor activities. Projects receiving VPA-HIP funds are administered by the State or tribal government that receives the grant.

The Illinois Department of Natural Resources (IDNR) proposes to use VPA-HIP grant funds over a three-year period to implement IRAP to increase hunting, fishing and other outdoor recreational opportunities throughout the State. The VPA-HIP funds would be used to provide annual incentive payments to eligible private landowners for three-year access leases and contractual technical assistance for habitat improvements. In some instances, financial assistance would be provided for habitat improvement. The VPA-HIP funds would also be used to partially fund a position for the IRAP Coordinator with the Sangamon County Soil and Water Conservation District (SWCD); supplement SWCD outreach, management of landowner enrollment and access facilitation with SWCDs; provide informational materials on the IRAP such as regulation booklets, access location maps and press releases; install access signs on enrolled property; and produce program performance reports.

An electronic version of the Final PEA for the proposed use of VPA-HIP grant funds for the implementation of IRAP is now located at <http://public.geo-marine.com>. Electronic comments may be posted at this site as well. An electronic copy of the Final PEA can also be reviewed at <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ecrc&topic=nep-cd>. Written comments regarding this assessment can also be submitted to:

Illinois VPA-HIP PEA Comments
c/o Geo-Marine Incorporated
2713 Magruder Boulevard, Suite D
Hampton, Virginia 23666

Or emailed to IllinoisPEA@geo-marine.com

Or faxed to (757) 873-3703

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Illinois VPA-HIP PEA

May 23, 2011

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Please submit all comments by June 23, 2011. Thank you in advance for your input; it will greatly assist FSA and the State of Illinois in their planning.

Respectfully,

Brian Bishop, NEPA Analyst

Cc: Matthew Ponish, FSA
Debbie Bruce, IDNR

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Appendix B:

FEDERAL AND STATE THREATENED AND ENDANGERED SPECIES OF ILLINOIS

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Federal and State Threatened and Endangered Species of Illinois

Common Name	Scientific Name	Federal Status	State Status
Plants			
Alder Buckthorn	<i>Rhamnus alnifolia</i>		LE
Allegheny Barberry	<i>Berberis canadensis</i>		LE
American Brooklime	<i>Veronica americana</i>		LE
American Bugbane	<i>Cimicifuga americana</i>		LE
American Burnet	<i>Sanguisorba canadensis</i>		LE
American Burreed	<i>Sparganium americanum</i>		LE
American Mountain Ash	<i>Sorbus americana</i>		LE
American Orpine	<i>Sedum telephioides</i>		LT
American Slough Grass	<i>Beckmannia syzigachne</i>		LE
American Strawberry Bush	<i>Euonymus americanus</i>		LE
Arkansas Mannagrass	<i>Glyceria arkansana</i>		LE
Arkansas Sedge	<i>Carex arkansana</i>		LE
Arrowhead	<i>Sagittaria australis</i>		LE
Arrowwood	<i>Viburnum molle</i>		LT
Autumn Willow	<i>Salix serissima</i>		LE
Baby Blue-eyes	<i>Nemophila triloba</i>		LE
Balsam Poplar	<i>Populus balsamifera</i>		LE
Bead Grass	<i>Paspalum dissectum</i>		LE
Beaked Hazelnut	<i>Corylus cornuta</i>		LE
Beaked Rush	<i>Rhynchospora alba</i>		LT
Beaked Spike Rush	<i>Eleocharis rostellata</i>		LT
Bearberry	<i>Arctostaphylos uva-ursi</i>		LE
Bearded Wheat Grass	<i>Elymus trachycaulus</i>		LT
Bellow's Beak Sedge	<i>Carex physorhyncha</i>		LE
Bigleaf Snowbell Bush	<i>Styrax grandifolius</i>		LE
Bird's-eye Primrose	<i>Primula mistassinica</i>		LE
Black Cohosh	<i>Cimicifuga rubifolia</i>		LT
Black Spleenwort	<i>Asplenium resiliens</i>		LE
Black-edged Sedge	<i>Carex nigromarginata</i>		LE
Blazing Star	<i>Liatris scariosa</i> var. <i>nieuwlandii</i>		LT
Bloodleaf	<i>Iresine rhizomatosa</i>		LE
Blue Grama	<i>Bouteloua gracilis</i>		LE
Blue Jasmine	<i>Clematis crispa</i>		LE
Blue Sage	<i>Salvia azurea</i> subsp. <i>pitcheri</i>		LT
Bluehearts	<i>Buchnera americana</i>		LT

