



# **Wildlife Habitat Incentives Program**

Final Programmatic Environmental Assessment

January 2009

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## **1.0 INTRODUCTION**

### **1.1 Program overview**

The Wildlife Habitat Incentives Program (WHIP) is a voluntary conservation program that was originally authorized by the Federal Agricultural Improvement and Reform Act of 1996. In 2002, WHIP was incorporated into the Food Security Act of 1985's Title XII provisions, which were amended by the Food, Conservation, and Energy Act of 2008 (2008 Act). Under WHIP, the Natural Resources Conservation Service (NRCS), acting on behalf of the Secretary of Agriculture, issues cost-share payments to program participants to develop upland wildlife habitat, wetland wildlife habitat, habitat for threatened and endangered species, fish habitat, and other types of wildlife habitat approved by the NRCS.

WHIP offers opportunities to improve fish and wildlife habitat on eligible lands (privately owned agricultural and nonindustrial private forestland, tribal land, and public land when the primary benefit is on private or tribal land or the land is under private ownership during the duration of the agreement). NRCS may enter into agreements with Federal and State agencies, Indian Tribes, conservation districts, local units of government, public and private organizations, and individuals to assist with program implementation. WHIP funds are distributed to States based on State wildlife habitat priorities, which may include wildlife habitat areas, targeted species and their habitats, and specific practices. WHIP cost-share agreements can be used to protect and restore plant and animal habitat.

NRCS helps participants prepare a WHIP plan of operations (WPO) and an operations and maintenance (O&M) agreement in consultation with the local conservation district. Together, the WPO and the O&M agreement describe the participant's goals for improving wildlife habitat, lists practices and an installation schedule, and details the steps necessary to operate and maintain the conservation practices for the life of the agreement and the lifespan of the practice. Agreements can have a minimum duration of one year after the completion of conservation practices identified in the WPO up to a maximum duration of 10 years, or for certain resource concerns identified by NRCS, cost-share agreements can enter into a long term agreement that has a duration of 15 years or greater.

The 1996 and subsequent Farm Bills authorized mandatory funding for WHIP under the borrowing authority of the Commodity Credit Corporation (CCC). Table 1.1.1 provides funding details for fiscal years (FY) 2003–2008.

**Table 1.1.1. Authorized, Administration Requested, and Allowed Funding Levels for WHIP, FY 2003–08 (\$ millions)**

<b>FY</b>	<b>Authorized</b>	<b>Administration Requested</b>	<b>Funded</b>
2003	\$30	\$30	\$30
2004	60	42	42
2005	85	59	47
2006	85	60	43
2007	85	55	43
2008	85	85	85
Total	\$430	\$331	\$290

Modified from CRS Report RL31301, CRS Report RL31801, CRS Report RL32301, CRS Report RL32904, and CRS Report RL33412.

Since 2003, more than 24,200 cost-share agreements have been enrolled in WHIP on more than 3.9 million acres in cooperation with private landowners and Federal, State, or local agencies; conservation districts; and private conservation groups.

Although the primary purpose of the program is fish and wildlife habitat development and enhancement, the benefits are not limited to wildlife. The practices are often compatible with and beneficial to other natural resources, as well as the financial well-being of farming and ranching enterprises. Some practices enhance farm profitability by improving grazing conditions, increasing crop pollination, reducing management expenses, and producing noncrop income. The program has been used to control invasive species; re-establish native vegetation; manage nonindustrial private forestland; stabilize streambanks; protect, restore, develop, or enhance unique habitats; and remove barriers that impede migration of aquatic and terrestrial species.

WHIP priorities include wildlife and fishery habitats identified by local and State partners in each State; habitats and wildlife species experiencing declining or significantly reduced populations including rare, threatened, and endangered species; and practices beneficial to fish and wildlife that may not otherwise be funded. In order to provide direction to the State and local levels for implementing WHIP, NRCS has established the following national priorities:

- 1) Promote the restoration of declining or important native wildlife habitats;
- 2) Protect, restore, develop, or enhance wildlife habitat of at-risk species (candidate species, and State and federally listed threatened and endangered species);
- 3) Reduce the impacts of invasive species on wildlife habitats; and
- 4) Protect, restore, develop, or enhance declining or important aquatic wildlife species' habitats.

Table 1.1.2 lists the most commonly used conservation practices associated with WHIP for FY 2004–2007. The practices can be grouped in relation to common associated resources or land uses (e.g., wetland, buffers, grazing, forestland, etc.) for the purposes of analysis. For this environmental assessment, combinations of practices are illustrated in Appendix A. It should be noted that some practices are related to more than one land use.

**Table 1.1.2. Most Common Fish and Wildlife Related Habitat Restoration Practices Implemented in FY 2004–2007, WHIP**

Practices	Units Implemented				
	FY2004	FY2005	FY2006	FY2007	Total
Brush Management (314) (acre)	11,639	13,036	15,569	23,927	64,171
Conservation Cover (327) (acre)	2,771	4,171	5,069	4,762	16,773
Early Successional Habitat Development/Management (647) (acre)	3,878	7,879	13,715	14,398	39,870
Fence (382) (ft)	421,812	479,294	508,974	545,276	1,955,356
Field Border (386) (ft)	139,198	206,800	157,369	231,682	735,049
Firebreak (394) (ft)	1,727,153	1,392,432	1,564,248	2,269,080	6,952,913
Fish Passage (396) (mi)	3	4	13	132	152
Hedgerow Planting (422) (ft)	88,293	111,003	145,517	142,118	486,931
Pest Management (595) (acre)	14,352	20,225	12,289	25,475	72,341
Prescribed Burning (338) (acre)	33,382	32,210	34,903	47,516	148,011
Prescribed Grazing (528) (acre)	133,698	91,273	48,984	97,097	351,052
Range Planting (550) (acre)	2,811	1,984	6,514	3,402	14,711
Restoration and Management of Natural Ecosystems (766) (acre)		5,279	446	728	6,453
Restoration and Management of Rare and Declining Habitats (643) (acre)	1,517	617	8,455	8,990	19,579
Riparian Forest Buffer (391) (acre)	263	333	295	433	1,324
Riparian Herbaceous Cover (390) (acre)	41	211	33	245	530
Shallow Water Development and Management (646) (acre)	934	1,232	1,908	3,770	7,844
Stream Habitat Improvement and Management (395) (acre)	4,855	11,360	2,067	4,939	23,221
Streambank and Shoreline Protection (580) (ft)	25,686	66,845	35,973	76,804	205,308
Tree/Shrub Establishment (612) (acre)	1,994	6,774	3,796	4,896	17,460
Upland Wildlife Habitat Management (645) (acre)	177,667	227,340	161,252	370,600	936,859
Wetland Creation (658) (acre)	458	89	186	307	1,040
Wetland Enhancement (659) (acre)	460	685	714	1,109	2,968
Wetland Restoration (657) (acre)	3,208	7,261	5,575	2,928	18,972
Wetland Wildlife Habitat Management (644) (acre)	8,553	10,817	12,224	13,230	44,824
Windbreak/Shelterbelt Establishment (380) (ft)	374,085	314,500	299,766	167,858	1,156,209

## 1.2 Program Operation

*States Set Wildlife Priorities.* NRCS works at the local level and through the State Technical Committee to establish wildlife priorities. This process allows for local input, as well as coordination with other wildlife interests in the State encouraging the leveraging of other State, Federal, and private dollars. States generally select two to six priority habitat types, consistently including one or more upland and riparian habitats. Wetlands, aquatic instream habitat, and other unique wildlife habitat, such as caves and salt marshes, are also identified as priorities in a number of States.

*WPO.* The U.S. Department of Agriculture (USDA) and its partners provide program participants with an assessment of wildlife habitat conditions, as well as recommendations of various practices that would improve these habitat conditions, and they develop a plan for maximizing habitat for target species. This WPO becomes the basis of the cost-share agreement between NRCS and the participant.

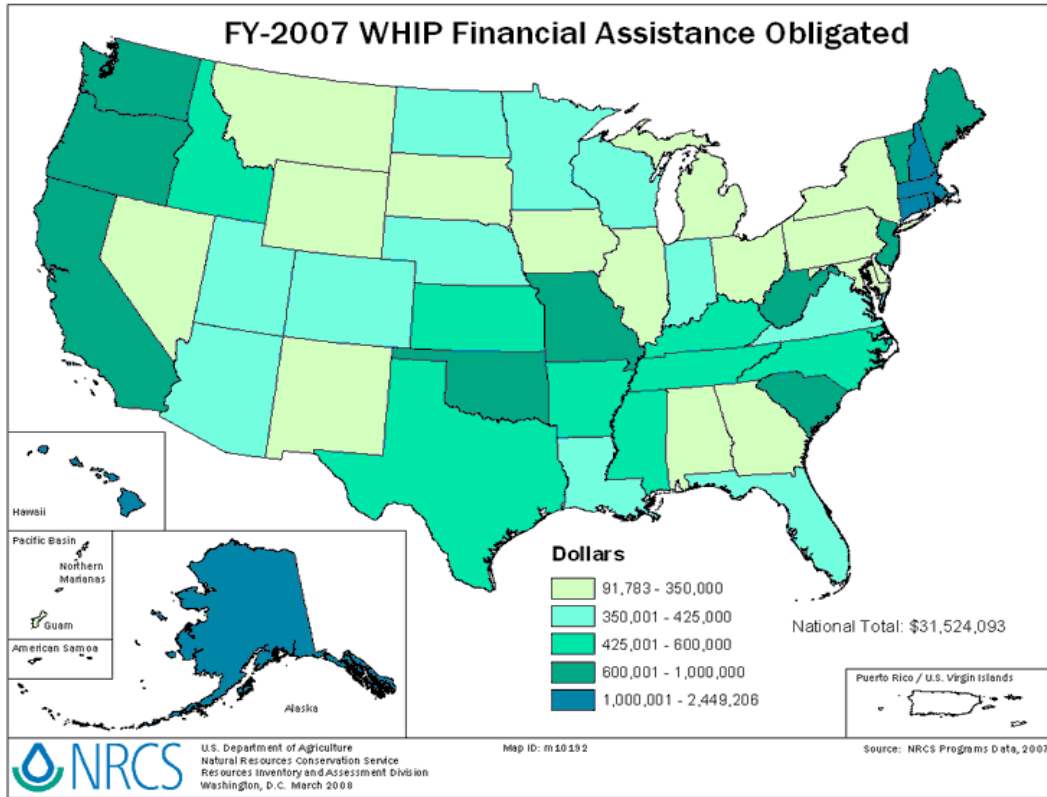
*WHIP Cost-share Agreements.* The WPO and the O&M agreement identify the cost-share practices that will be installed, as well as the O&M requirements for the life of the agreement and the lifespan of the practice. Agreements can be no less than one year after the completion of conservation practices identified in the WPO and have duration of up to 10 years. However, agreements usually last from 5 to 10 years. WHIP also allows participants to enter into longer agreements, comprising 15 years or more, to protect and restore essential plant and animal habitat. Long term cost-share agreements may be entered into to protect critical plant or animal habitat and can last for 15 years or more.

*Implementation Assistance.* Under this program, NRCS provides up to 75 percent of the cost of installing the conservation practices and up to 90 percent cost-share for long term agreements of 15 years or greater. Examples of conservation practices authorized under WHIP include native grassland seeding, prescribed burns, hardwood planting, and fish passage structure installation. For historically underserved producers (beginning, socially disadvantaged, or limited resource farmers and ranchers (LRFR), and Indian Tribes), NRCS provides the applicable payment rate and an additional rate not less than 25 percent above the applicable rate, provided such a rate does not exceed 90 percent of the incurred costs associated with the conservation practice, as determined by the NRCS State Conservationist (STC) or designated conservationist.

