United States Department of Agriculture
Natural Resources Conservation Service

Interim Final Benefit-Cost Analysis

for the

Wildlife Habitat Incentives Program (WHIP)

Food, Conservation, and Energy Act of 2008
Title II – Conservation
Subtitle G – Other Conservation Programs
Section 2601 – Wildlife Habitat Incentives Program

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Executive Summary

Pursuant to Executive Order 12866, Regulatory Planning and Review, the Natural Resources Conservation Service (NRCS) has conducted an interim final benefit-cost analysis of the Wildlife Habitat Incentives Program (WHIP) Interim Final Rule. Executive Order 12866 provides decision makers with the opportunity to develop and implement a program that is beneficial, cost effective and that minimizes negative impacts to health, human safety, and the environment.

The Wildlife Habitat Incentives Program, as amended by the Food Conservation, and Energy Act of 2008, provides technical and financial assistance to improve fish and wildlife habitat on eligible private agricultural land, nonindustrial private forestland, and Tribal land. The WHIP program is authorized to give priority to national, regional, and state-directed fish and wildlife initiatives, including rare and declining species. Program priorities are established with input from the regional, State, and local stakeholders and vary greatly across the United States.

This analysis uses a qualitative approach to describe the potential effects on benefits and costs of WHIP. Many factors have led NRCS to determine that quantifying benefits and costs is not feasible for this analysis. First, NRCS has determined that the discretionary changes in the WHIP interim final rule are limited and are expected to have minimal impact on the benefits and costs of WHIP. Secondly, until the Conservation Effects Assessment Project data is available, there is very limited quantitative information available regarding the benefits of the conservation practices implemented through WHIP funding. In addition, the effects of practices implemented by WHIP participants vary greatly across the United States. Lastly, the literature is limited on the many direct and indirect environmental effects of the WHIP program. The limited expected impact from the discretionary policy changes, the limited literature on benefits, and the diverse nature of WHIP projects preclude NRCS from using a quantitative approach to describe the potential costs and benefits of the discretionary policy items pertaining to the WHIP rule.

The primary costs associated with WHIP include the cost-share outlays by NRCS; the matching funds of the producer; and WHIP technical assistance funding. The discretionary policy choices in this rule are not expected to significantly affect program costs.

The WHIP Interim Final Rule makes two material discretionary policy changes. The first of these discretionary changes increases the maximum percentage of program funding for long-term contracts (contracts of 15-year duration or longer) from not-more-than 15 percent to not-more-than 25 percent of total funding. From Fiscal Year (FY) 2004 to FY 2007 long-term contracts have accounted for only 4.4 percent of all WHIP contracts and only 5.8 percent of WHIP funding. Because only 5.8 percent of the funding is currently in long-term contracts, the increase in the maximum percentage of long term contract funding from 15 percent to 25 percent is not anticipated to influence WHIP participation or program costs.

The second material discretionary change in the WHIP Interim Final Rule decreases the cost-share amount on long-term contracts from 100 percent to 90 percent. A decrease in cost-share from 100 percent to 90 percent on long-term contracts may make them, at the margin, less appealing to potential participants. This increase in costs to the participants opting for long-term contracts will not significantly affect program costs or benefits.

The discretionary policy decisions in the WHIP Interim Final Rule are not expected to affect the environmental concerns addressed by WHIP or the geographic distribution of program funding.

Qualitative evidence suggests that WHIP assistance to landowners creates benefits, especially in areas where fish and wildlife habitat is deteriorating. The provisions in the 2008 Act do not change this conclusion.

Interim Final Benefit-Cost Analysis
Wildlife Habitat Incentives Program (WHIP)

Background

Legislative Authority

The Wildlife Habitat Incentives Program (WHIP) 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 (the 2008 Act).

Rationale for the Rule

The overarching rationale for public intervention in the protection or restoration of wildlife habitat is that existing markets fail to fully recognize the value of benefits arising from fish and wildlife habitat associated with working agricultural and forestry lands. Individual production decisions often do not fully incorporate indirect and nonmarket benefits, and result in land-use and production decisions strictly based on financial returns from the sale of agricultural or forestry products. The ecological goods and services provided by agricultural and forestry lands not only include fish and wildlife habitat, they also include: climate regulation, flood control, disease prevention, water purification, carbon sequestration, biodiversity, and a host of other environmental benefits.[1]. Because these ecological goods and services are not included in an individual's production decision and because many of the ecological goods and services can be classified as public goods[2], the market can be expected to fall short in supplying society's desired level of production. The WHIP program mitigates the following adverse ecosystem effects that can be associated with agricultural and forestry production:

- Higher levels of land degradation, such as increased erosion, water shortages, decreased air and water quality, and reduction of other environmental services;
- Fragmented corridors;
- Loss or degradation of native forestland, grasslands, wetlands, and other terrestrial and aquatic habitats;
- Increases in invasive species, and greater susceptibility to wildfires;
- Loss or decline of pollinators;
- Decreases in plant and animal species productivity, richness, and abundance;

[1]For a background on ecosystem services and their assessment, please see "Millennium Ecosystem Assessment, 2005, Ecosystems and Human Well-Being: Synthesis", Island Press, Washington, DC. World Resources Institute.