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Bluejoint Grass	<i>Calamagrostis insperata</i>		LE
Bog Clubmoss	<i>Lycopodiella inundata</i>		LE
Boykin's Dioclea	<i>Galactia mohlenbrockii</i>		LE
Bradley's Spleenwort	<i>Asplenium bradleyi</i>		LE
Bristly Blackberry	<i>Rubus schneideri</i>		LT
Bristly Rose	<i>Rosa acicularis</i>		LE
Broomrape	<i>Orobanche ludoviciana</i>		LT
Brownish Sedge	<i>Carex brunnescens</i>		LE
Buckbean	<i>Menyanthes trifoliata</i>		LT
Buffalo Clover	<i>Trifolium reflexum</i>		LT
Buffaloberry	<i>Shepherdia canadensis</i>		LE
Bulrush	<i>Scirpus hattorianus</i>		LE
Bulrush	<i>Scirpus microcarpus</i>		LE
Bulrush	<i>Scirpus polyphyllus</i>		LT
Bunchberry	<i>Cornus canadensis</i>		LE
Bunchflower	<i>Melanthium virginicum</i>		LT
Butler's Quillwort	<i>Isoetes butleri</i>		LE
Canada Violet	<i>Viola canadensis</i>		LE
Capitate Spikerush	<i>Eleocharis olivacea</i>		LE
Carey's Heartsease	<i>Polygonum careyi</i>		LE
Carolina Whipgrass	<i>Scleria pauciflora</i>		LE
Cliff Clubmoss	<i>Huperzia porophila</i>		LT
Cliff Goldenrod	<i>Solidago sciaphila</i>		LT
Climbing Milkweed	<i>Matelea decipiens</i>		LE
Climbing Milkweed	<i>Matelea obliqua</i>		LT
Clustered Beak Rush	<i>Rhynchospora glomerata</i>		LE
Clustered Broomrape	<i>Orobanche fasciculata</i>		LE
Common Bog Arrowgrass	<i>Triglochin maritima</i>		LT
Cordroot Sedge	<i>Carex chordorrhiza</i>		LE
Corn Salad	<i>Valerianella chenopodifolia</i>		LE
Corn Salad	<i>Valerianella umbilicata</i>		LE
Crawford's Sedge	<i>Carex crawfordii</i>		LE
Creeping Loosestrife	<i>Lysimachia radicans</i>		LE
Crested Coralroot Orchid	<i>Hexalectris spicata</i>		LE
Cuckoo Flower	<i>Cardamine pratensis</i> var. <i>palustris</i>		LE
Cynosciadium	<i>Cynosciadium digitatum</i>		LE
Cypress-knee Sedge	<i>Carex decomposita</i>		LE
Daisyleaf Grape Fern	<i>Botrychium matricariifolium</i>		LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Decurrent False Aster	<i>Boltonia decurrens</i>	T	LT
Deerberry	<i>Vaccinium stamineum</i>		LE
Dog Violet	<i>Viola conspersa</i>		LT
Downy Solomon's Seal	<i>Polygonatum pubescens</i>		LE
Downy Willow Herb	<i>Epilobium strictum</i>		LT
Downy Yellow Painted Cup	<i>Castilleja sessiliflora</i>		LE
Dragon Wormwood	<i>Artemisia dracunculus</i>		LE
Drooping Sedge	<i>Carex prasina</i>		LT
Dull Meadow Beauty	<i>Rhexia mariana</i>		LE
Dune Willow	<i>Salix syrticola</i>		LE
Dwarf Bedstraw	<i>Galium virgatum</i>		LE
Dwarf Grape Fern	<i>Botrychium simplex</i>		LE
Dwarf Raspberry	<i>Rubus pubescens</i>		LT
Dwarf Scouring Rush	<i>Equisetum scirpoides</i>		LE
Ear-leafed Foxglove	<i>Tomanthera auriculata</i>		LT
Early Saxifrage	<i>Saxifraga virginiensis</i>		LE
Eastern Blue-eyed Grass	<i>Sisyrinchium atlanticum</i>		LT
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	T	LE
Elk Sedge	<i>Carex garberi</i>		LE
Eryngo	<i>Eryngium prostratum</i>		LE
Fairy Wand	<i>Chamaelirium luteum</i>		LE
False Asphodel	<i>Tofieldia glutinosa</i>		LT
False Bugbane	<i>Cimicifuga racemosa</i>		LE
False Heather	<i>Hudsonia tomentosa</i>		LE
False Mallow	<i>Malvastrum hispidum</i>		LE
False Melic Grass	<i>Schizachne purpurascens</i>		LE
Fameflower	<i>Talinum calycinum</i>		LE
Fern Pondweed	<i>Potamogeton robbinsii</i>		LE
Few-flowered Spikerush	<i>Eleocharis pauciflora</i>		LE
Few-seeded Sedge	<i>Carex oligosperma</i>		LE
Fibrous-rooted Sedge	<i>Carex communis</i>		LT
Filmy fern	<i>Trichomanes boschianum</i>		LE
Flat-leaved Bladderwort	<i>Utricularia intermedia</i>		LT
Forked Aster	<i>Aster furcatus</i>		LT
Fragile Prickly Pear	<i>Opuntia fragilis</i>		LE
French's Shootingstar	<i>Dodecatheon frenchii</i>		LT
Galingale	<i>Cyperus lancastriensis</i>		LT
Golden Corydalis	<i>Corydalis aurea</i>		LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Golden Sedge	<i>Carex aurea</i>		LT
Grass Pink Orchid	<i>Calopogon tuberosus</i>		LE
Grass-leaved Lily	<i>Stenanthium gramineum</i>		LE
Grass-leaved Pondweed	<i>Potamogeton gramineus</i>		LT
Great Chickweed	<i>Stellaria pubera</i>		LE
Green Trillium	<i>Trillium viride</i>		LE
Green-fruited Burreed	<i>Sparganium emersum</i>		LE
Ground Juniper	<i>Juniperus communis</i>		LT
Ground Pine	<i>Lycopodium dendroideum</i>		LE
Grove Bluegrass	<i>Poa alsodes</i>		LE
Hairgrass	<i>Deschampsia flexuosa</i>		LE
Hairy Synandra	<i>Synandra hispidula</i>		LE
Hairy Umbrella-wort	<i>Mirabilis hirsuta</i>		LE
Hairy Woodrush	<i>Luzula acuminata</i>		LE
Halberd-leaved Tearthumb	<i>Polygonum arifolium</i>		LE
Hale's Corydalis	<i>Corydalis halei</i>		LE
Hall's Bulrush	<i>Schoenoplectus hallii</i>		LT
Hay-scented Fern	<i>Dennstaedtia punctilobula</i>		LE
Heart-leaved Plantain	<i>Plantago cordata</i>		LE
Hedge Hyssop	<i>Gratiola quartermantiae</i>		LE
Hemlock Panic Grass	<i>Dichanthelium portoricense</i>		LE
Hemlock Parsley	<i>Conioselinum chinense</i>		LE
Highbush Blueberry	<i>Vaccinium corymbosum</i>		LE
Horned Bladderwort	<i>Utricularia cornuta</i>		LE
Hyssop-leaved Thoroughwort	<i>Eupatorium hyssopifolium</i>		LE
Illinois Wood Sorrel	<i>Oxalis illinoensis</i>		LE
Ill-scented Trillium	<i>Trillium erectum</i>		LE
Indian Cucumber Root	<i>Medeola virginiana</i>		LE
Jack Pine	<i>Pinus banksiana</i>		LE
James' Clammyweed	<i>Polanisia jamesii</i>		LE
Kalm's St. John's Wort	<i>Hypericum kalmianum</i>		LE
Kankakee Mallow	<i>Iliamna remota</i>		LE
Kitten Tails	<i>Besseyia bullii</i>		LT
Lakeside Daisy	<i>Tetraneuris herbacea</i>	T	LE
Large Cranberry	<i>Vaccinium macrocarpon</i>		LE
Large Ground Plum	<i>Astragalus crassicaarpus</i> var. <i>trichocalyx</i>		LE
Large Sedge	<i>Carex gigantea</i>		LE
Large-flowered Beard Tongue	<i>Penstemon grandiflorus</i>		LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Laurentian Fragile Fern	<i>Cystopteris laurentiana</i>		LE
Leafy Prairie Clover	<i>Dalea foliosa</i>	E	LE
Lea's Bog Lichen	<i>Phaeophyscia leana</i>		LT
Leatherflower	<i>Clematis viorna</i>		LE
Leatherleaf	<i>Chamaedaphne calyculata</i>		LT
Little Green Sedge	<i>Carex viridula</i>		LT
Log Fern	<i>Dryopteris celsa</i>		LE
Long Beech Fern	<i>Phegopteris connectilis</i>		LE
Marram Grass	<i>Ammophila breviligulata</i>		LE
Marsh Speedwell	<i>Veronica scutellata</i>		LT
Marsh Valerian	<i>Valeriana uliginosa</i>		LE
Meadow Horsetail	<i>Equisetum pratense</i>		LT
Mead's Milkweed	<i>Asclepias meadii*</i>	T	LE
Milk Vetch	<i>Astragalus distortus Bent</i>		LE
Missouri Orange Coneflower	<i>Rudbeckia missouriensis</i>		LT
Moccasin Flower	<i>Cypripedium acaule</i>		LE
Mock Bishop's Weed	<i>Ptilimnium nuttallii</i>		LE
Moschatel	<i>Adoxa moschatellina</i>		LE
Mountain Blue-eyed Grass	<i>Sisyrinchium montanum</i>		LE
Mountain Clematis	<i>Clematis occidentalis</i>		LE
Mud Plantain	<i>Heteranthera reniformis</i>		LE
Muhlenberg's Nut Rush	<i>Scleria muhlenbergii</i>		LE
Narrow-leaved Crabapple	<i>Malus angustifolia</i>		LE
Narrow-leaved Green Milkweed	<i>Asclepias stenophylla</i>		LE
Narrow-leaved Sundew	<i>Drosera intermedia</i>		LT
Narrow-leaved Sunflower	<i>Helianthus angustifolius</i>		LT
Nettle	<i>Urtica chamaedryoides</i>		LT
New York Fern	<i>Thelypteris noveboracensis</i>		LE
Nodding Trillium	<i>Trillium cernuum</i>		LE
Northern Cranesbill	<i>Geranium bicknellii</i>		LE
Northern Gooseberry	<i>Ribes hirtellum</i>		LE
Northern Grape Fern	<i>Botrychium multifidum</i>		LE
Northern Panic Grass	<i>Dichantherium boreale</i>		LE
Nuttall's Oak	<i>Quercus texana</i>		LE
Oak Fern	<i>Gymnocarpium dryopteris</i>		LE
Oklahoma Grass Pink Orchid	<i>Calopogon oklahomensis</i>		LE
Old Plainsman	<i>Hymenopappus scabiosaeus</i>		LT
One-flowered Hydrolea	<i>Hydrolea uniflora</i>		LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Orange Fringed Orchid	<i>Platanthera ciliaris</i>		LE
Oval Milkweed	<i>Asclepias ovalifolia</i>		LE
Ovate Catchfly	<i>Silene ovata</i>		LE
Ozark Phacelia	<i>Phacelia gilioides</i>		LE
Pale False Foxglove	<i>Agalinus skinneriana</i>		LT
Pale Hickory	<i>Carya pallida</i>		LE
Pale Vetchling	<i>Lathyrus ochroleucus</i>		LT
Panic Grass	<i>Dichanthelium joori</i>		LE
Panic Grass	<i>Dichanthelium yadkinense</i>		LE
Patterson's Bindweed	<i>Stylisma pickeringii</i>		LE
Pink Corydalis	<i>Corydalis sempervirens</i>		LE
Pink Milkwort	<i>Polygala incarnata</i>		LE
Pinweed	<i>Lechea intermedia</i>		LT
Pipsissewa	<i>Chimaphila umbellata</i>		LE
Pitcher Plant	<i>Sarracenia purpurea</i>		LE
Pitcher's (Dune) Thistle	<i>Cirsium pitcheri</i>	T	LT
Plains Sedge	<i>Carex inops</i> subsp. <i>heliophila</i>		LE
Plaintain-leaved Sedge	<i>Carex plantaginea</i>		LE
Pole Manna-Grass	<i>Torreyochloa pallida</i>		LE
Prairie Bush Clover	<i>Lespedeza leptostachya</i>	T	LE
Prairie Buttercup	<i>Ranunculus rhomboideus</i>		LT
Prairie Dandelion	<i>Nothocalais cuspidata</i>		LE
Prairie Moonwort	<i>Botrychium campestre</i>		LE
Prairie Rose Gentian	<i>Sabatia campestris</i>		LE
Prairie Spiderwort	<i>Tradescantia bracteata</i>		LT
Pretty Sedge	<i>Carex woodii</i>		LT
Price's Potato-bean	<i>Apios priceana</i>	T	
Primrose Violet	<i>Viola primulifolia</i>		LE
Purple Fringed Orchid	<i>Platanthera psycodes</i>		LE
Purple-flowering Raspberry	<i>Rubus odoratus</i>		LE
Queen-of-the-Prairie	<i>Filipendula rubra</i>		LE
Ravenel's Panic Grass	<i>Dichanthelium ravenelii</i>		LE
Red Honeysuckle	<i>Lonicera dioica</i> var. <i>glaucescens</i>		LE
Red Pine	<i>Pinus resinosa</i>		LE
Red-berried Elder	<i>Sambucus racemosa</i> subsp. <i>pubens</i>		LE
Redroot	<i>Ceanothus herbaceus</i>		LE
Reniform Sedge	<i>Carex reniformis</i>		LE
Richardson's Rush	<i>Juncus alpinus</i>		LT