*Partners Play a Significant Role.* In addition to providing technical assistance, partners provide financial assistance by adding cost-share dollars, supplying equipment, or installing practices for the participant. The partners that play an essential part of the success of the program include public agencies, nonprofit organizations, corporate and private entities, and Technical Service Providers (TSPs).

In FY 2007, USDA enrolled more than 2,100 WHIP agreements on approximately 357,700 acres. Figure 1.2.1 illustrates the FY 2007 distribution of funds by State. Unfunded applications remain at high levels with more than 3,200 requests totaling more than \$55,700,000.

**Figure 1.2.1. Financial Assistance Obligations, FY 2007 WHIP**



### 1.3 Statutory Requirements

Mandatory changes resulting from the 2008 Act are as follows:

- *Section 2602(a)*. This section changes the program’s purpose by restricting participation to owners of private agricultural lands, nonindustrial private forestland, and tribal lands.
- *Section 2602(b)*. This section revises 1240N(b) to identify that the term “other types of habitat” includes habitat developed on pivot corners and irregular areas. This statutory change provides no new authority, but clarifies the Secretary’s existing authority to provide cost-share on the described lands.
- *Section 2602(e)*. This section establishes the following payment limitation: “Payments made to a person or legal entity, directly or indirectly, under [WHIP] may not exceed, in the aggregate, \$50,000 per year.”

Additional regulatory changes are described in the alternatives section.



## 2.0 NEED FOR ACTION

The proposed Federal action being considered by NRCS is the promulgation of revised regulations to implement changes in WHIP that have been mandated by the 2008 Act. NRCS has prepared this Programmatic EA in order to evaluate at a broad national scale the indirect and cumulative effects of the conservation practices and to use this analysis as a means for site-specific implementation plans to tier to this analysis. As the scope of the proposed action is for a national program, the analysis herein is referred to as a Programmatic Environmental Assessment (PEA) and evaluates the potential environmental impacts at a broad program scale. NRCS is utilizing this Programmatic EA to assist the Agency in determining whether promulgation of the proposed rule and implementation of WHIP conservation practices will significantly affect the quality of the human environment, such that NRCS must prepare a programmatic Environmental Impact Statement (EIS). In accordance with Council on Environmental Quality (CEQ) regulations at 40 CFR Part 1508.9, this Programmatic EA is “a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.” In accordance with NRCS regulations that implement the National Environmental Policy Act (NEPA) (7 CFR Part 650.4(b) (2), this EA contains the following information:

- A brief discussion of the need for action
- Alternatives
- A discussion of the anticipated environmental impacts
- A list of agencies and persons consulted

Actions that may be taken at NRCS State/local levels to further implement WHIP will be able to tier to, or incorporate by reference, the general and broad scale analysis from this national Programmatic EA into more site-specific level analyses.

NRCS regulations that implement NEPA (7 CFR Part 650) require a site-specific environmental evaluation (EE) to be performed for all NRCS technical and financial assistance for the development of conservation plans with land users. The EE identifies relevant resource concerns and alternatives; evaluates potential impacts; and determines needed mitigation for soil, water, plant, animal, and human resources that may exist on the site. The EE also determines if protected resources occur on the property and if those resources have the potential to be affected by conservation plan practices. NRCS guidance on the site-specific environmental evaluation process and definitions of protected resources can be found in the NRCS National Environmental Compliance Handbook (NRCS 2006).

Any subsequent analyses that are prepared to implement WHIP at the NRCS State or local level will be meeting NEPA’s intent by focusing on the issues/concerns pertinent to that site-specific action.

## **3.0 ALTERNATIVES**

### **3.1 Alternative scoping and public involvement**

The USDA leadership traveled the country in 2005 to hear the opinions of producers and other stakeholders about future farm policy, including WHIP. Many people participated in the 52 Farm Bill forums held throughout the United States, while others submitted comments through the NRCS Web site and through the mail. All totaled, the USDA received more than 4,000 comments throughout this process.

Following is a summary of comments received and considered in the formulation of WHIP program alternatives:

- Maintain a strong, effective conservation title in the next Farm Bill to ensure that producers have tools necessary to continue conserving and protecting soil, air, water, and wildlife habitat.
- Offer financial incentives for farmers and ranchers to set aside parts of their land to benefit wildlife.
- Continue support and fully fund existing conservation programs—CRP, EQIP, WRP, WHIP, GRP, and CSP.
- Keep the co-equal status of soil, water, and wildlife as the standard.
- Provide more incentives to provide strategic wildlife cover such as buffers placed where they will be of greatest value to wildlife.
- Incorporate the safe harbor provisions into the application process to encourage participation when endangered species are a concern.
- Make leveraging of the WHIP funds with State and private organizations a national priority.
- Provide more financial incentives on private forestlands for wildlife.
- Recommend a strong conservation title so that farmers and ranchers benefit from the additional income and the public benefits from better water quality and quantity and more wildlife habitat and outdoor recreation.
- Focus a certain amount of 2008 Farm Bill conservation funds on stream habitat restoration, given the significance of our coldwater fisheries, providing incentives to protect streamside areas, repair instream habitat, improve water flows and water quality, and initiate watershed management and planning given the significance of our coldwater fisheries.

### **3.2 Alternative 1—No Action**

The current or future program incentives through WHIP would not be available to participants to implement conservation practices to restore declining and important native wildlife habitat; protect, restore, develop or enhance wildlife habitat of at-risk species; reduce the impacts of

invasive species; or protect, restore, develop, or enhance declining and important aquatic wildlife species habitats.

### **3.3 Alternative 2—Implementation of 2008 WHIP Requirements**

The current WHIP would continue through FY 2012 with the following modifications:

- Additional incentives may be provided to beginning farmers or ranchers, socially disadvantaged farmers or ranchers, limited resource farmers or ranchers, and Indian Tribes. For historically underserved producers (beginning, socially disadvantaged or LRFR), NRCS provides the applicable payment rate, and an additional rate not less than 25 percent above the applicable rate, provided such a rate does not exceed 90 percent of the incurred costs associated with the conservation practice, as determined by the NRCS STC or designated conservationist.
- Eligible land will be limited to private agricultural land, nonindustrial private forestland, and tribal land and publically owned land where: the land is under private control for the contract period, the land is included in the participant's agricultural operation, and the conservation practices will contribute to an improvement in the identified natural resource concern that is located on private land.
- Priority may be given to projects that would address issues raised by State, regional, and national conservation initiatives.

Implementation of all conservation practices applied through WHIP are planned, evaluated, and implemented as a result of the field conservationist's application of the NRCS planning process, environmental evaluation, and adherence to the applicable conservation practice standards and specifications.

Conservation planning is a natural resource problem solving and management process. The process integrates economic, social (including cultural resources), and ecological considerations to meet private and public needs. This approach, which emphasizes desired future conditions, helps improve natural resource management, minimize conflict, and address problems and opportunities. Conservation planning deals with complete systems of conservation practices, rather than just parts of systems. The expected physical effects of conservation systems and practices are assessed in the context of ecological, economic, and social considerations as documented locally in the Field Office Technical Guide. The expected impacts of those effects on natural resource quality, economic needs, and social objectives are then used to help develop and evaluate management alternatives.

As a concurrent part of the planning process, NRCS conducts an onsite EE in which the potential long- and short-term impacts of an action on people, their physical or social surroundings, and nature are evaluated and alternative actions explored.

Alternative actions in the form of individual and groups of conservation practices are formulated to address resource concerns and take advantage of environmental opportunities. Each conservation practice consists of a conservation practice standard which prescribes the minimum materials and workmanship required, and a specification which prescribes how the practice is to be specifically installed.

The planning, EE, and standard and specification for each conservation practice must be satisfied before NRCS will provide Federal financial assistance under the program.

## **4.0 ENVIRONMENTAL IMPACTS OF ALTERNATIVES**

### **4.1 Scope of Analysis**

NRCS held 52 public meetings throughout the United States prior to the passage of the 2008 Farm Bill. The comments provided on the programs and legislation for the 2008 Farm Bill has helped the Agency focus on the public's concerns and issues. Consequently, NRCS has been able to use these public meetings to identify "what are and what are not the real issues" to be analyzed in this Programmatic EA (1500.5(d)). The issues raised by the public have helped NRCS fulfill one of NEPA's goals, which is to have environmental analyses evaluate "environmental issues deserving of study (and to) deemphasize insignificant issues," thereby "making the NEPA process more useful to decisionmakers and the public" (1500.4(g) and 1500.2B)).

Listed below are resource concerns identified by the public and NRCS that were determined to be relevant to WHIP and analyzed in this programmatic EA:

- Soil (erosion)—sheet and rill, wind, shoreline
- Water quality (surface waters)—pesticides, nutrients, temperature
- Air quality—particulate matter (PM-10), CO<sub>2</sub>, visibility)
- Plant (condition)—productivity, health and vigor; forage quality and palatability
- Plant—declining species and species of concern, noxious and invasive species
- Animal (fish and wildlife)—food, cover, water, habitat fragmentation, population imbalance, declining species, and species of concern
- Animal (domestic)—forage quality, water
- Human resources—economic, social

The complete list of NRCS soil, water, air, plants, and human (SWAPA+H) national resource concerns considered for analysis can be found at:

[ftp://ftp-fc.sc.egov.usda.gov/NHQ/ecs/CPPE/cppe-spreadsheet/updated-version/CPPE\\_National.xls](ftp://ftp-fc.sc.egov.usda.gov/NHQ/ecs/CPPE/cppe-spreadsheet/updated-version/CPPE_National.xls)

Additionally, environmental issues identified in NRCS regulations (7CFR § 650), environmental laws, and executive orders are included in the analysis as follows:

- Prime and unique farmlands
- Clean water
- Coastal zone management areas
- Flood plain management

- Riparian areas
- Wetlands
- Wild and scenic rivers
- Clean air
- Endangered and threatened species
- Invasive species
- Natural areas
- Riparian areas
- Coral reefs
- Essential fish habitat
- Migratory birds
- Cultural resources
- Environmental justice

The PEA analysis focuses on the anticipated impacts to biological (fish and wildlife) resources, as that is the intended purpose of the program and has the potential for environmental effects. In the course of implementing the program, there are almost always indirect impacts and/or unintended consequences to other nontargeted resources, i.e., soil, water, air, and human resources.

To identify the direct, indirect, and cumulative impacts of conservation practices, NRCS developed network effects diagrams depicting the possible natural resource effects that typically results from the application of conservation practices. Each of the network diagrams first identifies the conditions under which the practice is applied. This includes identification of the predominating land use and the resource concerns that trigger use of the practice. The diagrams then identify the practice used to address the resource concerns. Following identification of the practice, there is a description of the physical activities that are carried out to implement the practice. From there, the diagrams depict the occurrence of the direct, indirect, and cumulative effects of the practice. Effects are qualified with a "+" or a "-", which denotes an increase ("+") or decrease ("-") in the effect. Pluses and minuses do not equate to good and bad or positive and negative. Only the general effects that are considered the most important ones from a national perspective are illustrated. Network diagrams for all NRCS conservation practices, including a photo and summary description about how each of these practices is intended to be used and the general effects of using the practice, can be found at:

[http://www.nrcs.usda.gov/programs/Env\\_Assess/index.html](http://www.nrcs.usda.gov/programs/Env_Assess/index.html)

## **4.2 Impacts to Soil Resources**

Soil resources evaluated include impacts to sheet, rill, wind, and shoreline erosion; prime and unique farmland.

#### 4.2.1 Benchmark Conditions

Soil erosion sources and rates are inventoried and addressed for all conservation plans prepared by NRCS field conservationists as a part of the SWAPA+H resource inventory process. Table 4.2.1 lists the conservation practices applied in FY 2007 that were implemented to address, wholly or in part, soil quality and erosion. Application rates of this group of practices have been relatively consistent with the level of funding since the program's inception.