[2]Public goods differ from private goods in many respects. With public goods, the market can not exclude non-paying consumers from enjoying their provision (non-excludability) and one person's use of them does not deprive other consumers from using them (non-rivalry). Traditional examples include: public television, national defense, public health programs, public firework displays on the Fourth of July in the United States and to some extent, lighthouses.

- Reduction of threatened and endangered species and rare and declining species that are likely to be listed in the future; and
- Reduction of biodiversity.

Program Description and Features (pre-2008 Act)

Objective

The purpose of WHIP is to foster the improvement of fish and wildlife habitat on eligible lands. Prior to the 2008 Act, eligible land included privately owned agricultural land, 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. WHIP accomplishes its program purpose by providing technical and financial assistance to landowners to create and enhance wildlife habitat.

Financial and technical assistance is needed because of several barriers to adopting conservation practices. These barriers include:

- The high initial investment costs to establish habitat improvement conservation practices;
- The possibility of foregone income related to some habitat improvement conservation practices;
- The unfamiliarity with conservation practices necessary to provide wildlife habitat; and
- The perception that existing conservation practices are already sufficiently addressing wildlife and conservation objectives.

Overview of the Existing Program

Under WHIP, prior to the 2008 Act, the Natural Resources Conservation Service, acting on behalf of the Secretary of Agriculture, issued payments to program participants to develop upland wildlife habitat, wetland wildlife habitat, habitat for threatened and endangered species, aquatic habitat, and other types of fish and wildlife habitat approved by NRCS. NRCS state conservationists, in consultation with the State Technical Committee have generally selected two to six priority habitat types, which commonly included upland and riparian habitats.

NRCS has provided up to 75 percent of the estimated costs of installing conservation practices related to fish and wildlife habitat. However, NRCS has been providing up to 100 percent cost-share for long-term agreements of 15 years or more.

WHIP funds have been allocated to states based on an allocation model that includes state fish and wildlife habitat priorities and other factors. These priorities may include fish and wildlife habitat areas, targeted species and their habitats, and specific conservation practices.

At the local-level, NRCS and its partners provide program participants with an assessment of wildlife habitat conditions, recommendations for practices to improve these habitat conditions,

and a plan that incorporates practices and strategies for maximizing habitat for target species. This wildlife habitat development plan is the basis of the agreement between NRCS and the participant.

The wildlife habitat development plan identifies the cost-share practices that will be installed and the operation and maintenance requirements for the life of the agreement. Agreements usually last from five to 10 years. WHIP provides additional cost-share to landowners who enter into 15-year or longer agreements to protect and restore high value and important plant and animal habitat.

After the agreement has been signed, NRCS helps program participants with technical and financial assistance to install eligible practices that NRCS determines are primarily for the development of wildlife habitat. Common practices have included native grassland seeding, prescribed burns, hardwood planting, and fish passage structure installation.

The WHIP program encourages partners such as other public agencies, non-profit organizations, and Technical Service Providers to contribute to program implementation. The partners may provide technical assistance, financial assistance, equipment, or installation assistance to the participant. This emphasis placed on partners in WHIP has improved communication and coordination among interests addressing wildlife concerns.

National priorities for WHIP include:

1) Promoting the restoration of declining or important native fish and wildlife habitats;
2) Protecting, restoring, developing, or enhancing fish and wildlife habitat to benefit at-risk species;
3) Reducing the impacts of invasive species on fish and wildlife habitats; and
4) Protecting, restoring, developing, or enhancing declining or important aquatic wildlife species' habitats.

The 1996 and subsequent Farm Bills authorized mandatory funding for WHIP under the borrowing authority of the Commodity Credit Corporation (CCC). Table 1 provides funding details for fiscal years (FY) 2003–2008.

Table 1. Authorized, administration requested, and allowed funding levels for WHIP, FY 2003–FY 2008*

	($ millions)		
Fiscal Year	**Authorized**	**Administration Requested**	**Actual Funding**
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, NRCS has entered into more than 24,200 cost-share agreements with landowners on more than 3.9 million acres. In FY 2007, NRCS enrolled over 2,100 agreements on over 350,000 acres. The financial assistance in the agreements exceeded $31 million. The average agreement size was 170 acres. There were 28 contracts on over 3,500 acres of American Indian and Alaska Native Lands in FY 2007. On average, the NRCS financial assistance amounts to approximately $14,900 for each long-term agreement.

Regulatory Changes

The WHIP rule includes mandatory and discretionary changes resulting from enactment of the 2008 Act. In addition to discretion provided by the 2008 Farm Bill, NRCS has made other discretionary changes in the Interim Final Rule to help bring greater consistency across the financial assistance programs it administers. These latter discretionary changes are primarily focused on the definitions of terms common among the financial assistance programs. The 2008 Act did not change baseline funding for the WHIP program, which remains at $85 million per year from fiscal year 2009 through 2012. The analysis focuses on the major discretionary changes in the interim final rule.

Mandatory Items

- Section 2602(a) changes the program's purpose by restricting participation to owners of private agricultural lands, nonindustrial private forestland, and Tribal lands.
- Section 2602(b) affirms current NRCS policy that habitat developed on pivot corners and irregular areas are eligible land under the category of "other types of habitat."
- Section 2602(e) limits payments made to a person or legal entity, directly or indirectly, under WHIP to not exceed, in the aggregate, $50,000 per year.