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Rock Chestnut Oak	<i>Quercus montana</i>		LT
Rock Elm	<i>Ulmus thomasii</i>		LE
Round-leaved Sundew	<i>Drosera rotundifolia</i>		LE
Royal Catchfly	<i>Silene regia</i>		LE
Running Pine	<i>Lycopodium clavatum</i>		LE
Rusty Cotton Grass	<i>Eriophorum virginicum</i>		LE
Rusty Woodsia	<i>Woodsia ilvensis</i>		LE
Sangamon Phlox	<i>Phlox pilosa</i> subsp. <i>sangamonensis</i>		LE
Scented Oak Fern	<i>Gymnocarpium robertianum</i>		LE
Screwstem	<i>Bartonia paniculata</i>		LE
Sea Rocket	<i>Cakile edentula</i>		LT
Seaside Spurge	<i>Chamaesyce polygonifolia</i>		LE
Sedge	<i>Carex atlantica</i>		LT
Sedge	<i>Carex bromoides</i>		LT
Sedge	<i>Carex cumulata</i>		LE
Sedge	<i>Carex diandra</i>		LE
Sedge	<i>Carex echinata</i>		LE
Sedge	<i>Carex formosa</i>		LE
Shadbush	<i>Amelanchier interior</i>		LT
Shadbush	<i>Amelanchier sanguinea</i>		LE
Sharp-scaled Sedge	<i>Carex oxylepis</i>		LT
Shore St. John's Wort	<i>Hypericum adpressum</i>		LE
Shortleaf Pine	<i>Pinus echinata</i>		LE
Shortleaf Sedge	<i>Carex disperma</i>		LE
Short-sepaled Beard Tongue	<i>Penstemon brevisepalus</i>		LE
Showy Lady's Slipper	<i>Cypripedium reginae</i>		LE
Silverbell Tree	<i>Halesia carolina</i>		LE
Silvery Bladderpod	<i>Lesquerella ludoviciana</i>		LE
Silvery Sedge	<i>Carex canescens</i> var. <i>disjuncta</i>		LE
Slender Bog Arrowgrass	<i>Triglochin palustris</i>		LT
Slender Heliotrope	<i>Heliotropium tenellum</i>		LE
Slender Sandwort	<i>Minuartia patula</i>		LT
Small Bladderwort	<i>Utricularia minor</i>		LE
Small Burhead	<i>Echinodorus tenellus</i>		LE
Small Cranberry	<i>Vaccinium oxycoccos</i>		LE
Small Enchanter's Nightshade	<i>Circaea alpina</i>		LE
Small Flower-of-an-hour	<i>Talinum parviflorum</i>		LT
Small Sundrops	<i>Oenothera perennis</i>		LT