**Table 4.2.1. Conservation Practices Installed in FY 2007 Address Soil Resources**

<b>FY 2007 Practices Installed</b>	<b>No.</b>	<b>Units</b>
Channel Bank Vegetation (322) (acre)	2	6
Channel Stabilization (584) (ft)	6	997
Conservation Cover (327) (acre)	240	2,789
Cover Crop (340) (acre)	17	426
Critical Area Planting (342) (acre)	69	189
Field Border (386) (ft)	85	205,061
Filter Strip (393) (acre)	4	3
Grade Stabilization Structure (410) (no.)	7	106
Grassed Waterway (412) (acre)	3	4
Mulching (484) (acre)	99	36,497
Residue and Tillage Management, No-Till/Strip Till/Direct Seed (329) (acre)	1	42
Residue Management, Mulch Till (329B)	4	99
Residue Management, Seasonal (344) (acre)	2	11
Riparian Herbaceous Cover (390) (acre)	6	46
Stream Crossing (578) (no.)	4	7

#### 4.2.2 Alternative 1—No Action

Without WHIP program funding, it is anticipated that where significant soil erosion and quality problems existed, those participants could potentially find assistance through other USDA programs, such as the Environmental Quality Incentives Program (EQIP), to address those resource concerns. However, the wildlife benefits afforded through WHIP would likely be foregone due to differences in program priorities. Where relatively minor soil erosion and soil quality problems existed, soil resources normally addressed as a secondary benefit of WHIP participation would likely not be addressed. Degradation of the soil resource, as exhibited in many of the practice network effects diagrams, leads to degradation of other related resources such as increases in turbidity of waters, increased stream and water body temperatures, decreased quality of aquatic habitat, and ultimately, decreased abundance and diversity of fish and wildlife species.

### **4.2.3 Alternative 2—Implementation of 2008 WHIP Requirements**

Continuation of the existing WHIP would extend the benefits of conservation treatment by providing the same soil conserving services as are currently being achieved. The majority of practices implemented affect soil erosion and soil quality by stabilizing the soil with vegetative cover, thereby preventing detachment and subsequent transport by water and wind.

Neither alternative is expected to result in impacts to prime or unique farmland, as these lands are unlikely to be converted to nonagricultural use regardless of whether WHIP exists.

### **4.3 Impacts to Water Resources**

Water resources evaluated include impacts to surface water quality (pesticides, nutrients, and turbidity), waters of the United States, coastal zones, flood plains, riparian areas, wetlands, and wild and scenic rivers.

#### **4.3.1 Benchmark Conditions**

As exhibited in the Table 4.3.1, a large number of conservation practices have been implemented to manipulate, conserve, and restore water resources.

**Table 4.3.1. Conservation Practices Installed FY 2007 Addressing Water Resources**

<b>Practices Installed (FY 2007)</b>	<b>No.</b>	<b>Units</b>
Brush Management (314) (acre)	547	21,992
Channel Bank Vegetation (322) (acre)	2	6
Channel Stabilization (584) (ft)	6	997
Conservation Cover (327) (acre)	240	2,789
Cover Crop (340) (acre)	17	426
Critical Area Planting (342) (acre)	69	189
Dike (356) (ft)	12	10,787
Fence (382) (ft)	184	594,608
Field Border (386) (ft)	85	205,061
Filter Strip (393) (acre)	4	3
Grade Stabilization Structure (410) (no.)	7	106
Grassed Waterway (412) (acre)	3	4
Grazing Land Mechanical Treatment (548) (acre)	2	152
Irrigation System, Microirrigation (441) (acre)	16	775
Irrigation System, Sprinkler (442) (acre)	1	105
Irrigation Water Management (449) (acre)	4	124
Mulching (484) (acre)	99	36,497
Nutrient Management (590) (acre)	28	3,907
Obstruction Removal (500) (acre)	17	33
Pipeline (516) (ft)	59	134,963
Prescribed Burning (338) (acre)	595	39,637
Prescribed Grazing (528) (528A) (acre)	124	97,097
Range Planting (550) (acre)	111	7,339
Residue and Tillage Management, No-Till/Strip Till/Direct Seed (329) (acre)	1	42
Residue Management, Mulch Till (345)	4	99
Residue Management, Seasonal (344) (acre)	2	11
Riparian Forest Buffer (391) (acre)	32	274
Riparian Herbaceous Cover (390) (acre)	6	46
Stream Crossing (578) (no.)	4	7
Streambank and Shoreline Protection (580) (ft)	48	28,926
Structure for Water Control (587) (no.)	34	66
Tree/Shrub Establishment (612) (acre)	552	7,585
Use Exclusion (472) (acre)	85	9,466
Watering Facility (614) (no.)	60	1,122
Wetland Creation (658) (acre)	25	1,992
Wetland Enhancement (659) (acre)	25	85
Wetland Restoration (657) (acre)	126	6,179
Windbreak/Shelterbelt Establishment (380) (ft)	84	169,778



### 4.3.2 Alternative 1—No Action

Benefits accrued through implementation of conservation practices would not be realized.

### 4.3.3 Alternative 2—Implementation of 2008 WHIP Program Requirements

A significant number of WHIP cost-share agreements have been implemented to restore streams and their associated flood plains and wetlands. Implementation of conservation practices such as Diversion (362), traditionally thought to impair watercourses, have been implemented to protect streams from dairy runoff by manipulating outside water flows around dairy facilities, thereby protecting the waters from influxes of excessive nutrient loads.

#### Example

The Sandy River Project in the State of Maine was an existing dam and impoundment located between the towns of Norridgewock and Starks on the Sandy River. The project facilities included a concrete gravity dam with granite core consisting of an abutment on the southwest side of the spillway, a forebay, a sluice gate, and pin-supported flashboards. Also included in the project was a 150-acre impoundment, an intake canal, powerhouse, and appurtenant facilities. The drainage area is approximately 578 square miles. The project included decommissioning the Sandy River Project and completely removing the dam/spillway, resulting in restoration of natural instream flows and flood plain and riparian area functions. Additionally, historic resources (i.e., powerhouse structure) were preserved.

Figures 4.3.1 and 4.3.2 show before and after photos of the Sandy River Project.

**Figure 4.3.1. Before Sandy River Project**



**Figure 4.3.2. After Sandy River Project**



As a part of the EE process, NRCS identifies potential impacts to waters of the United States, coastal zones, flood plains, riparian areas, wetlands, and wild and scenic rivers. Where these resources are present, NRCS evaluates the potential impacts to these resources and takes appropriate action to avoid or minimize impact, consult with appropriate regulatory agencies, and require all appropriate permits prior to finalizing the conservation plan and approving the action for implementation.

#### 4.4 Impacts to Air Resources

The Clean Air Act (CAA) is the primary Federal law that protects the Nation's air quality for the purposes of public health and welfare. NRCS, as a conservation agency, supports the CAA and the protection of air resources, in general, through four air quality resource concern components: particulate matter (PM), ozone (O<sub>3</sub>) precursors, GHGs, and odor.

##### **National Ambient Air Quality Standards**

The CAA requires EPA to establish National Ambient Air Quality Standards (NAAQS) for six pollutants. They are particle pollution (often referred to as PM), ground-level ozone, carbon monoxide (CO), sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), and lead. EPA has promulgated the current NAAQS in 40 CFR Part 50.

The EPA calls these six pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called primary standards. Another set of limits intended to prevent environmental and property damage is called secondary standards. The primary standard represents the maximum concentration of a particular pollutant in the ambient air (i.e., locations to which the general public has access) that will not adversely impact public health or welfare.

A geographic area that meets or has air quality better than the primary standard (or is unclassifiable) is called an attainment area. Areas that do not meet the standards or contribute pollution to nearby areas are called nonattainment areas. Nonattainment areas that have air quality data showing attainment, in accordance with requirements applicable to the relevant NAAQS, and have been redesignated to attainment are called maintenance areas, because the emission control strategies used to reach attainment status are still required to "maintain" the positive effect on air quality in those areas. An area may be designated attainment for some pollutants and nonattainment for others.

The stringency of air pollution regulations in a particular area is based upon whether that area is in attainment (i.e., is in compliance) or nonattainment (i.e., is not in compliance) with NAAQS. Nonattainment areas typically have more stringent control and permitting requirements than attainment areas.

*Implications for agriculture:* State and local air quality agencies are required to consider all sources (including agriculture) for a particular pollutant when determining how to bring an area into compliance with a NAAQS. Tribal air quality agencies may also regulate sources of air pollution, however, where they do not, EPA is the regulatory agency in Indian Country. Therefore, if an agricultural operation is found to cause or contribute to an exceedance of the NAAQS, additional regulatory controls may be mandated for the agricultural source.

## Criteria Pollutants

Particulate matter is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles.

The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. EPA groups particle pollution into two categories:

"Inhalable coarse particles," such as those found near roadways and dusty industries, are larger than 2.5 micrometers but not larger than 10 micrometers in diameter.

"Fine particles," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air.

Thus, sources that emit PM as well as certain precursors that contribute to the formation of PM (e.g., NO<sub>x</sub> and sulfur dioxide (SO<sub>2</sub>)) may be regulated. Additionally, some areas may regulate volatile organic compounds (VOC) and ammonia as precursors to formation of fine particles (PM<sub>2.5</sub>), if these pollutants significantly contribute to formation of PM<sub>2.5</sub> for a particular area.

Ozone is not emitted directly from air pollutant emission sources. Rather, it is formed in the atmosphere via chemical reactions. As such, emissions of VOC and NO<sub>x</sub> are regulated as precursors to ozone formation.

*Implications for agriculture:* The major criteria pollutants of concern for agriculture are PM and ozone. Agricultural operations can contribute to ozone and particulate matter concentrations via emissions of VOC, NO<sub>x</sub>, direct PM, and ammonia. All biological organisms emit VOC, and VOC is also emitted during the breakdown or combustion of biological materials. NO<sub>x</sub> is generally associated with combustion (e.g., farm vehicle, tractor, and irrigation engines) as well as with agricultural burning. Particulate matter may be either emitted directly (dust is a form of particulate matter) or formed in the atmosphere from other pollutants, such as ammonia from animal operations or fertilizer application. The criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub>, and lead are typically products of combustion.

## Air Toxic Pollutants

Toxic air pollutants, also known as hazardous air pollutants (HAPs), are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. EPA is working with State, local, and Tribal governments to reduce air toxics releases of 188 pollutants to the environment. Examples of

toxic air pollutants include benzene, which is found in gasoline; perchlorethylene, which is emitted from some dry cleaning facilities; methylene chloride, which is used as a solvent and paint stripper by a number of industries; and methanol which may be emitted from certain agricultural operations.

*Implications for agriculture:* Agricultural operations can emit HAPs. In fact, many VOC are HAPs. However, there is no evidence to date that agricultural production operations are major sources of HAPs. Additionally, the vast majority of HAPs that could be emitted from agricultural production operations are the result of natural biological processes (i.e., the natural microbial decomposition of organic material). Since agricultural production HAPs are naturally-occurring, the level of HAP emissions from agricultural operations are relatively small, and potential control of these HAPs would mirror VOC emissions mitigation strategies, NRCS has not specifically prioritized the control of HAP emissions from agricultural production operations.

### **Regional Haze Rule (RHR)**

The CAA sets forth a national goal for visibility which is the “prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution.” There are 156 Class I areas across the country, including many well-known national parks and wilderness areas. Regional haze is visibility impairment caused by the cumulative air pollutant emissions from numerous sources over a wide geographic area. In 1999, EPA promulgated the Regional Haze Regulations under 40 CFR Part 51 to protect and improve the visibility at these Class I areas.

