6.2 Land Retirement

The Conservation Reserve Program (CRP) remains the largest U.S. agricultural land conservation program. Re-authorized by the 1996 Farm Act at a time when commodity prices were high, consideration was given to early release of some contracts, and more careful targeting of enrolled acreage to maximize environmental benefits. The emphasis on targeting for environmental benefits continues, as the criteria for enrollment have evolved and other forms of targeting, such as the continuous CRP signup and Conservation Reserve Enhancement Program, have emerged. As the CRP approaches its statutory 36.4-million-acre limit, some have proposed increasing the acreage cap, which could slightly shift the geographic distribution of enrollment. The Wetlands Reserve Program (WRP), a much smaller related land-retirement program, is also approaching its statutory cap.

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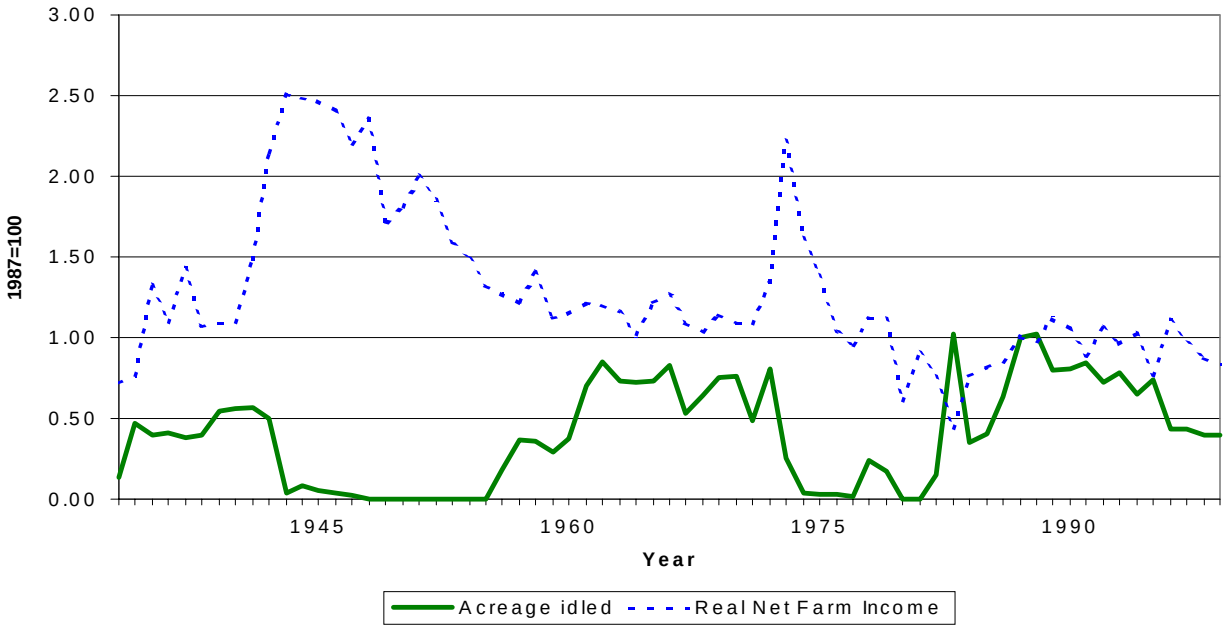
Land retirement has been a common agricultural policy tool since the 1930's, when dual concerns over low farm income and soil erosion were both addressed by reducing cultivated acreage. Indeed, acreage idled under a variety of programs, including annual set-asides, has often varied inversely with net farm income (fig. 6.2.1). However, land retirement as a public policy is of interest to those beyond the agricultural community. Land retirement influences multiple environmental concerns beyond reducing soil erosion, such as improving water quality and protecting wildlife habitat (for example, see the President's Clean Water Action Plan, described in chapter 6.4, Water Quality Programs). Further, land retirement to reduce nonpoint source pollution has the policy advantage of being relatively easy to monitor and enforce, especially compared to policies that target production practices on the intensive margin of production that affect how land is farmed.