Discretionary Items

The interim final rule:

- Increases the proportion of annual funds that may be available for long-term agreements from "not more than 15 percent" to "not more than 25 percent." This change is based on discretion provided in the 2008 Act.
- Gives priority to projects that address issues raised by State, regional and national conservation initiatives. This change reflects language in the 2008 Act and is consistent with current Agency policy regarding WHIP.
- Establishes payment rates for historically underserved producers, including Indian Tribes that align with payment rates adopted by other NRCS financial assistance programs. This change was made with the authority in section 2708 of the 2008 Act.
- Reduces the cost-share rate on long-term agreements of at least 15 years from 100 percent to 90 percent. This is a discretionary change that is not related to the 2008 Act.

Development of Expected Costs and Benefits

The development of benefit cost ratios or net benefits related to the changes induced by the WHIP interim final rule has not been undertaken because of the lack of quantitative data regarding the benefits and because of the limited effect of the program changes contained in the WHIP interim final rule. A qualitative assessment of four of the discretionary changes in the WHIP interim final rule is presented in the Discussion of Policy Scenarios section.

Expected Producer Costs

Generally, the cost-share rate for WHIP practices is 75 percent. At this cost share rate, WHIP program participants can be expected to incur at least 25 percent of the cost of adopting the conservation practices recommended in their WHIP cost-share agreement. With the changes in the 2008 Act, the participants' contributions may be reduced slightly for participants who qualify as "historically underserved producers." Historically underserved producers will be eligible to receive a cost share rate 15 percentage points higher than the rate offered to the general public, up to a maximum of 90 percent. (See Policy Scenario 4).

Using an assumption of a 75 percent WHIP cost share rate and total financial assistance from 2002 to 2007 of $159 million, the land owners' share of the WHIP practice costs would have been about $53 million. The annual funding of $85 million authorized by the 2008 Act is at the same level as WHIP funding from the 2002 Act (in years 2005 through 2008) and totals $340 million from fiscal year 2009 through fiscal year 2012. Assuming that the financial assistance apportionment remains at its historic level of 79 percent of the total funds made available for WHIP, producer costs are estimated to total nearly $90 million over the four years from 2009 to 2012.

Other Program Costs for the Government and Society

Government costs consist of financial assistance (FA) and technical assistance (TA). Projected total FA obligations in any year would depend on the apportionment received from the Office of Management and Budget (OMB). From 2002 through 2007 OMB apportioned 79 percent of the WHIP funding to FA and 21 percent to TA. Total program participation will depend marginally on extent to which that participation consists of historically underserved producers (new under the 2008 Act) and the funding for long-term WHIP agreements because of the higher cost share rates noted above.

Costs borne by society at large (excluding producer cost discussed above) could include partner-supplied forms of assistance such as technical assistance, financial assistance, use of their equipment, and other resources. These partners may include: public agencies, Tribes, and nongovernmental organizations.

Expected Environmental and Economic Benefits

Direct Beneficial Effects: The effects brought about by wildlife habitat development and improvements through WHIP are many – occurring both on-site for participants and off-site for

society at large[3]. Participants derive enjoyment from the presence of fish and wildlife on their land and may receive monetary benefits through various fish and wildlife recreational activities such as hunting, fishing, trapping, bird watching, and other eco-tourism activities, enabling producers to diversify their farm income and supplement it with non-crop income. See appendix A for a series of case studies that detail in qualitative terms the types of benefits generated by the WHIP program.

In addition, many conservation practices that benefit wildlife may also improve both air and water quality, reduce soil erosion, improve rainwater infiltration, reduce pest infestation, and increase soil productivity. For example, the restoration of native prairies provides food and cover for wildlife while improving organic soil content over time and increasing infiltration of rainwater into the soil profile which in turn increases soil moisture and groundwater recharge during periods of drought. Thus, on-site benefits may include the possibility of improving grazing conditions, increasing crop pollination, and reducing management expenses.

The primary ecological goods and services benefits resulting from wildlife habitat improvement include: (1) the increased stability of fish and wildlife populations, adding to biodiversity, leading to better natural control of invasive species introductions, and increased land devoted to native wildlife habitats, including forestland, grasslands, wetlands, and other terrestrial and aquatic habitats; (2) benefits for rare and declining, candidate, and State and Federally-listed threatened and endangered species; (3) linking wildlife habitat corridors to provide safe passage for migratory species; (4) on-site physical effects, such as decreased erosion, water quality and quantity benefits, air quality benefits, and other environmental services; (5) removal of barriers that impede migration of aquatic and terrestrial species; and (6) the economic stimulus to local economies brought about by increased recreational activities, such as tourism generated by individuals seeking fish and wildlife-related pursuits (bird watching, hunting, fishing, etc.).

The most commonly used conservation practices associated with WHIP for FY 2004 through 2007 are: 394–Firebreak; 382–Fence; 380– Windbreak/Shelterbelt Establishment; 645–Upland Wildlife Habitat Management; 386–Field Border; 422–Hedgerow Planting; 528–Prescribed Grazing; and 580–Streambank and Shoreline Protection (table 2). These practices are implemented on a variety of landscapes, since fish and wildlife occur on all land uses. There are no changes the WHIP interim final rule that will significantly alter the mix of conservation practices.