*Implications for agriculture:* Particulate matter is the major source of visibility impairment in Class I areas. Agricultural operations can contribute to particulate matter concentrations via direct emissions of PM and secondary formation of PM from precursor gases such as VOC, NO<sub>x</sub>, and ammonia.

### **State and Tribal Implementation Plans (SIPs/TIPs)**

EPA can delegate authority to implement the CAA requirements to State and Tribal air quality agencies. In order to accomplish this purpose, State agencies are required to develop SIPs and Tribes may develop TIPs<sup>1</sup>. A SIP/TIP is the collection of regulations a State or Tribal air quality agency uses to address air quality concerns in its area. SIP/TIP regulations developed with adequate public review and comment, and have been approved by EPA, are considered federally enforceable.

Among other air quality regulations, SIPs/TIPs generally include regulations regarding:

- Construction permits
- Emission standards for certain sources and pollutants

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<sup>1</sup> EPA is the regulatory authority if the tribe is unable to develop a TIP.

The CAA grants EPA the authority to approve State/Tribal operating permit programs outside of the SIP/TIP and the resulting operating permits are federally enforceable.

SIPs/TIPs may also contain other regulations that are not specifically required under the CAA, such as odor regulations, and these regulations do not necessarily have to be approved by EPA. However, any SIP/TIP regulations that are not approved by EPA are not considered federally enforceable.

*Implications for agriculture:* A SIP/TIP is a mechanism by which State and Tribal air quality agencies can address local air quality concerns. The extent to which a particular SIP/TIP may impact agricultural operations in that area is directly related to the local air quality issues. For example, a State with a large population of animal feeding operations may have a SIP regulation that addresses odors from these operations. Alternatively, States with a significant amount of agriculture in a nonattainment area (such as California's San Joaquin Valley) may develop SIP regulations limiting the emissions from, or mandating regulatory controls for agricultural sources. In fact, the San Joaquin Valley Air Pollution Control District has developed a SIP regulation whereby agricultural operations must select a certain number of specified Conservation Management Practices to reduce emissions of PM<sub>10</sub>.

## **General Conformity**

Federal actions within a nonattainment or maintenance area must conform to the appropriate SIP requirements. Thus, the Determining Conformity of General Federal Actions to State or Federal Implementation Plans ("General Conformity") Rule was promulgated under 40 CFR Parts 6, 51, and 93. General Conformity applies to all actions supported, funded, or permitted by the Federal government within a nonattainment or maintenance area.

*Implications for agriculture:* Federal funds under Farm Bill programs are sometimes used to apply conservation practices on the ground and, as such, are subject to General Conformity if the conservation practices are applied in a nonattainment or maintenance area. Most conservation practices mitigate impacts to air quality and thus can be presumed to conform to General Conformity requirements.

## **Greenhouse Gases and Carbon Sequestration**

GHG emissions are a global concern, and while agricultural emissions of GHGs are minor compared to other sectors (such as industry, transportation, and electric generation), agriculture is both a source of and an important means of reducing GHGs. Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) are the primary GHGs of concern from agricultural operations. However, agriculture is also an important means of reducing GHG through soil carbon sequestration. Anthropogenic sources of CO<sub>2</sub> in agriculture are from combustion processes and soil tillage. Nitrous oxide is emitted due to nitrogen conversion processes in the soil and manure piles, and methane is primarily from animal production and manure storage. Conservation tillage practices, nutrient management, manure management, and anaerobic digesters are some of the conservation practices that can mitigate these emissions. Conservation tillage practices will,

in particular, enhance soil carbon sequestration. Although GHGs are not currently regulated under the CAA, State, local, and Tribal governments may develop regulations concerning emissions of GHGs.

## **Odors**

Odor is not regulated under the CAA. However, State, local, and Tribal governments may develop regulations regarding odors. The main classes of odorous compounds produced by agricultural sources are VOC, odorous sulfur compounds, and ammonia. Agricultural odors typically arise from animal operations, manure management, and land application of manure. Conservation practices such as feed management, nutrient management, manure management, lagoon covers, and anaerobic digesters can reduce the production and emission of odorous compounds.

## **Baseline Environment**

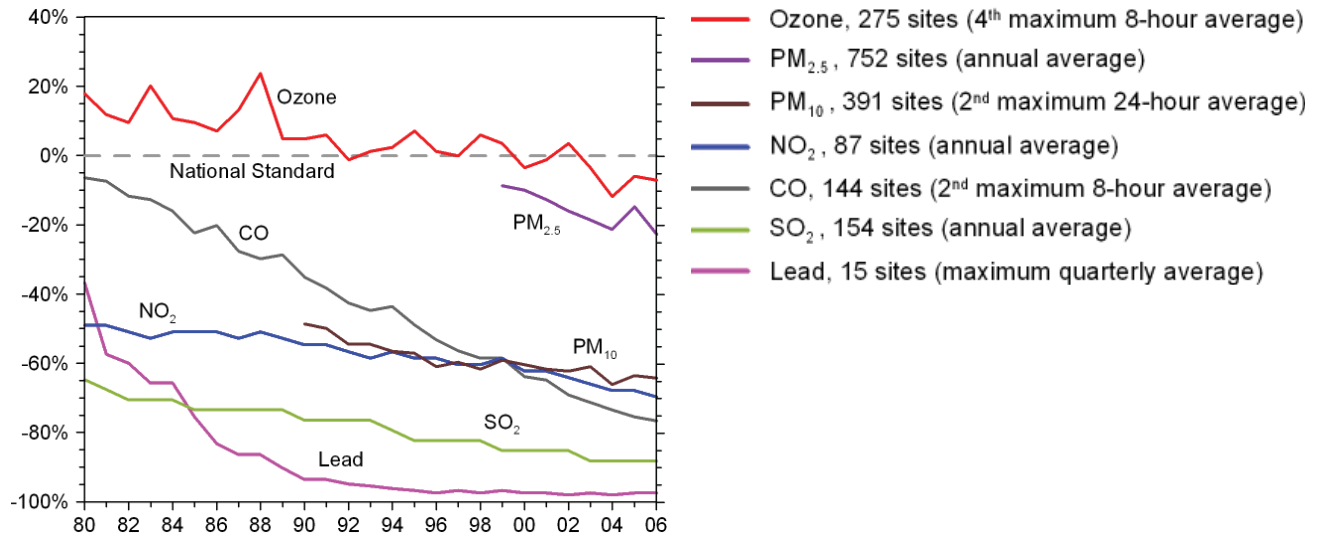
Cleaner cars, industries, and consumer products have contributed to cleaner air for much of the United States. Since 1980, nationwide air quality, measured at more than a thousand locations across the country, has improved significantly for all six criteria pollutants.

Figure 4-4 shows national trends in the six principal pollutants (those for which NAAQS were established) relative to their air quality standards, as measured by monitors located across the country. Most pollutants show a steady decline throughout the time period with a couple of exceptions. Ozone declined in the 1980s, leveled off in the 1990s, and showed a notable decline after 2002.

Most of the pollutants show a smooth, gradual downward trend from year to year, while ozone and PM<sub>2.5</sub> trends are not smooth and show year-to-year influences of weather conditions which contribute to their formation.

All of the six principal pollutants show improvement (decline in ambient air concentrations) over the 27-year period. While progress has been made nationally, there are still areas that have local air quality problems caused by one or more pollutants. Ozone and fine particle pollution continues to present air quality concerns throughout much of the United States, with many monitors measuring concentrations above or close below NAAQS.

**Figure 4-4. Comparison of National Levels of the Six Principal Pollutants to National Ambient Air Quality Standards, 1980-2006**



National levels are averages across all sites with complete data for the time period.  
 Note: Air quality data for PM<sub>10</sub> and PM<sub>2.5</sub> start in 1990 and 1999, respectively.  
 Source: <http://www.epa.gov/air/airtrends/2007/>

Impacts to air resources would be considered significant if there were exceedances of NAAQS for PM, ozone precursors, GHGs, or odor.

**Permits**

Depending on the extent of work conducted under the practices, air quality permits may be required from the State, Tribe or EPA. The completion of a site-specific EE would determine the appropriate air quality permit that may be required to be obtained by the producer prior to receiving any financial assistance from NRCS.

**Permit Programs**

There are two main types of permits that are used to establish emission limits for a source – construction permits and operating permits.

**Construction Permits**

Construction permits are used to establish emission limits for new air pollutant emission sources or changes to existing sources. As such, they are also referred to as New Source Review (NSR) permits. Certain construction permits are federally mandated and are referred to as Federal construction permits. Federally mandated construction permits are issued under the "major NSR" program. Air pollutant emission sources that are not required to obtain Federal construction permits are typically subject to a State or Tribal construction permit system referred

to as "minor NSR." Both Federal and State or Tribal construction permits are typically issued by the State or Tribal air quality agency.

The level of construction permitting required depends on the sum of a pollutant's potential to emit from all air pollutant emission sources at a site. Most agricultural operations do not qualify as major stationary sources under the Federal guidelines and are subject instead to State or Tribal construction permitting (minor NSR). However, large agricultural operations, especially in nonattainment areas, may qualify as major stationary sources that are subject to Federal permitting requirements.

### **State or Tribal Construction Permits**

Projects for which a Federal construction permit is not required must still typically obtain some form of authorization prior to initiating construction. This authorization usually is received in the form of a State or Tribal construction permit. The type, complexity, and stringency of these authorizations/permits varies widely among regulatory agencies and is dependent upon the types of air pollutant emission sources under review and the type and amount of emissions increases associated with the proposed project.

*Implications for agriculture:* Most agricultural operations are not major stationary sources and are not required to obtain Federal construction permits. However, depending upon the SIP/TIP regulations in effect for the area in which the operation is located, many agricultural operations are now required to obtain some form of State or Tribal permit or authorization prior to initial construction or initiating a modification of an existing source. For example, a dairy that is considering the installation of an anaerobic digester may be required to obtain a permit for the digester and any other modifications associated with that project. Additionally, many State regulatory agencies now require permits for AFOs prior to constructing the facility.

### **Operating Permits**

Operating permits authorize the operation of air pollutant emission sources following the completion of construction or modification of the sources. Existing sources may also be required to obtain an operating permit in order to authorize continued operation of the site. As with construction permits, certain sites may also be required to obtain a Federal operating permit. Air pollutant emission sources that are not required to obtain a Federal operating permit are typically subject to a State or Tribal operating permit. However, most agricultural production operations are not currently subject to Federal operating permit requirements.

### **State or Tribal Operating Permits**

Sites for which a Federal operating permit is not required must still typically obtain some form of authorization to operate. This authorization is usually received in the form of a State or Tribal operating permit. As with State and Tribal construction permits, the type, complexity, and stringency of State and Tribal operating permits varies widely among regulatory agencies and is



dependent upon the types of air pollutant emission sources, as well as the type and amount of pollutants emitted from those sources at the site.

*Implications for agriculture:* Agricultural operations that are required to obtain construction permits are typically required to obtain operating permits upon completion of the new construction or modification. Additionally, larger operations, especially in nonattainment areas, may be determined to be major sources and subject to Federal operating permit requirements. For example, several dairies in the South Coast Air Quality Management District in California have been required to obtain Federal operating permits.

#### 4.4.1 Benchmark Conditions

Air resources evaluated include impacts to particulates, CO<sub>2</sub> emissions, and visibility.

Table 4.4.1 lists the primary conservation practices installed in FY 2007 which affect the air resource. With the exception of Prescribed Burning (338), all practices function to protect soil from detachment and entering the atmosphere.