The Conservation Reserve Program (CRP) (www.fsa.usda.gov/dafp/cepd/crpinfo.htm), and to a lesser extent, the Wetlands Reserve Program (WRP) (www.wl.fb-net.org/), stem from a long history of land retirement policies (See box "History of Land Retirement Policies"). In the past, long-term land retirement programs were at times supplemented with annual set-asides. While annual set-asides adjust production for short-term market conditions, long-term land retirement addresses concerns of chronic production capacity in relation to quantities demanded. Long-term retirement provides a less flexible policy tool to adjust production compared with annual set-asides. However, long-term land retirement may generate more environmental and recreational benefits than an annual set-aside program. Both annual set-asides and long-term retirement have been used extensively since World War II, although annual set-asides were eliminated from Federal farm programs in 1996. Conditioning current U.S. policy is the obligation under the Uruguay Round Agreement on Agriculture that programs involving retirement of agricultural land must idle the acreage a minimum of three years (Vasavada and Warmerdam).

Figure 6.2.1--Indices of real net farm income and land idled under annual and long-term Federal agricultural programs



The Conservation Reserve Program: Current Status and Characteristics

The current CRP, USDA's largest land retirement program, was authorized by the Food Security Act of 1985 (P.L. 99-198). A voluntary long-term cropland and marginal pasture retirement program, the CRP provides participants (farm owners or operators) with an annual per-acre rental payment and half the cost of establishing a permanent land cover (usually grass or trees) in exchange for retiring highly erodible or other environmentally sensitive cropland from production for 10-15 years. The enrollment mandate established in the 1985 Act was a minimum of 40 million acres and a maximum of 45 million acres. The primary goal of the CRP during 1986-89 was to reduce soil erosion on highly erodible cropland. Secondary objectives included protecting the Nation's long-run capability to produce food and fiber, reducing sedimentation, improving water quality, fostering wildlife habitat, curbing the production of surplus commodities, and providing income support for farmers (Osborn, 1997b).

Subsequent legislation has modified the program. The Food, Agriculture, Conservation, and Trade (FACT) Act of 1990 (P.L. 101-624) extended the CRP enrollment period through 1995, and redirected the goals of the CRP toward improving water quality and other environmental concerns. Under the 1990 Act, an additional 2.5 million acres were enrolled, bringing total enrollment to 36.4 million acres as of 1993. Subsequent appropriations legislation capped CRP enrollment at 38 million acres. The Federal Agricultural Improvement and Reform Act of 1996 (P.L. 104-127) continued the CRP through 2002 and gave USDA authority to re-enroll existing CRP contracts, as well as enroll new acres, subject to a maximum enrollment of 36.4 million acres. It also allowed participants to withdraw from the CRP with 60-days notice to USDA if they held contracts that (1) were established before January 1, 1995, and (2) had been in effect at least five years. However, certain environmentally sensitive CRP acres were ineligible for early termination. These included acres within 100 feet of a stream or other water body, acres covered by a CRP easement, and acres containing grass waterways, filter strips, shallow water areas for wildlife, bottomland timber on wetlands, field windbreaks, and shelterbelts established by the CRP.

"History of Land Retirement Policies"

Land retirement as a part of farm policy has its roots in legislation from the 1930's. Supply control in the form of acreage reduction was incorporated into the Agricultural Adjustment Act (AAA) of 1933, when taxes levied on specific crops were used to fund payments to producers who restricted their output (Wilcox, Cochrane, and Herdt). When the Supreme Court found the AAA unconstitutional, funds from the general Treasury were used for payments to farmers to shift acreage from specific soil-depleting crops to soil-conserving legumes, grasses, and certain other crops (Halcrow, Heady, and Cotner). Acreage was idled under this Agricultural Conservation Program through 1947. Following World War II, stocks again began to grow. The Agricultural Act of 1956 created the Soil Bank to help establish a balance between supply and demand by idling 15-30 million acres of land planted to surplus commodities. As part of the Soil Bank, the Acreage Reserve Program paid farmers to convert land planted to surplus commodities to conserving uses in 1956, 1957, and 1958 (Wilcox, Cochrane, and Herdt). Also as part of the Soil Bank, the Conservation Reserve Program provided for 3- to 10- year contracts to retire land designated by the farmer without regard to specific resource conditions (Crosswhite and Sandretto). These long-term contracts expired in 1972. When stocks rose during the 1960's, annual acreage set-asides were again used heavily and a modest amount of long-term cropland retirement occurred under the Food and Agriculture Act of 1965. With demand outpacing supply in the 1970's, relatively little land was set-aside, but the amount of idled land grew again in the 1980's as stocks again rose. In 1985, at a time of then-record stocks, long-term land retirement re-appeared as the current CRP.