In the future, NRCS anticipates that the unique environmental outcomes generated through conservation practices adopted by WHIP participants will be more fully quantified. The source of this information will be the Conservation Effects Assessment Project (CEAP). Also, some practice-specific assessments applicable to WHIP are in progress. These include work by Penn

[3] Benefits are diverse, which make it difficult to quantify them on a national scale. Readers are directed to Appendix A for some insights into the wide range of resource concerns addressed with WHIP, many far-afield from traditional, agricultural conservation practice-based activities undertaken in other NRCS conservation programs. Another good source of information is Gray et. al. publication in Fish and Wildlife Benefits of Farm Bill Conservation Programs, 2002-2005 Update, The Wildlife Society, Technical Review 05-2, 2005. October 2005 entitled, "Fish and Wildlife Benefits of the Wildlife Habitat Incentives Program". Gray, for example, gives examples of past WHIP projects and lists out the knowledge gaps needed to better understand the environmental outcomes generated.

State to assess the effects of dam removal on aquatic biota in Pennsylvania and by the University of Massachusetts to assess the effects of Early Successional Habitat Development on scrub-scrub birds in New England. This type of research might make it possible to estimate likely environmental outcomes given specific geographic and climatic conditions in the future.

Table 2. Most common fish and wildlife related habitat restoration conservation practices implemented in FY 2004–FY 2007 for WHIP*.

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

*NRCS ProTracts Database, FY 2004–FY 2007.

Of the total acreage enrolled in FY 2007, six percent will benefit threatened and endangered species. Threatened and endangered species targeted through WHIP include, but are not limited to, the following: American-burying beetle, Neosho madtom, Topeka shiner, gray bat, kit fox, black-tailed prairie dog, bog turtle, gopher tortoise, dusky-gopher frog, Eastern-indigo snake, southern-hognose snake, black-pine snake, Louisiana-black bear, red-cockaded woodpeckers, Mississippi-sandhill crane, Florida panther, wood storks, snail kites, Florida sandhill crane, caracara, grasshopper sparrow, Snake River-Chinook salmon, Umpqua River-cutthroat trout,

coho salmon, steelhead, bulltrout, Lahontan-cutthroat trout, Yuma-clapper rails, Sonoran pronghorn, Mexican voles, lesser long-nosed bats, and Atlantic Salmon.

Nationally, WHIP acres were distributed among the following three major habitat types and declining species: upland wildlife habitat, wetland wildlife habitat, and riparian habitat.

Upland Wildlife Habitat. Of the total FY 2007 acres enrolled, over 95 percent encompassed upland wildlife habitat including grasslands, shrub/scrub, and forests. Several types of early succession grasslands, such as tall grass prairies, have declined more than 98 percent according to a 1995 U.S. Fish and Wildlife Service Report. One primary focus of WHIP nationally is the restoration of these scarce areas. Wildlife dependent on native grasslands includes neo-tropical migratory birds, waterfowl, amphibians, reptiles and many mammals. Specific species that will benefit from re-establishment of grasslands in one or more states include grasshopper sparrow, bobwhite quail, swift fox, short-eared owl, Karner-blue butterfly, gopher tortoise, western-harvest mouse, Gunnison-sage grouse, and Greater sage grouse.

Other upland priorities include the establishment of windbreaks, and the improvement of the edge around cropland, wildlife corridors, shrub-scrub and steppe habitats, and forests including pine barrens and long leaf pine. Wildlife species that will benefit from development of these habitats include Louisiana black bear, Eastern collared lizard, Bachman's sparrow, ovenbird, acorn woodpecker, western grey-squirrel and Greater sage grouse.

Practices installed on upland habitat include seedings and plantings, fencing, livestock management, prescribed burning, and shrub thickets with shelterbelts. Additional practices were installed for the benefit of forest land management including creation of forest openings, disking or mowing including meander disking through woodlands, woody cover control, brush management, upland wildlife management, aspen stand regeneration, and exclusion of feral animals.

Wetland Wildlife Habitat. More than 4 percent of WHIP lands benefit wetland habitat. WHIP wetland acres are not eligible for the Wetlands Reserve Program. WHIP wetland habitat includes crop fields that are flooded in the winter for waterfowl, tidal flushing areas, salt marshes, wetland hardwood hammocks, mangrove forests, and wild-rice beds. WHIP wetland habitat also includes created wetlands, freshwater marshes, and vernal pools in abandoned gravel mines. Among the wildlife species that will benefit from development or enhancement of wetland habitat are black crowned night heron, snowy egret, canvasback duck, ibis, piping plover, short-nosed sturgeon, osprey, California-clapper rail, fairy shrimp, Santa Cruz long-toed salamander, and endangered waterbirds (Koloa duck, nerie goose, coot) in Hawaii.

Riparian and In-stream Aquatic Wildlife Habitat. Riparian habitat makes up about one percent of the acres enrolled in FY 2007. This category includes riparian areas along streams, rivers, lakes, sloughs and coastal areas. Almost 5,000 acres of riparian herbaceous cover, shallow water management for wildlife, and over stream habitat improvement and management were installed. Not all WHIP practices are measured in acres. For instance, funds addressed almost 77,000 feet of stream bank/shoreline protection.