**Table 4.4.1. Conservation Practices Installed in FY 2007 Addressing Air Resources**

<b>FY2007 Practices Installed</b>	<b>No.</b>	<b>Units</b>
Conservation Cover (327) (acre)	412,109	366,965
Cover Crop (340) (acre)	11,069	15,120
Critical Area Planting (342) (acre)	116,398	136,618
Residue Management, Mulch Till (345)	300	300
Prescribed Burning (338) (acre)	666,434	620,573
Windbreak/Shelterbelt Establishment (380) (ft)	137,589	139,326
Windbreak/Shelterbelt Renovation (650) (ft)	21,382	14,650

#### 4.4.2 Alternative 1—No Action

Benefits accrued through implementation of conservation practices would not be realized.

#### 4.4.3 Alternative 2—Implementation of 2008 WHIP Requirements

Principal adverse impacts to air resources commonly occur during the installation phase of conservation practices when ground disturbance occurs. Typically the duration is short-lived, and the long term benefits of the installed practice outweigh the loss. Implementing Prescribed Burning (338) is one example of this. Many lands may receive 3 to 5 years of benefits by controlling invasive species, increasing water yield, or improving forage quality as a result of a one-day burn that creates minimal smoke when burned under the proper atmospheric conditions and executed in accordance with a NRCS-approved burn plan.

Storage of carbon as a result of biomass production also provides additional benefits. Biomass production is a result of conservation practices such as Cover Crop (340), Residue Management, Mulch Till (329B), and Windbreak/Shelterbelt Establishment (380).

## **4.5 Impacts to Biological Resources**

Biological resources evaluated include food, cover, water, habitat fragmentation, population imbalances, declining species and species of concern, productivity, health, vigor, and forage quality and palatability.

### **4.5.1 Benchmark Conditions**

WHIP enhances, restores, and creates fish and wildlife habitat in every part of our Nation, including Puerto Rico, Guam, the Virgin Islands, American Samoa, and the Northern Mariana Islands by providing technical and financial assistance through NRCS. Regional, national, and State priorities reflect the concerns of participants, partners, and the public at large.

WPOs that assess the condition of wildlife habitat and make recommendations for habitat improvements are produced by the applicant, NRCS field staff, TSPs, and partners. The breadth and scope of projects implemented using selected conservation practices under WHIP is as varied as the habitat requirements of sage grouse in the Great Basin and red-cockaded woodpeckers in the Southeast. Many more WHIP examples can be found on the NRCS National Web site interactive map at:

[http://www.nrcs.usda.gov/programs/whip/WHIP\\_signup/WHIP\\_Stateprograms.html](http://www.nrcs.usda.gov/programs/whip/WHIP_signup/WHIP_Stateprograms.html)

### **4.5.2 Alternative 1—No Action**

As illustrated by program reports from the last 10 years of WHIP, fish and wildlife benefits and measured population increases of individual species have been accumulating across wide areas of the United States. Program funds have influenced participants to create and improve a wide variety of habitats that are maintaining at risk and more common species. The 2008 Farm Bill will continue to build upon the successes of the past decade. The No Action Alternative will potentially jeopardize ongoing partnership projects, lead to more listings of threatened and endangered species, and increase costs to the public.

### **4.5.3 Alternative 2—Implementation of 2008 WHIP Requirements**

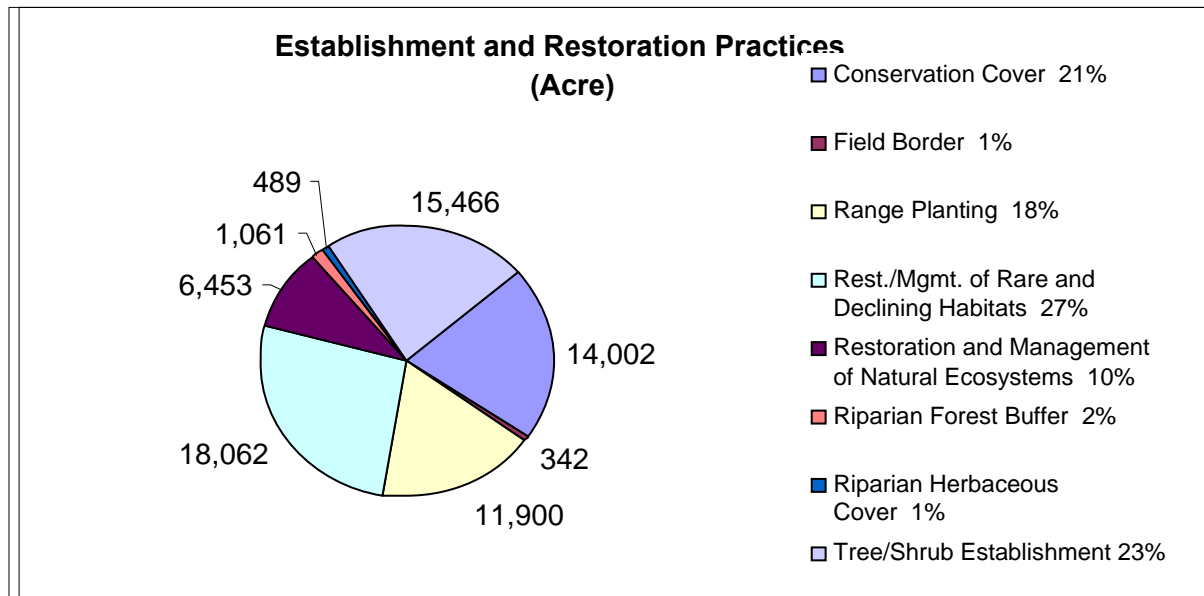
The wildlife habitat benefits accrued since the programs inception would continue in similar fashion to those of the past, but at an accelerated rate resulting from the projected increases in funding.

Based on past program implementation, affected wildlife populations and habitat are expected to respond positively to WHIP habitat improvement activities. Targeted species are expected to increase as a direct result of the activities. Practices that provide needed cover elements are combined in Table 4.5.1 and Figure 4.5.1 for FY 2004–2007.

**Table 4.5.1. Practices Directly Related to the Development of Wildlife Habitat**

Practice	Implemented				
	FY 2004	FY 2005	FY 2006	FY 2007	Total
Early Successional Habitat Development/Management (647) (acre)	3,878	7,879	13,715	14,398	39,870
Hedgerow Planting (422) (ft)	88,293	111,003	145,517	142,118	486,931
Restoration and Management of Natural Ecosystems (766) (acre)		5,279	446	728	6,453
Restoration and Management of Rare and Declining Habitats (643) (acre)	1,517	617	8,455	8,990	19,579
Riparian Herbaceous Cover (390) (acre)	41	211	33	245	530
Shallow Water Development and Management (646) (acre)	934	1,232	1,908	3,770	7,844
Upland Wildlife Habitat Management (645) (acre)	177,667	227,340	161,252	370,600	936,859
Wetland Wildlife Habitat Management (644) (acre)	8,553	10,817	12,224	13,230	44,824
Wildlife Watering Facility (648) (no.)	32	50	82	80	244

**Figure 4.5.1. Acres Planted to Practices Providing Fish and Wildlife Cover**



Plantings of native forbs and grasses provide nesting and brood rearing cover for many grassland birds and other wildlife species.



Riparian herbaceous cover is especially important in arid regions.

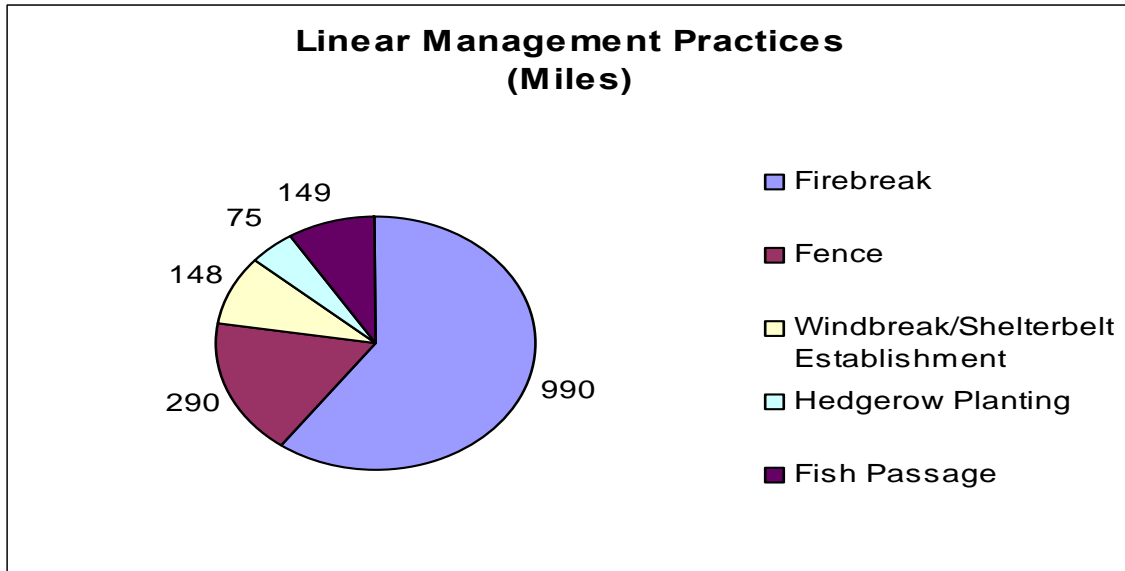


Linear habitat development and management practices can have multiple benefits, not the least of which is water quality improvement, by preventing runoff from entering a stream, creek, river, or other water body. Not only does the vegetation provide food and cover for terrestrial species, but fish and aquatic organisms benefit due to reduced inputs of pollutants and nutrients. Table 4.5.2 and Figure 4.5.2 show the linear conservation practices implemented in FY 2004 through FY 2007 that established or enhanced wildlife habitats.

**Table 4.5.2. Linear Conservation Practice Implementation for FY 2004–2007**

Practice	Implemented				Total
	FY 2004	FY 2005	FY 2006	FY 2007	
<b>Buffers</b>					
Field Border (386) (ft)	139,198	206,800	157,369	231,682	735,049
Riparian Forest Buffer (391) (acre)	263	333	295	433	1,324
Windbreak/Shelterbelt Establishment (380) (ft)	374,085	314,500	299,766	167,858	1,156,209
Windbreak/Shelterbelt Renovation (650) (ft)	24,579	4,353	5,163	7,756	41,851

**Figure 4.5.2. Miles of Linear Management Practices Implemented in FY 2004–2007**



Fish passage projects allow the unrestricted movement of aquatic organisms up and down stream and may reconnect subpopulations of resident species. Fencing is often used in WHIP to improve grazing management and has a direct impact on large herbivores, grassland nesting birds, and many other species.



Hedgerow plantings provide food and cover for multiple wildlife species.

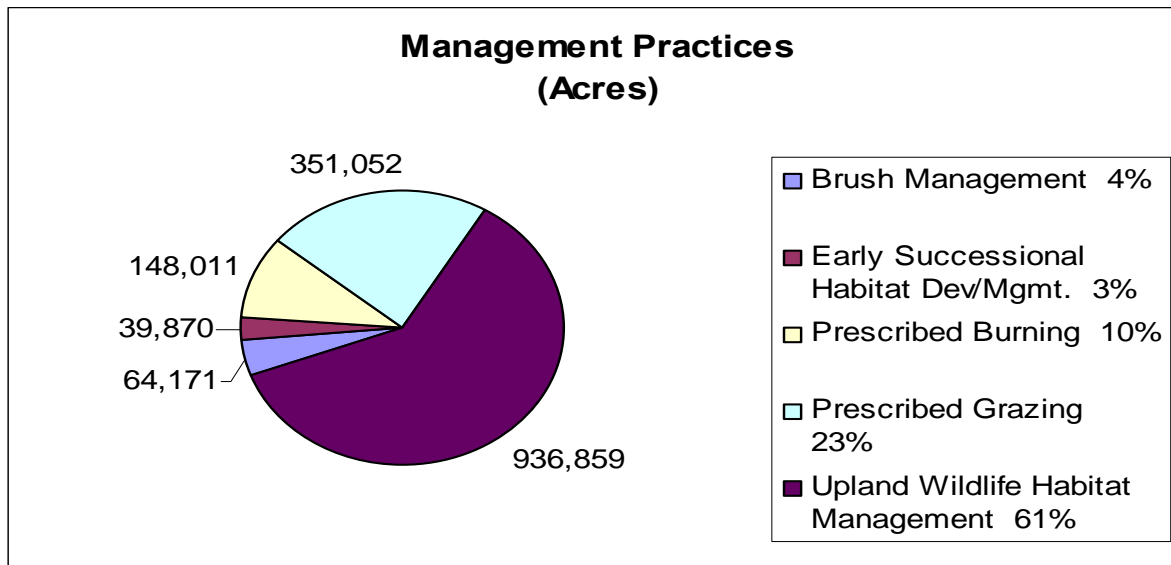
Planning and designing the Upland Wildlife Habitat Management (645) practice standard requires a conservation planner to consider multiple factors and develop a resource management system to protect, conserve, and enhance wildlife habitat. The practices used to implement the management plan vary considerably from field office to field office depending on physical and biological conditions. The practices listed in Table 4.5.3 have other primary purposes, but all can contribute to improving upland habitat.