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Small Whorled Pogonia	<i>Isotria medeoloides</i>	E	
Small Yellow Lady's Slipper	<i>Cypripedium parviflorum</i> var. <i>makasin</i>		LE
Smith's Bulrush	<i>Schoenoplectus smithii</i>		LE
Smooth False Indigo	<i>Amorpha nitens</i>		LE
Snake-mouth	<i>Pogonia ophioglossoides</i>		LE
Snowberry	<i>Symphoricarpos albus</i> var. <i>albus</i>		LE
Southern Grape Fern	<i>Botrychium biternatum</i>		LT
Southern Sanicula	<i>Sanicula smallii</i>		LE
Speckled Alder	<i>Alnus incana</i> subsp. <i>rugosa</i>		LE
Spotted Coral-root Orchid	<i>Corallorhiza maculata</i>		LT
Spotted Pondweed	<i>Potamogeton pulcher</i>		LE
Spotted Wintergreen	<i>Chimaphila maculata</i>		LE
Spring Ladies' Tresses	<i>Spiranthes vernalis</i>		LE
Spurge	<i>Euphorbia spathulata</i>		LE
Squirting Cucumber	<i>Melothria pendula</i>		LT
Star-flower	<i>Trientalis borealis</i>		LE
Stickseed	<i>Hackelia deflexa</i> var. <i>americana</i>		LE
Stiff Pondweed	<i>Potamogeton strictifolius</i>		LE
Storax	<i>Styrax americana</i>		LT
Sullivantia	<i>Sullivantia sullivantii</i>		LT
Supple-Jack	<i>Berchemia scandens</i>		LT
Sweetfern	<i>Comptonia peregrina</i>		LE
Swollen Sedge	<i>Carex intumescens</i>		LT
Tall Sunflower	<i>Helianthus giganteus</i>		LE
Tamarack	<i>Larix laricina</i>		LT
Tennessee Milk Vetch	<i>Astragalus tennesseensis</i>		LE
Three-seeded Sedge	<i>Carex trisperma</i>		LE
Trailing Juniper	<i>Juniperus horizontalis</i>		LE
Tube Beard Tongue	<i>Penstemon tubaeflorus</i>		LE
Tuberclad Orchid	<i>Platanthera flava</i> var. <i>flava</i>		LE
Tuberclad Orchid	<i>Platanthera flava</i> var. <i>herbiola</i>		LT
Tuckerman's Sedge	<i>Carex tuckermanii</i>		LE
Tufted Bulrush	<i>Trichophorum cespitosum</i>		LE
Two-Flowered Melic Grass	<i>Melica mutica</i>		LE
Umbrella Sedge	<i>Cyperus grayioides</i>		LT
Vahl's Fimbristylis	<i>Fimbristylis vahlii</i>		LE
Vasey's Rush	<i>Juncus vaseyi</i>		LE
Violet Collinsia	<i>Collinsia violacea</i>		LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Water Arum	<i>Calla palustris</i>		LE
Water Elm	<i>Planera aquatica</i>		LT
Water Hickory	<i>Carya aquatica</i>		LT
Water Marigold	<i>Megalodonta beckii</i>		LE
Water Willow	<i>Justicia ovata</i>		LE
Weak Bluegrass	<i>Poa languida</i>		LE
Weak Bulrush	<i>Schoenoplectus purshianus</i>		LE
White Basswood	<i>Tilia heterophylla</i>		LE
White Camass	<i>Zigadenus elegans</i>		LE
White Lady's Slipper	<i>Cypripedium candidum</i>		LT
White Melanthera	<i>Melanthera nivea</i>		LE
White Violet	<i>Viola blanda</i> Hairy		LE
White-stemmed Pondweed	<i>Potamogeton praelongus</i>		LE
Whitlow Grass	<i>Draba cuneifolia</i>		LE
Whorled Pogonia	<i>Isotria verticillata</i>		LE
Wild Blue Larkspur	<i>Delphinium carolinianum</i>		LT
Wild Hyacinth	<i>Camassia angusta</i>		LE
Wild Licorice	<i>Galium lanceolatum</i>		LE
Willdenow's Sedge	<i>Carex willdenowii</i>		LT
Willow Oak	<i>Quercus phellos</i>		LT
Winged Sedge	<i>Carex alata</i>		LE
Wolf's Bluegrass	<i>Poa wolfii</i>		LE
Wood Orchid	<i>Platanthera clavellata</i>		LE
Woodland Horsetail	<i>Equisetum sylvaticum</i>		LE
Wooly Buckthorn	<i>Bumelia lanuginosa</i>		LE
Wooly Milkweed	<i>Asclepias lanuginosa</i>		LE
Yellow Birch	<i>Betula alleghaniensis</i>		LE
Yellow Honeysuckle	<i>Lonicera flava</i>		LE
Yellow Monkey Flower	<i>Mimulus glabratus</i>		LE
Yellow Sedge	<i>Carex cryptolepis</i>		LE
Yellow Wild Indigo	<i>Baptisia tinctoria</i>		LE
Yellow-lipped Ladies' Tresses	<i>Spiranthes lucida</i>		LE
Yellowwood	<i>Cladrastis lutea</i>		LE
Vertebrate Animals			
Mammals			
Eastern Wood Rat	<i>Neotoma floridana</i>		LE
Franklin's Ground Squirrel	<i>Spermophilus franklinii</i>		LT
Golden Mouse	<i>Ochrotomys nuttalli</i>		LT