Discussion of Policy Scenarios

This analysis of the WHIP interim final rule examines in qualitative terms the potential impacts of four discretionary items.

Policy Scenario 1

Establish a 90-percent cost-share rate on long-term agreements of at least 15 years;

- **Beneficial effects of this action**: A change from 100-percent to 90-percent cost-share rates ensures that participants bear some costs in habitat restoration. By having this financial commitment, participants may be more committed to maintaining the terms of their agreement. Given no increase in program funding, this scenario could distribute WHIP funds to possibly more participants because it would effectively lower the average cost-share rate on agreements. There appears to be ample supply of willing potential participants: in FY 2008, there were 1,688 unfunded contracts which would have needed an estimated $40 million to complete. Assuming that the participants that enrolled at a 100 percent cost-share rate would enroll at 90 percent, there would be effectively more funding available to enroll these participants. However, the impact of any shift from long-term contracts to short-term contracts is expected to be small.[4]

- **Adverse effects of this action**: Lower cost-share rates in long-term agreements could lower producer interest in WHIP long-term agreements and therefore potentially lower over-all acreage enrolled in WHIP long-term agreements. To the extent that higher benefits could be generated through long-term agreements than short-term agreements, some decline in over-all benefits may result. However, there is no evidence that suggests this would indeed occur. Anecdotal evidence suggests that participants that enter into long-term contracts are those who are dedicated to protecting and restoring critical plant or animal habitat. Decreasing the cost-share available to these individuals by ten percent may have little impact on their decision to participate in WHIP.

Policy Scenario 2

Increase the proportion of annual funds that may be available for long-term agreements from "not more than 15 percent" to "not more than 25 percent."

- **Beneficial effects of this action**: This policy option provides the opportunity to help ensure that restored habitat is maintained for a longer period of time. Long-term

[4] Little is known about the willingness of participants to enter into long-term contracts in response to an "effective" increase in their cost brought about by a drop in NRCS' cost-share. Assuming a supply-elasticity for long-term contracts on the part of potential WHIP participants of 0.5 during the FY 2004 to FY 2007 period, it would be expected that the number of long-term contracts would be reduced by 25 (from 495 out of 11,178 WHIP contracts) to 470. Given the average costs of long-term contracts during that same period, this reduction in long-term contracts would have "released" $724,403. Assuming that all this money would be spent on short-term contracts, the program would have gained an additional 66 "non long-term" contracts. This would have increased the number of shorter-term contracts by 0.62 percent.

agreements may result in fewer fish and wildlife species being federally listed as threatened and endangered. NRCS entered into nearly 500 15-year agreements with program participants between FY 2004 and FY 2007 accounting for about four percent of all WHIP agreements and six percent of funds obligated. (NRCS Protracts Data, FY 2004–FY 2007). An increase of 10 percent on the upper bound from a desired limit of 15 percent to 25 percent would have a negligible effect on likely future participation or distribution of long-term and short-term contracts in WHIP.

- **Adverse effects of this action:** The change from 15-years to 25-years is not expected to have an effect. However, if additional long-term agreements are entered into, obligations per agreement would increase as they represent costs of agreements with longer durations. However, these initial high costs could, in fact, produce lower-cost environmental improvements over the lifetime of many agreements.

Policy Scenario 3

Give priority to projects that address issues raised by State, regional and national conservation initiatives.

- **Beneficial and adverse effects of this action**: Project prioritization already considers National, State, and regional concerns. Pooling these different concerns when ranking contracts allows NRCS to more effectively address problems occurring in specific areas within each State. NRCS sees some beneficial effect and no adverse effects brought about by this action. Information used to set these priorities, such as the State Fish and Wildlife Action Plans and National Fish Habitat Management Plan, includes numerous data sources and provides new resource data for more informed decisions.

Policy Scenario 4

Establish WHIP payment rates for historically underserved producers (including Indian tribes) that align with payment rates adopted by other NRCS cost-share programs.

- **Beneficial effects of this action**: At this time, there are no WHIP provisions which afford historically underserved producers the possibility of a higher cost-share from NRCS. This scenario would simplify the administration of programs and possibly make more funds available to historically underserved producers who decide to participate in WHIP. Resource concerns that may be more prominent on agricultural enterprises operated by historically underserved producer could be more fully addressed as a consequence. This scenario could lead to higher levels of WHIP participation by historically underserved participants
- **Adverse effects of this action:** One consequence of this policy change may be a slight shift of funds to historically underserved producers from other participants due to the higher cost-share rates afforded to historically underserved producers.

Conclusion

The changes made by the WHIP interim final rule will have a minimal impact on the benefits and costs of the WHIP program. The changes will improve program administration by bringing greater consistency across financial assistance programs including WHIP, the Environmental Quality Incentives Program, and the Agricultural Management Assistance program. The changes will also address equity issues related to assistance to historically underserved producers. Finally, the changes will bring the financial incentives offered by WHIP into greater alignment with other financial assistance programs. Because these changes are expected to have minimal impacts on the implementation of the WHIP program and because there is limited data on the quantitative effects of wildlife oriented conservation practices, a quantitative analysis was not undertaken.