**Table 4.5.3. Management Practices Implemented in FY 2004–2007**

<b>Practice</b>	<b>Implemented</b>				
<b>Grazing Land</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>Total</b>
Brush Management (314) (acre)	11,639	13,036	15,569	23,927	64,171
Fence (382) (ft)	421,812	479,294	508,974	545,276	1,955,356
Prescribed Grazing (528) (528A) (acre)	113,689	91,273	48,984	97,097	351,052
Prescribed Burning (338) (acre)	33,382	32,210	34,903	47,516	148,011
<b>Practice</b>	<b>Implemented</b>				
<b>Forestland</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>Total</b>
Forest Stand Improvement (666) (acre)	12,368	11,028	6,845	12,558	42,799
Tree/Shrub Establishment (612) (acre)	1,994	6,774	3,796	4,896	17,460

Most reporting of fish and wildlife habitat management is included under the Upland Wildlife Habitat Management Practice (645), which is often referred to as an ‘umbrella’ practice because many other conservation practices are used to implement the desired wildlife habitat goal. As illustrated in Figure 4.5.3, the largest individual practice reported for the FY 2004-2007 time period was prescribed grazing.

**Figure 4.5.3. Acres of Management Practices for Improving Upland Habitats in FY 2004–2007**



Prescribed burning is used extensively to remove woody vegetation from prairies and oak savannas when managing for grassland birds.



WHIP’s definition of eligible land allows all types of land and aquatic areas to be managed for multiple wildlife species. Aquatic resource concerns can be addressed in wetlands, ponds, flowing water, and riparian areas. Table 4.5.4 and Figure 4.5.4 show extent of practices and provide examples of conservation practices implemented to address aquatic habitats.

**Table 4.5.4. Wetland and Aquatic Practices Implemented in FY 2004–2007**

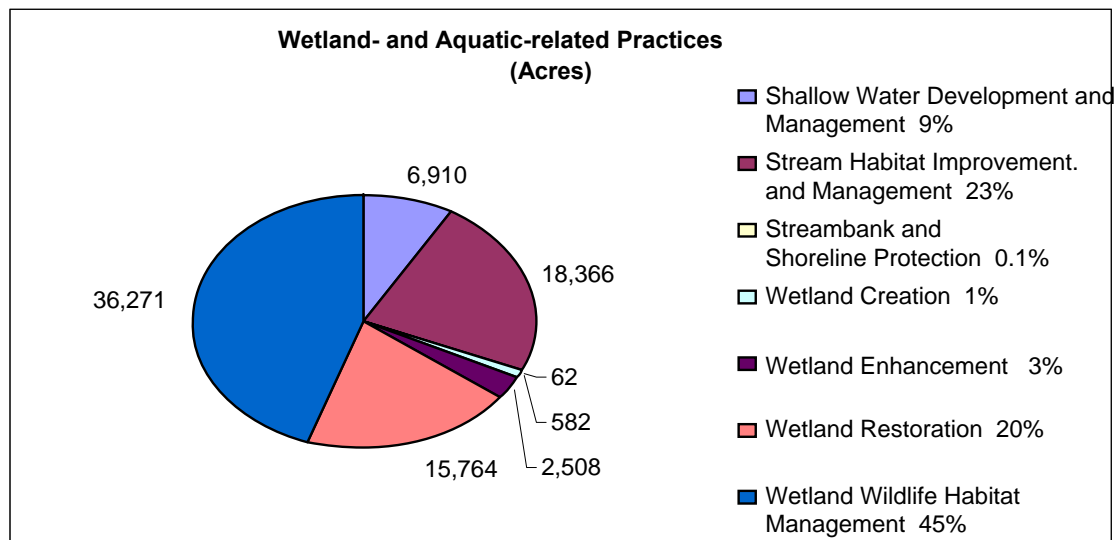
Practice	Implemented				
	FY 2004	FY 2005	FY 2006	FY 2007	Total
<b>Wetland and aquatic</b>					
Dike (356) (ft)	13,188	42,004	31,629	35,838	122,659
Fish Passage (396) (mi)	3	4	13	132	152
Pond (378) (no.)	79	78	75	63	295
Stream Habitat Improvement and Management (395) (acre)	4,855	11,360	2,067	4,939	23,221
Streambank and Shoreline Protection (580) (ft)	25,686	66,845	35,973	76,804	205,308
Structure for Water Control (587) (no.)	45	44	142	138	369
Wetland Enhancement (659) (acre)	460	685	714	1,109	2,968
Wetland Restoration (657) (acre)	3,208	7,261	5,575	2,928	18,972

**Figure 4.5.4. Example of Culvert Replacement and Dam Removal Projects**





**Figure 4.5.5. More Than 80,000 Acres of Aquatic Habitat Restoration Occurred Through WHIP in FY 2004–2007**



### Species-specific Funding

NRCS and Congress have directed funding toward species-specific initiatives in recent years due, in part, from the support that WHIP has among not only agricultural interests, but wildlife interests as well.

In Rhode Island, NRCS has focused coastal restoration activities on eelgrass, diadromous fish habitat (fish runs), and salt marsh habitats. Coastal habitats support a wide variety of fish and wildlife, contribute greatly to the State's biological integrity and diversity, and help support the State's economy. These habitats help to support a significant amount of annual capital for the State of Rhode Island: \$75 million in commercial fishery landings; a recreational fishery valued at \$150 million; and a tourism and outdoor recreation industry valued at \$2 billion from the Narragansett Bay alone.



Eelgrass beds are reestablished using WHIP funds in Narragansett Bay. Aquatic organisms, including fish, colonize the vegetation within weeks of planting.



A Salmon Habitat Restoration Initiative, initiated in FY 2004, directed \$2.8 million in WHIP funding in FY 2005 to help restore and conserve salmon habitat in Alaska, California, Idaho, Maine, Oregon, and Washington. Through this initiative, NRCS helped participants with projects that increased riparian areas to provide shade along streams, restored gravel spawning beds, removed barriers to fish passages, and reduced nutrient runoff from farming and ranching operations.

Also in FY 2005, USDA contributed \$5.2 million through WHIP (as well as the Conservation Reserve Program (CRP) and Wetlands Reserve Program (WRP)) to create, restore, and enhance the habitat of the ivory-billed woodpecker. A total of \$1 million in WHIP cost-share funds went to private landowners, primarily in Arkansas, for practices to improve and restore native ivory-billed woodpecker habitat. Both the salmon and ivory-billed woodpecker initiatives were initiated by NRCS.



A focus on greater sage grouse conservation began in FY 2004, when NRCS provided \$2.4 million for sage grouse habitat conservation through the Grassland Reserve Program (GRP) and WHIP. Of this amount, \$350,000 came from WHIP and was directed toward protecting the greater sage grouse habitat at Parker Mountain, Utah. Congress encouraged a species-specific initiative in FY 2005 by directing USDA to enhance its greater sage grouse conservation effort. USDA responded by designating a total of \$5 million in GRP and WHIP funds for greater sage grouse conservation. WHIP provided more than \$1 million of the total \$5 million to California, Colorado, Idaho, Montana, North Dakota, Oregon, South Dakota, and Wyoming.

### **Invasive Species**

Infestations of noxious, invasive, and other nonnative vegetation within wildlife habitats can have extreme adverse effects on native plant growth, habitat condition, wildlife use, and other environmental resources. Multiple conservation practice standards are used depending on the situation, problem species, and the intended habitat condition.

The following Conservation Practice Standards are commonly used in part to control problem vegetation:

- Brush Management (314)
- Prescribed Burning (338)
- Pest Management (595)
- Wetland Wildlife Habitat Management (644)
- Upland Wildlife Habitat Management (645)
- Early Succession Habitat Development/Management (647)

Examples of activities applied under the various conservation practice standards:

- Control of *Rosa multiflora* (multiflora rose) to reestablish bog turtle habitat.
- Using chemical control to target the noxious species *Pueraria montana* (kudzu), *Imperata cylindrical* (cogongrass), and *Lespedeza cuneata* (sericea lespedeza).
- Using chemical control on tame grass areas dominated by *Schedonorus phoenix* (tall fescue) and *Cynodon dactylon* (bermudagrass) to convert to native grasses.
- Shallow disking to disrupt invasive species seed development and germination processes
- Using prescribed burns to control hardwood species in pine forests.
- Using prescribed burns to convert cool-season grass areas to native warm-season grass habitat.
- Using chemical control and/or prescribed burning to remove invading shrubs in prairie habitat.

Pest Management (595) is the only one of the many conservation practice standards used in WHIP to control problem plant species that can be tracked for problem species control. The other practice standards are not exclusively used for plant and animal control. Data shows that Pest Management is a widely used standard. Between FY 2005–2007 Pest Management was planned on 91,967 acres and applied on 57,989 acres. A breakdown of available data by fiscal year (FY) is shown in Table 4.5.5.

**Table 4.5.5. Pest Management (595) Practice Installed FY 2005-2007**

<b>Pest Management (595)</b>	<b>Planned Acres</b>	<b>Applied Acres</b>
FY 2005	46,589	20,225
FY 2006	28,205	12,289
FY 2007	17,173	25,475
Total	91,967	57,989

States with the greatest acres (rounded) applied in FY 2007:

- South Dakota = 9, 000 acres
- Mississippi = 5,600 acres
- Nebraska = 3,500 acres
- Kansas = 1,600 acres

## 4.6 Impacts Human Resources

Human resources include economic, cultural resources, environmental justice, and public health and safety.

### 4.6.1 Benchmark Conditions

During FY 2007, the WHIP program contracted with 2,127 individuals and entities, obligating slightly less than \$31 million to these cost-share agreements. Participation in the program by socially disadvantaged groups was relatively small in terms of the number of cost-share agreements. However, as shown in Table 4.6.1, participation in terms of dollars obligated to socially disadvantaged groups was somewhat better. American Indians did particularly well.

**Table 4.6.1. WHIP Cost-share Agreements to Socially Disadvantaged Groups, FY 2007**

Socially Disadvantaged Group	Cost-share Agreements FY 2007		Funds Obligated FY 2007	
	Number	Percent	Amount	Percent
Female	169	7.9	\$1,432,228	4.6
Hispanic	9	0.4	\$56,541	0.2
Asian	2	0.1	\$29,461	0.1
Black	16	0.8	\$62,985	0.2
American Indian	28	1.3	\$2,197,101	7.1
Hawaiian/Pacific Islander	4	0.2	\$374,245	1.2
Disabled	7	0.3	\$45,040	0.1
Total	2,127		30,949,955	

As a group, socially disadvantaged groups participate in WHIP at lower rates than the public as a whole. New rules concerning participant and land eligibility restrict eligible land to private agricultural (including private nonindustrial forestland) and tribal lands. The increased cost-share rate for these traditionally underserved entities may increase participation by these groups.