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Gray Bat	<i>Myotis grisescens</i>	E	LE
Gray/Timber Wolf	<i>Canis lupus</i>	E	LT
Indiana Bat	<i>Myotis sodalis</i>	E	LE
Rafinesque's Big-eared Bat	<i>Corynorhinus rafinesquii</i>		LE
Rice Rat	<i>Oryzomys palustris</i>		LT
Southeastern Myotis	<i>Myotis austroriparius</i>		LE
Birds			
American Bittern	<i>Botaurus lentiginosus</i>		LE
Barn Owl	<i>Tyto alba</i>		LE
Bewick's Wren	<i>Thryomanes bewickii</i>		LE
Black Rail	<i>Laterallus jamaicensis</i>		LE
Black Tern	<i>Chlidonias niger</i>		LE
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>		LT
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		LE
Cerulean Warbler	<i>Dendroica cerulea</i>		LT
Common Moorhen	<i>Gallinula chloropus</i>		LE
Common Tern	<i>Sterna hirund</i>		LE
Forster's Tern	<i>Sterna forsteri</i>		LE
Greater Prairie-Chicken	<i>Tympanuchus cupido</i>		LE
King Rail	<i>Rallus elegans</i>		LE
Least Bittern	<i>Ixobrychus exilis</i>		LT
Least Tern	<i>Sternula antillarum</i>	E	LE
Little Blue Heron	<i>Egretta caerulea</i>		LE
Loggerhead Shrike	<i>Lanius ludovicianus</i>		LE
Mississippi Kite	<i>Ictinia mississippiensis</i>		LT
Northern Harrier	<i>Circus cyaneus</i>		LE
Osprey	<i>Pandion haliaetus</i>		LE
Peregrine Falcon	<i>Falco peregrinus</i>		LT
Piping Plover	<i>Charadrius melodus</i>	E	LE
Short-eared Owl	<i>Asio flammeus</i>		LE
Snowy Egret	<i>Egretta thula</i>		LE
Swainson's Hawk	<i>Buteo swainsoni</i>		LE
Swainson's Warbler	<i>Limnothlypis swainsonii</i>		LE
Upland Sandpiper	<i>Bartramia longicauda</i>		LE
Wilson's Phalarope	<i>Phalaropus tricolor</i>		LE
Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>		LE
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>		LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Reptiles			
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>		LE
Blanding's Turtle	<i>Emydoidea blandingii</i>		LE
Broad-banded Watersnake	<i>Nerodia fasciata</i>		LE
Coachwhip	<i>Masticophis flagellum</i>		LE
Eastern Massasauga	<i>Sistrurus catenatus</i>		LE
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>		LT
Flathead Snake	<i>Tantilla gracilis</i>		LT
Great Plains Rat Snake	<i>Pantherophis emoryi</i>		LE
Kirtland's Snake	<i>Clonophis kirtlandi</i>		LT
Lined Snake	<i>Tropidoclonion lineatum</i>		LT
Mississippi Green Watersnake	<i>Nerodia cyclopion</i>		LT
Ornate Box Turtle	<i>Terrepene ornata</i>		LT
Plains Hog-Nosed Snake	<i>Heterodon nasicus</i>		LT
River Cooter	<i>Pseudemys concinna</i>		LE
Smooth Softshell	<i>Apalone mutica</i>		LE
Spotted Turtle	<i>Clemmys guttata</i>		LE
Timber Rattlesnake	<i>Crotalus horridus</i>		LT
Yellow Mud Turtle	<i>Kinosternon flavescens</i>		LE
Amphibians			
Bird-voiced Treefrog	<i>Hyla avivoca</i>		LT
Eastern Hellbender	<i>Cryptobranchus alleganiensis</i>		LE
Eastern Narrowmouth Toad	<i>Gastrophryne carolinensis</i>		LT
Four-toed Salamander	<i>Hemidactylium scutatum</i>		LT
Illinois Chorus Frog	<i>Pseudacris illinoensis</i>		LT
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>		LT
Mudpuppy	<i>Necturus maculosus</i>		LT
Silvery Salamander	<i>Ambystoma platineum</i>		LE
Spotted Dusky Salamander	<i>Desmognathus conanti</i>		LE
Fishes			
Banded Killifish	<i>Fundulus diaphanus</i>		LT
Bantam Sunfish	<i>Lepomis symmetricus</i>		LT
Bigeye Chub	<i>Hybopsis amblops</i>		LE
Bigeye Shiner	<i>Notropis boops</i>		LE
Blackchin Shiner	<i>Notropis heterodon</i>		LT
Blacknose Shiner	<i>Notropis heterolepis</i>		LE
Bluebreast Darter	<i>Etheostoma camurum</i>		LE
Cisco	<i>Coregonus artedi</i>		LT