Appendix A: Individual WHIP Projects since FY2004

This appendix describes several individual WHIP projects undertaken since FY 2004. It is not extensive, but is intended to give the reader a better understanding of the diverse nature of WHIP projects, including their location, size, the types of conservation practices applied and resource concerns addressed. The wide range of these characteristics makes it difficult to access the national benefits generated by the WHIP given available data at this time. As was stated in the text, NRCS anticipates that the unique environmental outcomes generated through conservation practices adopted by WHIP participants will be better understood through efforts such as CEAP and practice-specific assessments applicable to WHIP. This type of research might make it possible to estimate likely environmental outcomes given specific geographic and climatic conditions that could provide the needed information for estimating national levels of environmental and economic benefits from WHIP. These examples are taken from NRCS internal files and are presented in chronological order by State and resource concern addressed.

2008 Example WHIP Projects

Wyoming: Big Game Habitat Conservation

Wyoming is rich in big game. It is home to tens of thousands of antelope and deer, and large populations of elk and moose. Many of these animals depend on routes that they have used for many years to migrate between summer range in the to their critical winter range. Woven wire fences were historically built for managing sheep operations. Over the years, most operators have converted to cattle. Many woven wire fences remain that may prevent or harm wildlife migrating through the area. In some cases, landowners unknowingly installed barbed wire fences that are unfriendly to wildlife. In 2008, Wyoming piloted a Wildlife-Friendly Fence Initiative. Financial assistance was offered to retrofit fences that are not wildlife friendly in migration corridors. NRCS worked with partners to identify these important corridor areas. The Initiative gave landowners the opportunity to facilitate big game migration, avoid wildlife mortality, and prevent yearly damage to their fences (success story write-up from the Wyoming NRCS State office November 2008).

South Carolina: Declining Bird Species Habitat Conservation

Partnership efforts of Federal, state, and local agencies and private landowners worked together to restore and improve habitat for declining species that depend on grasslands and similar habitats. The project totaling 16,000 acres utilized pine stand thinning, prescribed burning, native warm season grass establishment and eradication of invasive species. Bird species including bobwhite quail and song birds such as prairie warbler, loggerhead shrike, and Bachman's sparrow have benefited from this work (South Carolina NRCS Current Developments, March 2008, "Wildlife Habitat Restoration Improves Thousands of Acres in Newberry County").

Kansas: Multiple Species Habitat Improvement

A Kansas WHIP participant has turned an eroded small farm into a productive agricultural and wildlife operation. A 30-foot sinkhole had developed, row crops could not be sustained, and the farm was abused by cattle overgrazing. Today, 10 years later, the farm is home to coveys of quail, deer and even snakes. Conservation practices such as controlled burns and cutting invasive trees and brush, followed by planting of native grasses contributed to improving the land. With the farm improving cattle grazing has been reintroduced. It's quite a turnaround for the farm that was once neglected (LJ World.com, Kansas, February 4, 2008, "Honorees have transformed eroded plot to natural oasis").

California: Fish Passage

A partnership between a number of governmental agencies and a winery to remove a dam built in 1965 took place on a creek as a major subsidiary of the Napa River in northern California. The dam provided water for frost protection. The goals of the project were to improve water availability and passage for steelhead trout and Chinook salmon, protect the eroding stream banks, and enhance the riparian corridor. After the dam removal three boulder weirs were placed in the stream to facilitate flow and provide a "staircase" for the fish, the creek banks were cut to a 2:1 slope and stabilized with toe rocks and willow brush mats installed. The winery, as part of its commitment to organic farming agreed to find other means of frost protection (Winesandvines.com, April 25, 2008, Winery Removes Fish Barrier in Napa").

2007 Example WHIP Projects

Multiple States: Fish Passage

Eleven states, including Alaska, Connecticut, Delaware, Kentucky, Maine, New Hampshire, Oregon, Rhode Island, Virginia, Wisconsin, and Wyoming, obligated over $5.4 million for fish passage projects during FY 2007. Such projects as dam removal, fish ladder installation, culvert replacement, and self-regulating tide gates were approved for implementation. With implementation of these projects over 300 miles will be made accessible for such prioritized aquatic wildlife species as Atlantic salmon, whitefish, shellfish, burbot, grayling, northern pike, Brook and Brown trout, American shad, American eel, Blackside Dace, alewives, blueback herring, rainbow trout, sea lamprey, smallmouth bass, Roanoke Logperch, Roanoke Bass, Yellowstone Cutthroat trout, Sauger burbot, and prairie fish.

Maine: Fish Passage

A small brook known as the Harmon Brook is one of 13 tributaries to the better known East Machias River. Clear, free-flowing streams are required by young salmon for their survival. For 50 years the brook has flowed through a culvert of a logging road. Culverts pose real challenges to adult salmon seeking spawning grounds and their tiny offspring by changing the dynamics of a stream, affecting downstream flow, water temperature and sediment load.

The culvert was replaced by an archway and rocks placed to replicate a natural waterway making the road invisible to the stream.

Montana: Fish Passage

Through the tenacious efforts of an irrigation district manager that took 40 years of work, a 660 foot fish passage channel was finally completed to bypass a 300 foot long, 12-foot high diversion dam on the Tongue River that has been in place since 1885. This work opened 50 miles to six species of concern such as the blue sucker, sturgeon chub, and the sicklefin chub, including another 49 species of fish.