The Arizona NRCS had WHIP cost-share agreements with four Indian Tribes in FY 1998 and had set aside funding to enable all tribes in the State to participate in the program, if interested, in FY 1999. Existing WHIP cost-share agreements with tribes will provide restoration of water resources and prescribed burning to manage for big horn sheep, as well as riparian restoration that will benefit threatened and endangered species.

### 4.6.2 Alternative 1—No Action

Benefits accrued through WHIP for economic, cultural resources, environmental justice, and public health and safety issues would not be realized.

### 4.6.3 Alternative 2—Implementation of 2008 WHIP Program Requirements

Many existing WHIP participants have been nonagricultural rural landowners who will be ineligible under the new rules. This provision is unlikely to significantly affect most of the socially disadvantaged groups, LRFR, and beginning farmers and ranchers (BFR). The exception may be American Indians who have demonstrated great interest and participation in

the program. Because of the rules restricting land eligibility to agricultural lands, more funds may be available to American Indians.

Effects of Increased Payment Levels on LRFRs, BFRs, and Socially Disadvantaged Groups:

Higher program conservation practice payment rates to LRFRs and BFRs are unlikely to stimulate a great deal of additional interest among these groups, unless ways can be found to generate additional income through utilization of environmental attributes associated with improvements in habitat. The practices implemented through WHIP tend to create or improve wildlife habitat, and as such, generally take land out of production for typical agricultural commodities, decreasing an already lower income. LRFR and BFR typically struggle to generate adequate income, which in itself is an impediment to program participation. To the extent that practices installed through WHIP can be used to create another income stream through recreation-based opportunities and utilize land not being used for the production of commodities for the main agricultural activity of the LRFR/BFR, a higher payment rate could help boost participation for these two groups. Higher payment levels for socially disadvantaged groups may generate more interest in WHIP from this pool of potential participants.

Setting annual payment levels at a maximum of \$50,000 will have little effect on most participants, including LRFR and BFR. These two groups are unlikely to have WHIP cost-share agreements large enough to exceed this limitation. This may also extend the length of tribal cost-share agreements to extend the practice implementation payments out over a number of years. This will also increase Agency costs in cost-share agreement administration as the cost-share agreement length increases over what would otherwise occur under the new program. (The current program rule calls for 5- to 10-year cost-share agreements. The new rule allows the cost-share agreement to expire one year after the last practice is installed.)

The \$50,000 payment limit will also increase Agency administration costs as large cost-share agreements are replaced by multiple smaller cost-share agreements. This will also have the effect of increasing the overall number of program participants.

## **Other Effects**

Liquidated Damages: The provision adding liquidated damages to WHIP cost-share agreements will reduce cost-share agreement default rates to some extent. WHIP does not have this provision under the current Farm Bill. Participants with existing cost-share agreements have no financial repercussions related to technical assistance costs incurred by the Agency or harm caused by failure to implement the cost-share agreement resulting in termination. Therefore, if they lose interest, or find a practice more difficult to implement than they had anticipated, they may cancel an existing cost-share agreement facing at most payback of program funds received, plus interest. Using liquidated damages, NRCS will also be able to recapture some of the costs associated with site evaluation, practice planning, and cost-share agreement administration or harm caused by failure to implement the cost-share agreement.

Center Pivots: The inclusion of areas associated with center pivot irrigation systems may have some limited interest for some farms. Newer systems are computer-guided with extensions of the irrigated area to reach most of the corners associated with center pivots. As older irrigation systems are replaced, this provision of the Farm Bill is likely to have less and less practical

application. Smaller wildlife areas can also have negative impacts on some wildlife populations as predators can rapidly wipe out prey species. However, these areas can be beneficial for some extremely limited species; for example, Karner Blue Butterfly, when they occur within the existing population range.

## **Cultural Resources**

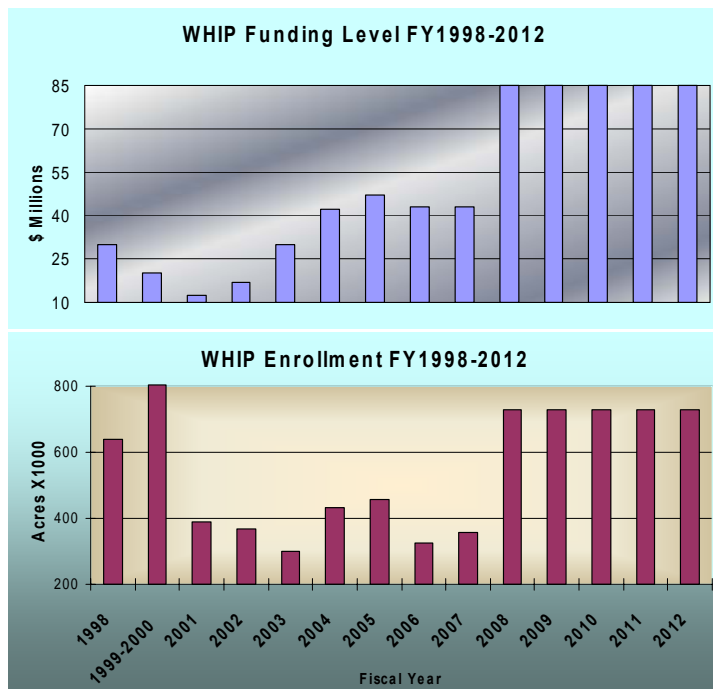
To ensure compliance with Section 106 of the National Historic Preservation Act and associated authorities, NRCS follows the procedures developed in accordance with a nationwide programmatic agreement between NRCS, Advisory Council on Historic Preservation (ACHP), and National Conference of State Historic Preservation Officers which called for NRCS to develop consultation agreements with State Historic Preservation Officers (SHPOs) and federally recognized tribes (or their designated Tribal Historic Preservation Officers). These consultation agreements focus historic preservation reviews on resources and locations that are of special regional concern to these parties.

NRCS State offices assess the effects of conservation practices on historic properties after the identification and evaluation of these significant cultural resources. In consultation with SHPOs, tribes, and other appropriate parties, the State offices consider how the practices might physically damage a historic property and what environmental changes might result from the practices that could indirectly impact the historic property now or over time. The State offices employ the ACHP's criteria of adverse effect, or similar criteria identified in a State-Level Agreement or Tribal Consultation Protocol, to determine what changes in integrity might occur to those characteristics of the historic property that qualify it for the National Register of Historic Places. If adverse effects were anticipated, NRCS State offices would seek alternative ways of implementing conservation practices to avoid or mitigate such effects, including deciding not to pursue particular practices in given locations. If the natural resource benefits were determined to be of overwhelming benefit, the State offices also might decide to implement the conservation practices after resolving adverse effects on the historic property pursuant to a treatment plan executed by NRCS and the historic preservation consulting parties noted in the ACHP regulations, State-Level Agreements, or Tribal Consultation Protocols.

### **4.7 Cumulative Effects**

The proposed action extends the current WHIP program during FY 2008–2012 and is projected to double the level of funding and application of conservation practices applied to develop and improve fish and wildlife habitat on private land, tribal agricultural land, and nonindustrial private forest land. Figure 4.7.1 provides information portraying the past, present, and projected future funding levels.

**Figure 4.7.1. Past, Present, and Projected Future Funding Levels**



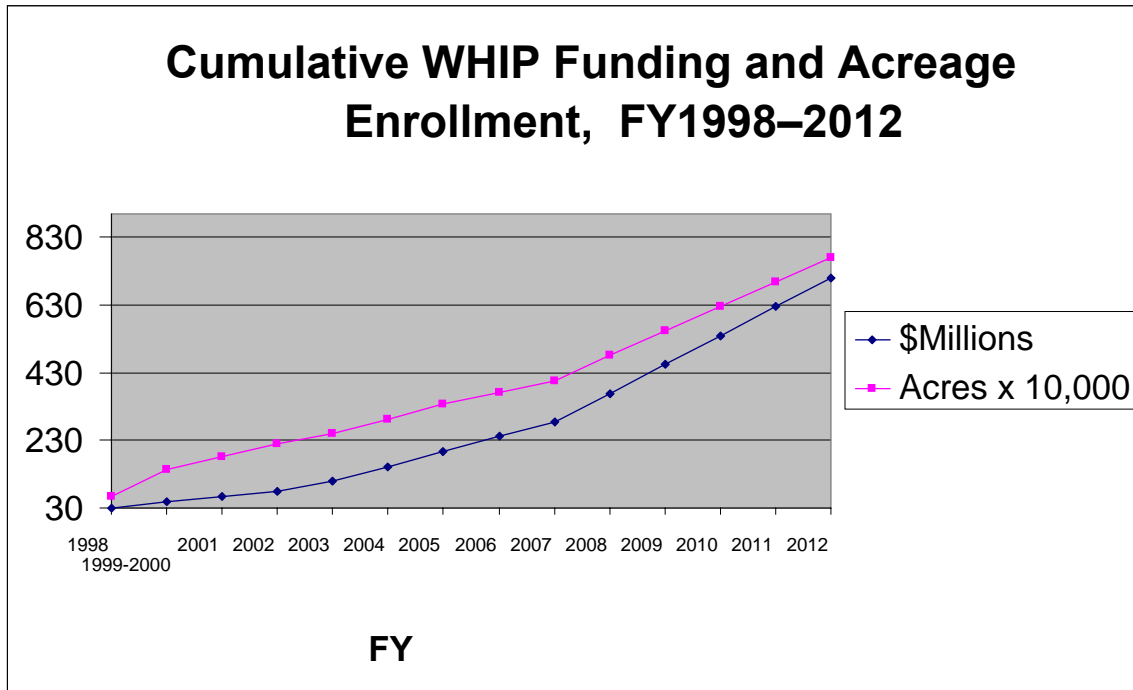
Currently, WHIP partners with numerous Federal and State entities to leverage resources and provide coordinated fish and wildlife habitat development and enhancement actions. Primary national partners include the Cooperative State Research, Education, and Extension Service, USDA Forest Service, Environmental Protection Agency, and U.S. Fish and Wildlife Service (USFWS). NRCS conservationists, State Fish and Wildlife agencies, and State foresters also provide State support for WHIP. If WHIP is not continued, resources leveraged in the past would not be realized, and the contributions of partners to the wildlife resource would likely be considerably diminished in the future.

In FY 2007, USDA enrolled more than 2,100 WHIP agreements on approximately 357,700 acres. The cumulative effects of individual NRCS conservation practices implemented through WHIP can be viewed at:

[http://www.nrcs.usda.gov/programs/Env\\_Assess/index.html](http://www.nrcs.usda.gov/programs/Env_Assess/index.html)

With the increased funding levels projected in the 2008 Farm Bill, it is anticipated that cumulatively, slightly less than 8 million acres will have been enrolled in the program at the end of the term (Figure 4.7.2).

Figure 4.7.2. Cumulative WHIP Funding and Acreage Enrollment, FY 1998–2012



Other NRCS programs that provide significant contributions to the development and enhancement of wildlife habitat include EQIP, WRP, and Healthy Forest Reserve Program (HFRP). Each program has specific limitations on land eligibility and/or species addressed. For example, HFRP applies only to private forestland and federally listed and candidate species, State species of concern, or species identified by the Chief for special funding consideration. WHIP offers the broadest range of land use and targeted species application of any existing program.

Additionally, the USFWS’s Partners for Fish and Wildlife Program provides technical and financial assistance to private landowners for habitat restoration on their lands. Fish and wildlife habitat restoration projects are limited to habitat for Federal trust species.