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Cypress Minnow	<i>Hybognathus hayi</i>		LE
Eastern Sand Darter	<i>Ammocrypta pellucidum</i>		LT
Gravel Chub	<i>Erimystax x-punctatus</i>		LT
Greater Redhorse	<i>Moxostoma valenciennesi</i>		LE
Harlequin Darter	<i>Etheostoma histrio</i>		LE
Iowa Darter	<i>Etheostoma exile</i>		LT
Ironcolor Shiner	<i>Notropis chalybaeus</i>		LT
Lake Sturgeon	<i>Acipenser fulvescens</i>		LE
Least Brook Lamprey	<i>Lampetra aepyptera</i>		LT
Longnose Sucker	<i>Catostomus catostomus</i>		LT
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>		LE
Northern Madtom	<i>Noturus stigmosus</i>		LE
Pallid Shiner	<i>Hybopsis amnis</i>		LE
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	E	LE
Pugnose Shiner	<i>Notropis anogenus</i>		LE
Redspotted Sunfish	<i>Lepomis miniatus</i>		LE
River Chub	<i>Nocomis micropogon</i>		LE
River Redhorse	<i>Moxostoma carinatum</i>		LT
Sturgeon Chub	<i>Macrhybopsis gelida</i>		LE
Taillight Shiner	<i>Notropis maculatus</i>		LE
Topminnow	<i>Fundulus dispar</i> Starhead		LT
Weed Shiner	<i>Notropis texanus</i>		LE
Western Sand Darter	<i>Ammocrypta clarum</i>		LE
Invertebrate Animals			
Mollusks			
Black Sandshell	<i>Ligumia recta</i>		LT
Butterfly	<i>Ellipsaria lineolata</i>		LT
Clubshell	<i>Pleurobema clava</i>	E	LE
Ebonyshell	<i>Fusconaia ebena</i>		LT
Elephant-ear	<i>Elliptio crassidens</i>		LT
Fanshell	<i>Cyprogenia stegaria</i>	E	LE
Fat Pocketbook	<i>Potamilus capax</i>	E	LE
Higgins Eye	<i>Lampsilis higginsii</i>	E	LE
Hydrobiid Cave Snail	<i>Fontigens antroecetes</i>		LE
Iowa Pleistocene Snail	<i>Discus macclintocki</i>	E	LE
Kidneyshell	<i>Ptychobranthus fasciolaris</i>		LE
Little Spectaclecase	<i>Villosa lienosa</i>		LT
Northern Riffleshell	<i>Epioblasma rangiana</i>	E	LE