Idaho: Fish Passage

The Bear River in south eastern Idaho provides critical habitat for the threatened Bonneville cutthroat trout. The River is also a major source of irrigation water for adjacent farms and ranches. After irrigation season there were numerous fish found trapped in irrigation ditches which lead away from the river. A large diversion structure and fish screen was installed and now provides safe passage when the threatened trout is traveling up and down the spawning river.

California: Multiple Species Habitat Improvement

Through WHIP a farmer gained improvements in soil, water, native plants, and wildlife habitat. Water required by field and row crops was provided through work with the local irrigation district and tomato cannery rinse water. The crop fields filter the rinse water. Twenty-six neighbors, agencies, and organizations completed the largest vegetation management plan of its kind in the State to control brush encroachment into grasslands and improve habitat on grazing land. Native trees and shrubs were planted along ranch ponds and riparian areas to provide cover and food for wildlife. Fencing and the use of prescribed grazing control invasive plant species and benefit livestock, vegetation and wildlife. Livestock are kept away from ponds and streams with wildlife friendly fencing and are pumped drinking water at solar-powered watering facilities.

New York: Bird Species Habitat Conservation

Between 1966 and 2003, 64 percent of shrubland bird species and 85 percent of grassland bird species declined significantly. Early successional bird species are a conservation priority, including New York threatened, endangered, and species of special concern. Several thousand acres have been enrolled in eight core grassland habitat areas selected based on research completed through GIS analysis. In fiscal year 2007 128 WHIP applications were received representing 3,300 acres.

2006 Example WHIP Projects

Multiple States: Sage Grouse Habitat Conservation

California, Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming used WHIP to provide funding to conserve habitat for the greater sage grouse (a bird native to the Great Plains and western United States) with a two decade declining population trend. Private land comprises 28 percent (40 million acres) of the total acreage where existing greater sage grouse populations are threatened; the remaining acreage is located on state, tribal and public lands. WHIP provided financial and technical assistance for sage grouse habitat projects that assist in the implementation of the NRCS sage grouse habitat conservation action plan and accrue the maximum benefit from partners' contributions.

Delaware: Fish Passage

The Pursel Mill Dam on the Lopatcong Creek, a tributary of the Delaware River, was breached. It opened over 10 miles of streams that had been closed for more than 150 years to migratory fish. This is one of many projects that are actively restoring rivers and their native fisheries. Creek bank stabilization and plantings of native vegetation conservation practices assist to complete stabilization of the stream system. Aquatic species benefiting were the American eel (a migratory fish species), brown trout, brook trout (a native species), and other aquatic species. The permitting process took two years. Sixteen partners including private individuals, local, State and Federal governments joined this WHIP project.

Virginia: Invasive Species Mitigation Measures

Virginia NRCS used WHIP funds to help eradicate zebra mussels. They provided funds to the Virginia Department of Game and Inland Fisheries to eradicate a colony of zebra mussels — a non-native invasive species. The only known colony of zebra mussels is located in a quarry in Northern Virginia. Zebra mussels have the potential to invade and devastate populations of Virginia's native mussels.

Illinois: Multiple Species Habitat Improvement

Savannah is a rare and declining habitat in Illinois that provide critical habitat for mockingbirds, turkeys, woodpeckers, the state threatened loggerhead shrike, and many other species. Unlike the parched, stunted corn and soybean fields across central Illinois, a native grass and wildflower parcel remains undaunted by the drought that is troubling farmers and frustrating gardeners. In fact, this WHIP-funded prairie and savannah restoration seems like an oasis in a literal row crop desert.

Washington: Multiple Species Habitat Improvement

A farmer in Washington has been so successful in combining agriculture and wildlife habitat on his farm that he is continually receiving unsolicited offers to purchase his farm. Conservation practices installed are fencing, conservation cover, tree and shrub plantings, livestock exclusion areas, and seeding of native grasses on rangeland, many ponds

constructed, watering facilities, cross fencing, and pest management activities have provided excellent wildlife habitat improvements.

2005 Example WHIP Projects

Multiple States: Native Sage Brush Restoration

The greater sage grouse, a bird native to the Great Plains and western United States, including California, Colorado, Idaho, Montana, North Dakota, Oregon, South Dakota, and Wyoming, has seen a decline in population over the past two decades. Private land comprises 28 percent (40 million acres) of the total acreage where existing greater sage grouse populations are threatened; the remaining acreage is on state, tribal and public lands. WHIP provided financial and technical assistance for sage grouse habitat projects that provide the maximum benefits from partners' contributions, and help implement the NRCS sage grouse habitat conservation action plan.

Multiple States: Salmon Habitat Restoration

WHIP money was provided to restore a variety of habitats: creeks, wetlands, inter-tidal mudflat, inter-tidal sedge-plant benches, freshwater wetland, riparian zone, floodplain, grassland, oak woodland and savanna, shrub/steppe, conifers, springs, seeps, rivers and streams, for salmon (Coho, Chinook, Atlantic) and steelhead (both fish species are anadromous). Alaska, California, Idaho, Maine, Oregon, and Washington signed agreements with private owners, Tribes, and public agencies in an effort to use WHIP funding effectively as part of the WHIP Salmon Habitat Restoration Initiative. Many conservation practices have been installed as part of this effort and include such practices as streambank and shoreline protection, critical area planting, conservation cover, riparian forest buffer, livestock exclusion fencing, fish stream habitat improvement, irrigation water pipeline, prescribed grazing, access road, structure for water control, tree and shrub establishment, trough, channel vegetation, fence, stream channel stabilization, upland wildlife habitat management, wetland enhancement, wetland restoration, dam removal and fish ladder installation.