Any potential adverse effects from the implementation of WHIP are generally mitigated through the application of the NRCS planning process (including the site-specific EE) and NRCS conservation practice standards. Mitigation is most commonly in the form of avoidance, minimization, or by applying additional associated practices to rectify the adverse impact.

## 5.0 PERSONS AND AGENCIES CONSULTED

Information about the persons and agencies consulted through the Farm Bill forums may be found at:

<http://www.fas.usda.gov/info/factsheets/FB2007/farmbill2007forums.asp>



## 6.0 APPENDICES

### Appendix A

**Table 6.0.1. Conservation Practice Systems and Associated Resource/Land Use**

Practice	Implemented				
	FY2004	FY2005	FY2006	FY2007	Total
<b>Wildlife-specific</b>					
Early Successional Habitat Development/Management (647) (acre)	3,878	7,879	13,715	14,398	39,870
Hedgerow Planting (422) (ft)	88,293	111,003	145,517	142,118	486,931
Restoration and Management of Natural Ecosystems (766) (acre)		5,279	446	728	6,453
Restoration and Management of Rare and Declining Habitats (643) (acre)	1,517	617	8,455	8,990	19,579
Riparian Herbaceous Cover (390) (acre)	41	211	33	245	530
Shallow Water Development and Management (646) (acre)	934	1,232	1,908	3,770	7,844
Upland Wildlife Habitat Management (645) (acre)	177,667	227,340	161,252	370,600	936,859
Wetland Wildlife Habitat Management (644) (acre)	8,553	10,817	12,224	13,230	44,824
Wildlife Watering Facility (648) (no.)	32	50	82	80	244

Practice	Implemented				
	FY2004	FY2005	FY2006	FY2007	Total
<b>Buffers</b>					
Field Border (386) (ft)	139,198	206,800	157,369	231,682	735,049
Riparian Forest Buffer (391) (acre)	263	333	295	433	1,324
Windbreak/Shelterbelt Establishment (380) (ft)	374,085	314,500	299,766	167,858	1,156,209
Windbreak/Shelterbelt Renovation (650) (ft)	24,579	4,353	5,163	7,756	41,851

Practice	Implemented				
	FY2004	FY2005	FY2006	FY2007	Total
<b>Grazing lands</b>					
Brush Management (314) (acre)	11,639	13,036	15,569	23,927	64,171
Fence (382) (ft)	421,812	479,294	508,974	545,276	1,955,356
Prescribed Grazing (528) (528A) (acre)	113,689	91,273	48,984	97,097	351,052
Prescribed Burning (338) (acre)	33,382	32,210	34,903	47,516	148,011

Practice	Implemented				
	FY2004	FY2005	FY2006	FY2007	Total
<b>Forestland</b>					
Forest Stand Improvement (666) (acre)	12,368	11,028	6,845	12,558	42,799
Tree/Shrub Establishment (612) (acre)	1,994	6,774	3,796	4,896	17,460

<b>Practice</b>	<b>Implemented</b>				
	<b>FY2004</b>	<b>FY2005</b>	<b>FY2006</b>	<b>FY2007</b>	<b>Total</b>
<b>Wetland and aquatic</b>					
Dike (356) (ft)	13,188	42,004	31,629	35,838	122,659
Fish Passage (396) (mi)	3	4	13	132	152
Pond (378) (no.)	79	78	75	63	295
Stream Habitat Improvement and Management (395) (acre)	4,855	11,360	2,067	4,939	23,221
Streambank and Shoreline Protection (580) (ft)	25,686	66,845	35,973	76,804	205,308
Structure for Water Control (587) (no.)	45	44	142	138	369
Wetland Enhancement (659) (acre)	460	685	714	1,109	2,968
Wetland Restoration (657) (acre)	3,208	7,261	5,575	2,928	18,972

## Appendix B

**Table 6.0.2. Resource Concerns Analyzed**

<b>Resource Concern</b>	<b>Description of Concern</b>	<b>National Quality Criteria</b>
<b>Soil Erosion—Sheet and Rill</b>	Detachment and transport of soil particles caused by rainfall splash and runoff degrade soil quality	Sheet and rill erosion does not exceed the Soil Loss Tolerance “T”
<b>Soil Erosion—Wind</b>	Detachment and transport of soil particles caused by wind degrade soil quality and/or damage plants	Wind erosion does not exceed the Soil Loss Tolerance “T” or, for plant damage, does not exceed Crop Damage Tolerances
<b>Soil Erosion—Streambank</b>	Accelerated loss of streambank soils restricts land and water use and management	Accelerated streambank soil loss does not exceed a level commensurate with upstream land use and normal geomorphological processes on site
<b>Soil Erosion—Shoreline</b>	Soil is eroded along shorelines by wind and wave action, causing physical damage to vegetation, limiting land use, or creating a safety hazard	Shoreline erosion is stabilized to a level that does not restrict the use or management of adjacent land, water, or structures
<b>Water Quality—Harmful Levels of Pesticides in Surface Water</b>	Pest control chemicals present in toxic amounts degrade surface water quality	Pesticides are applied, stored, handled, disposed of, and managed such that surface water uses are not adversely affected
<b>Water Quality—Excessive Nutrients and Organics in Surface Water</b>	Pollution from natural or human induced nutrients such as N, P, S (Including animal and other wastes) degrades surface water quality	Nutrients and organics are stored, handled, disposed of, and managed such that surface water uses are not adversely affected
<b>Water Quality—Excessive Suspended Sediment and Turbidity in Surface Water</b>	Pollution from mineral or organic particles degrades surface water quality	Movement of mineral and organic particles is managed such that surface water uses are not adversely affected
<b>Water Quality—Harmful Temperatures of Surface Water</b>	Undesired thermal conditions degrade surface water quality	Use and management of land and water are coordinated to minimize impacts on surface water temperatures
<b>Air Quality— Particulate matter less than 10 micrometers in diameter (PM 10)</b>	Particulate matter less than 10 micrometers in diameter are suspended in the air causing potential health hazards to humans and animals	Land use and management operations comply with PM 10 requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations
<b>Air Quality—Excessive Greenhouse Gas—CO<sub>2</sub> (carbon dioxide)</b>	Increased CO <sub>2</sub> concentrations are adversely affecting ecosystem processes	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations
<b>Air Quality—Reduced Visibility</b>	Sight distance is impaired due to airborne particles causing unsafe conditions and impeded viewing of natural vistas especially in Class I viewing areas (primarily national parks and monuments)	Land use and management operations comply with all applicable Federal, tribal, State, and local regulations including State and local smoke and/or burn management plans

Resource Concern	Description of Concern	National Quality Criteria
<b>Plant Condition—Productivity, Health, and Vigor</b>	Plants do not produce the yields, quality, and soil cover to meet client objectives	<p>Selected plants on or planned for the site are sufficiently productive to meet or exceed client needs. For specific land uses, additional criteria apply:</p> <ul style="list-style-type: none"> <li>• Cropland: A healthy stand with vigorous growth produces at least 75% of site potential</li> <li>• Rangeland: The plant community has a similarity index of at least 60% or an upward trend for similarity indices less than 60%</li> <li>• Pastureland: Forage yields are at least 75% of high management estimates cited in FSG reports</li> <li>• Hayland: Forage yields at least 75% of high mgt. estimates cited in Forage Suitability Groups (FSG) reports</li> <li>• Forestland/Agroforest: Forests consist of healthy stands with vigorous growth having a stand density within 25% of optimum stocking on a stems/acre basis; plants chosen for agroforest applications are consistent with Conservation Tree and Shrub Groups (CTSG) listings and height performance</li> </ul>
<b>Plant Condition—Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act</b>	Site includes individuals, habitat, or potential habitat for one or more plant species listed or proposed for listing under the Endangered Species Act	Populations and/or habitats of threatened and endangered plant species are managed to maintain, increase, or improve current populations, health, or sustainability
<b>Plant Condition—Threatened or Endangered Plant Species: Declining Species, Species of Concern</b>	Site includes individuals, habitat, or potential habitat for one or more plant species that the State or tribal government with jurisdiction, or the State Technical Committee, has identified as a species of concern; includes plant species that have been identified as candidates for listing under the Endangered Species Act	Populations and/or habitats of plant species of concern are managed to maintain, increase, or improve current populations, health, or sustainability
<b>Plant Condition—Noxious and Invasive Plants</b>	Site has noxious or invasive plants present	Site is managed to control noxious and invasive plants and to minimize their spread
<b>Plant Condition—Forage Quality and Palatability</b>	Plants do not have adequate nutritive value or palatability for the intended use	Forage plants are managed to produce the desired nutritive value and palatability for the intended use
<b>Fish and Wildlife—Inadequate Food</b>	Quantity and quality of food is unavailable to meet the life history requirements of the species or guild of species of concern	Food availability meets the life history requirements of the species or guild of species of concern

Resource Concern	Description of Concern	National Quality Criteria
<b>Fish and Wildlife— Inadequate Cover/Shelter</b>	Cover/shelter for the species of concern is unavailable or inadequate; for aquatic species, this includes lack of hiding, thermal, and/or refuge cover	Ecosystem or habit types support the necessary plant species in the kinds, amounts, and physical structure, and the connectivity of fish and wildlife cover is adequate to support, over time, the species of concern
<b>Fish and Wildlife— Inadequate Water</b>	Quantity and quality of water is unacceptable for the species of concern	Quantity and quality of water meets the life history requirements of the species of concern
<b>Fish and Wildlife— Inadequate Space</b>	Lack of area and fragmentation of areas disrupt life history requirements of the species of concern	Adequate area and connectivity of areas meet life history requirements of the species of concern (examples: staging areas for rest and feeding, lekking areas for breeding, and migratory movement corridors)
<b>Fish and Wildlife— Habitat Fragmentation</b>	Habitat has insufficient structure, extent, and connectivity to provide ecological functions and/or achieve management objectives	Fish and wildlife habitats are connected and are maintained sufficiently to support the species or guild of species of concern
<b>Fish and Wildlife— Imbalance Among and Within Populations</b>	Populations are not in proportion to available quantities and qualities of food (plants, predator/ prey), cover/shelter, water, and space and other life history requirements	Land and water use and management are consistent with direct population management activities conducted by fish and wildlife agencies
<b>Fish and Wildlife— Threatened and Endangered Fish and Wildlife Species: Fish and Wildlife Species Listed or Proposed for Listing under the Endangered Species Act</b>	Site includes individuals, habitat, or potential habitat for one or more fish or wildlife species listed or proposed for listing under the Endangered Species Act	Populations and/or habitats of threatened and endangered fish and wildlife species and/or habitats they occupy are managed to maintain, increase, or improve current populations, health, or sustainability
<b>Fish and Wildlife— Threatened and Endangered Species: Declining Species, Species of Concern</b>	Site includes individuals, habitat, or potential habitat for one or more fish or wildlife species that the State or tribal government with jurisdiction, or the State Technical Committee, has identified as a species of concern; includes fish and wildlife species that have been identified as candidates for listing under the Endangered Species Act	Populations and/or habitats of fish and wildlife species of concern are managed to maintain, increase, or improve current populations, health, or sustainability
<b>Domestic Animals— Inadequate Quantities and Quality of Feed and Forage</b>	Total feed and forage is insufficient to meet the nutritional and production needs of the kinds and classes of livestock	Feed and forage, including supplemental nutritional requirements, are provided to meet production goals for the kinds and classes of livestock; native grazers are factored into the total feed and forage balance computations

Resource Concern	Description of Concern	National Quality Criteria
<b>Domestic Animals – Inadequate Stock Water</b>	The quantity, quality, and distribution of drinking water is insufficient to meet the production goals for the kinds and classes of livestock	Sufficient water of acceptable quality is provided and adequately distributed to meet production goals for the kinds and classes of livestock; to reduce potential for water contamination, watering facilities are constructed or modified to minimize mortality to indigenous wildlife