Federal and State Threatened and Endangered Species of Illinois (cont'd)

Common Name	Scientific Name	Federal Status	State Status
Ohio Pigtoe	<i>Pleurobema cordatum</i>		LE
Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	E	LE
Pink Mucket	<i>Lampsilis abrupta</i>	E	LE
Purple Lilliput	<i>Toxolasma lividus</i>		LE
Purple Wartback	<i>Cyclonaias tuberculata</i>		LT
Rabbitsfoot	<i>Quadrula cylindrica</i>		LE
Rainbow	<i>Villosa iris</i>		LE
Salamander Mussel	<i>Simpsonaias ambigua</i>		LE
Shawnee Rocksnail	<i>Lithasia obovata</i>		LE
Sheepnose	<i>Plethobasus cyphus</i>		LE
Slippershell	<i>Alasmidonta viridis</i>		LT
Snuffbox	<i>Epioblasma triquetra</i>		LE
Spectaclecase	<i>Cumberlandia monodonta</i>		LE
Spike	<i>Elliptio dilatata</i>		LT
Wavy-rayed Lampmussel	<i>Lampsilis fasciola</i>		LE
Arachnids and Insects			
Arogos Skipper	<i>Atrytone arogos</i>		LE
Central Forestfly	<i>Prostoia completa</i>		LE
Cobweb Skipper	<i>Hesperia metea</i>		LT
Common Striped Scorpion	<i>Centruroides vittatus</i>		LE
Elfin Skimmer	<i>Nannothemis bella</i>		LT
Eryngium Stem Borer	<i>Papaipema eryngii</i>		LE
Hine's Emerald Dragonfly	<i>Somatochlora hineana</i>	E	LE
Hoary Elfin	<i>Incisalia polios</i>		LE
Karner Blue Butterfly	<i>Lycaeides melissa samuelis</i>	E	LE
Leafhopper	<i>Athysanella incongrua</i>		LE
Leafhopper	<i>Paraphlepsius lupalus</i>		LE
Madonna Cave Springtail	<i>Pygmarrhopalites madonnensis</i>		LE
Ottoo Skipper	<i>Hesperia ottoe</i>		LE
Redveined Prairie Leafhopper	<i>Aflexia rubranura</i>		LT
Regal Fritillary	<i>Speyeria idalia</i>		LT
Robust Springfly	<i>Diploperla robusta</i>		LE
Swamp Metalmark	<i>Calephelis mutica</i>		LE

Sources: Illinois Endangered Species Protection Board 2011; USFWS 2011a

Federal Status: E – Endangered; T- Threatened

State Status: LE – Listed Endangered; LT – Listed Threatened

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Appendix C:

CAUSES OF IMPAIRMENT OF ILLINOIS' ASSESSED RIVERS AND STREAMS
CAUSES OF IMPAIRMENT OF ILLINOIS' ASSESSED LAKES, RESERVOIRS, AND PONDS