Arkansas: Ivory Billed Woodpecker Habitat

WHIP funds were provided to Arkansas to share in the costs of private landowners for practices that improve and restore native Ivory billed woodpecker habitat, including previously logged areas near deciduous forest swamps. The bird has been thought to be extinct in for more than 60 years.

West Virginia: Multiple Species Habitat Conservation

Using the WHIP program, partners worked to protect a 960-acre working farm with a network of caves and springs including woodland and wildlife habitat in West Virginia; the ecosystem supported 22 caves, two streams, several springs and dozens of sinkholes. Nearly three miles of fencing, alternative water facilities, prescribed grazing and a nutrient

management plan were implemented. Livestock are no longer being permitted to graze the 500 acres of forestland and a seven-acre riparian zone covered through tree and shrub planting.

2004 Example WHIP Projects

Utah: Native Sage Brush Restoration

The Greater Sage grouse, an at-risk bird species, has seen a 90 percent decline in population over the past twenty years due to the loss of sage brush, the woody plant necessary for the existence of sage grouse. As a consequence over 90 percent of WHIP enrolled land in Utah is for the purpose of improving upland habitat especially sage brush. Located in Parker Mountain, which is entirely under private ownership, the enrolled land is a prime environment for sage brush. Habitat restoration work is consisting of planting of forbs, livestock exclusion fencing, prescribed grazing, and installations of water facilities.

Multiple States: Salmon Habitat Restoration

WHIP funds were applied to restore a variety of habitats such as, creeks, wetlands, inter-tidal mudflat, inter-tidal sedge-plant benches, freshwater wetland, riparian zone, floodplain, grassland, oak woodland and savanna, shrub/steppe, conifers, springs, seeps, rivers and streams, for salmon (coho, Chinook, Atlantic) and steelhead (both fish species are anadromous). Alaska, California, Idaho, Maine, Oregon, and Washington signed agreements with private owners, Tribes, and public agencies in an effort to use WHIP funding effectively. Many conservation practices have been installed as part of this effort and include such practices as streambank and shoreline protection, critical area planting, conservation cover, riparian forest buffer, livestock exclusion fencing, fish stream habitat improvement, irrigation water pipeline, prescribed grazing, access road, structure for water control, tree and shrub establishment, trough, channel vegetation, fence, stream channel stabilization, upland wildlife habitat management, wetland enhancement, wetland restoration, dam removal and fish ladder installation. For example, Maine has approved an agreement to remove the Lower Sabio Dam with the State of Maine, Atlantic Salmon Commission, U.S. Fish & Wildlife Service, Project SHARE, and the Washington County SWCD as partners. The dam is located on the west branch of the Machias River. Removal of the old dam structure will eliminate the threat to salmon habitat below the dam.

Rhode Island: Estuarine Restoration

WHIP funds provided assistance to restore eelgrass beds in Narragansett Bay, Rhode Island. During the restoration eelgrass plants were harvested and transplanted covering hundreds of acres of the Bay. Eelgrass provides habitat for bay scallops, blue crabs, lobsters, water fowl such as Atlantic brandt, and many other species, and is also good for the economy and water quality.

Alabama: Bird Species Habitat Conservation

A client owns two tracts of land in Macon County, Alabama. The primary resource concern is to provide wildlife habitat for quail and turkey. The owner became interested in the WHIP program and applied for the program in 1998. Funds were limited and her application was not funded. With NRCS encouragement in 1999 she applied again and her application was approved for funding. Longleaf pine trees were planted in 2000. Due to a drought the trees failed to make a stand and had to be replanted in 2002. Other practices installed include fire lanes, strip-disking, and prescribed burning. The persistence paid off. The plantings and practices installed are becoming established and helping to provide food and shelter for quail turkey, and other upland birds. Most wildlife species have the potential to dramatically increase their population. But the growth is usually limited by one or more habitat factors such as food or cover. When these habitat factors are in good supply they ensure healthy individual animals as well as a healthy overall population. In FY 2004, 95 percent of acreage enrolled in the WHIP program in Alabama was for upland habitat with the remainder for wetlands habitat.

Hawaii: Forest Land Habitat Conservation

The Honouliuli Preserve, Oahu, Hawaii, is a lowland diverse and globally rare, 3,692 acres of mesic forest in the Waianae mountain range. The Honouliuli Perserve protects a native land snail species that is found nowhere else on earth. The forest boundaries contain one of the last remaining habitats for native forest birds and the Hawaiian owl, culturally significant and revered as a guardian spirit by ancient Hawaiians. Also present is the flycatching ‘elepaio, a singing land bird once revered by Hawaiian canoe builders. Along with partner The Nature Conservancy, WHIP funds were used to plant over 3,900 plants listed as endangered, install catchment tanks and irrigation systems. Funds were also used to install various kinds of traps for the purpose of controlling rodents to protect the rare snail, planted endangered plant species, and the endangered Oau Elepaio forest bird during the nesting season.