While the CRP follows a series of agricultural land-idling programs, the Wetlands Reserve Program (WRP) represents a shift from historical wetland policies. For most of the history of the United States, wetlands were areas generally avoided or drained for agricultural or urban uses. (See Chapter 6.5, "Wetlands Programs") In 1970 however, the Water Bank created the first agricultural program to protect existing wetlands, targeting wetlands in important migratory waterfowl nesting, breeding, or feeding areas (Heimlich et al.; USDA, ASCS). The program provided annual per acre payments and cost-sharing for 10-year contracts to owners of eligible wetlands and adjacent uplands who agreed to protect enrolled areas. About 700,000 acres were enrolled in the program by the mid-1990's, approximately 40 percent of which were wetlands while the remainder were adjacent uplands (Heimlich, Gadsby, and Wiebe). The Water Bank program no longer enrolls acreage and existing contracts have been expiring with no renewal. However, former Water Bank lands are eligible for enrollment in the CRP. In 1990, the Food, Agriculture, Conservation, and Trade Act (P.L. 101-624) authorized the WRP. Unlike the 10-year wetland protection contracts of the Water Bank, the WRP originally offered permanent or 30-year easements (or the maximum term allowed under State law) to eligible landowners to both restore and protect former wetlands that had been converted to crop production (Osborn, 1991). The program was to enroll nearly 1 million acres under the 1990 authority. After a 1992, nine-State pilot program, the WRP was gradually expanded to all States.

After record Midwest flooding in 1993, the Emergency Wetlands Reserve Program was authorized in supplemental appropriations (P.L. 103-75, 107 Stat.739). Under this program, USDA provided easement payments and restoration cost shares to eligible landowners who permanently restored wetlands on cropland for which the cost of cropland and levee restoration exceeded the fair market value of flood-affected cropland (Heimlich, Gadsby, and Wiebe).

With annual set-asides defunct as of 1996, supply control objectives of the first land-idling programs now are just one result of long-term land retirement in conjunction with the pursuit of multiple environmental objectives.

Most CRP enrollment has occurred during specified offer periods, known as the "general" signups. Enrollments, contract expirations, other contract terminations, and average rental rate payments are shown in table 6.2.1. Enrollment under the continuous CRP signup, discussed below, is permitted year-round but is recorded as a distinct signup between the general enrollment periods. The first continuous CRP enrollment was assigned the number 14 (table 6.2.1). However, given subsequent general signups 15, 16, 18, and 20, continuous signups have been numbered as 17 and 19, and most recently, 21 and 22. Regional detail is provided for activity since Signup 14 in table 6.2.2.

As of October 2000, more than 33 million acres were enrolled in the CRP, making it the most extensive U.S. agricultural conservation program. For comparison with another land conservation program that provides

wildlife benefits, the National Wildlife Refuge System includes about 15 million acres in the continental United States (USDI, US F&WS). Most acreage is enrolled in the Prairie Gateway and Northern Great Plains, with about 30 percent of total CRP acreage in each region (figs. 6.2.2; 6.2.3). The distribution of enrollment is influenced by eligibility and the opportunity costs producers face relative to benefits of enrolling in the program, in addition to acreage selection through use of the Environmental Benefits Index (EBI, discussed below).

Table 6.2.3 shows the distribution of national CRP enrollment by selected conservation practices and the regional distribution of acreage for each practice. More than three-quarters of CRP acreage is planted to grasses. Existing grass covers and grass plantings account for 45 percent and 32 percent of CRP acreage, respectively, occurring mostly in the Prairie Gateway and the Northern Great Plains regions. Practices relating to trees (new plantings or existing tree covers) comprise about 7 percent of total CRP acreage, and are concentrated in the Southern Seaboard and Mississippi Portal. Specific wildlife habitat planting practices also account for approximately 7 percent of acreage, mostly in the Northern Great Plains and the Heartland. About 5 percent of CRP acreage is devoted to wetland restoration practices, occurring mostly in the Northern Great Plains. Filter strips and riparian buffers comprise 2 percent of enrollment, most of which lies in the Heartland region. Remaining acreage is enrolled in a variety of conservation practices.