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Causes of Impairment of Illinois' Assessed Rivers and Streams

Cause of Impairment	Cause of Impairment Group	Miles Threatened or Impaired
Fecal Coliform	Pathogens	3,317.6
Dissolved Oxygen	Organic Enrichment / Oxygen Depletion	3,004.9
Polychlorinated Biphenyls (PCBs)	Polychlorinated Biphenyls (PCBs)	2,658.2
Sedimentation/Siltation	Sediment	2,209.5
Alteration in Stream-Side or Littoral Vegetative Covers	Habitat Alterations	2,178.8
Phosphorus, Total	Nutrients	2,093.8
Manganese	Metals (other than Mercury)	1,859.6
Nitrogen, Total	Nutrients	1,756.0
Total Suspended Solids (TSS)	Turbidity	1,607.8
Mercury	Mercury	1,044.8
pH	pH / Acidity / Caustic Conditions	947.5
Total Dissolved Solids (TDS)	Salinity / Total Dissolved Solids / Chlorides / Sulfates	843.0
Other Flow Regime Alterations	Flow Alteration(s)	703.0
Cause Unknown	Cause Unknown	686.0
Sulfates	Salinity / Total Dissolved Solids / Chlorides / Sulfates	567.9
Aquatic Algae	Algal Growth	370.2
Silver	Metals (other than Mercury)	315.1
Iron	Metals (other than Mercury)	231.5
Atrazine	Pesticides	231.2
Chloride	Salinity / Total Dissolved Solids / Chlorides / Sulfates	229.6
DDT	Pesticides	192.4
Fish Kill(s)	Cause Unknown - Fish Kills	176.5
Hexachlorobenzene	Pesticides	174.8
Zinc	Metals (other than Mercury)	131.2
Dioxin (Including 2,3,7,8-TCDD)	Dioxins	130.1
Aldrin	Pesticides	111.4
Cadmium	Metals (other than Mercury)	106.3
Ammonia, Total	Ammonia	94.9
Methoxychlor	Pesticides	93.0
Chlordane	Pesticides	90.2
Nitrogen, Nitrate	Nutrients	83.5
Fish Passage Barrier	Habitat Alterations	78.1
Boron	Toxic Inorganics	63.5
Nickel	Metals (other than Mercury)	63.0
Copper	Metals (other than Mercury)	61.7
Aquatic Plants (Macrophytes)	Noxious Aquatic Plants	52.0

Causes of Impairment of Illinois' Assessed Rivers and Streams (cont'd)

Cause of Impairment	Cause of Impairment Group	Miles Threatened or Impaired
Barium	Radiation	34.7
Endrin	Pesticides	33.2
Oil and Grease	Oil and Grease	30.6
Heptachlor	Pesticides	28.6
Dieldrin	Pesticides	28.5
Non-Native Fish / Shellfish / Zooplankton	Nuisance Exotic Species	25.4
Fluoride	Toxic Inorganics	25.3
Lindane	Pesticides	21.3
Chlorine	Chlorine	13.6
Chromium, Total	Metals (other than Mercury)	10.1
Arsenic	Metals (other than Mercury)	9.6
Ammonia, Un-ionized	Ammonia	8.5
Alpha-BHC	Pesticides	6.5
Lead	Metals (other than Mercury)	2.9

Source: EPA 2006 Illinois 305(b) Water Quality Assessment

Causes of Impairment of Illinois' Assessed Lakes, Reservoirs, and Ponds

Cause of Impairment	Cause of Impairment Group	Acres Threatened or Impaired
Phosphorus, Total	Nutrients	107,373.6
Aquatic Algae	Algal Growth	106,486.1
Total Suspended Solids (TSS)	Turbidity	103,768.1
Manganese	Metals (other than Mercury)	63,189.1
Sedimentation/Siltation	Sediment	33,522.8
Dissolved Oxygen	Organic Enrichment / Oxygen Depletion	31,800.9
Aquatic Plants (Macrophytes)	Noxious Aquatic Plants	26,984.4
Atrazine	Pesticides	25,776.1
Polychlorinated Biphenyls (PCBs)	Polychlorinated Biphenyls (PCBs)	21,811.7
Cause Unknown	Cause Unknown	11,527.5
Non-Native Fish/Shellfish/Zooplankton	Nuisance Exotic Species	8,044.0
Mercury	Mercury	7,476.0
Silver	Metals (other than Mercury)	7,287.4
pH	pH/Acidity/Caustic Conditions	5,117.0
Chlordane	Pesticides	4,791.0
Nitrogen, Nitrate	Nutrients	4,508.0
Aldrin	Pesticides	4,419.0
Nitrogen, Total	Nutrients	3,783.0
Zinc	Metals (other than Mercury)	2,631.0
Heptachlor	Pesticides	2,107.0
Ammonia, Total	Ammonia	2,048.0
Fecal Coliform	Pathogens	721.5
Cadmium	Metals (other than Mercury)	524.0
Nickel	Metals (other than Mercury)	325.4
Total Dissolved Solids (TDS)	Salinity/Total Dissolved Solids / Chlorides / Sulfates	261.0
Non-Native Aquatic Plants	Nuisance Exotic Species	110.0

Source: EPA 2006 Illinois 305(b) Water Quality Assessment

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