Program Changes Since the 1996 Farm Act

Since 1996, significant changes have occurred in the means of determining which lands to accept for enrollment during general signups and the implementation of additional programs, also under authority of the CRP. The Environmental Benefits Index (EBI), used to rank offers by anticipated relative environmental benefits and Government cost, has undergone several revisions (See box "Evolution of the Environmental Benefits Index"). New programs within the CRP provide additional financial incentives and are targeted to enroll specific lands or to achieve specific environmental objectives.

After the 1996 Farm Act and beginning with Signup 15, the EBI was redefined as the sum of six environmental factors and a cost factor:

- Wildlife habitat benefits (100 points maximum);
- Water quality benefits from reduced water erosion, runoff, and leaching (100 points maximum);
- On-farm benefits of reduced wind or water erosion (100 points maximum);
- Long-term benefits of cover such as trees, likely to be maintained beyond the contract period (50 points maximum);
- Air quality benefits from reduced wind erosion (25 points maximum);
- Benefits from enrollment in conservation priority areas and addressing the resource concern of the area (25 points maximum); and
- Cost (points determined by USDA after signup; was 200 points maximum for signup 15).

Application of the EBI helped refocus the CRP on broader environmental goals without substantial changes in the regional acreage distribution (Osborn, 1997a).

The EBI has evolved slightly since Signup 15. In Signup 16, the air quality benefits factor could receive a maximum of 35 points and a factor to encourage offers below the bid cap was added. After signup 16, cost was given a weight of 150 points. While minor adjustments within benefits categories have been made since then, the overall weights remained unchanged for signups 18 and 20.

Other Applications of CRP Authority

The CRP enrolls eligible land to be devoted to at least one of more than two dozen conservation practices. Since 1996 however, CRP general enrollment provisions have been supplemented with more targeted programs within CRP that focus on a subset of CRP practices, land types, or areas beyond the general CRP signups.

Continuous CRP Signup—In September 1996, USDA implemented a "continuous" CRP signup for producers wishing to enroll acreage in specific conservation practices and areas. These practices include filter strips, riparian buffers, shelter belts, living snow fences, field windbreaks, grassed waterways, salt tolerant vegetation, and shallow water areas for wildlife, in addition to land in wellhead protection areas. Unlike the general signups, competitive offers are not used since the relatively small acreage devoted to one of these practices provides a significant positive environmental impact for a much larger area and is hence assumed valuable to enroll. If the applicant is willing to accept a set per-acre payment for an eligible practice on eligible land, acceptance is automatic. For field windbreaks, grass waterways, filter strips, and riparian buffers, USDA provides a 20-percent incentive over the maximum rental rate it otherwise provides; a 10-percent incentive is provided for land located within EPA-designated wellhead protection areas. This enhanced rental rate is clear in table 6.2.1, where average per-acre rental rates associated with the continuous signups (Signups 14, 17, and 19) are much greater than those of the general signups. This reflects not only the enhanced incentives, but also the location of acreage enrolled in the continuous CRP and the competitive nature of the general signups, which tends to lower average rental payments. Much of the continuous CRP enrollment is in the Heartland, an area with high base rental rates (fig. 6.2.3). A per-acre maintenance payment and 50-percent cost-sharing, as are provided under the general signups, were also provided under the continuous signup.

In April 2000, USDA announced enhanced incentives for continuous signup participation (www.fsa.usda.gov/pas/news/releases/2000/04/1484.htm). These include an up-front Signing Incentive Payment (SIP) of $100 to $150 per acre (depending on the length of contract) for filter strips, riparian buffers, grassed waterways, field windbreaks shelter belts and living snow fences; a Practice Incentive Payment (PIP) equal to 40 percent of the cost of installing practices for all continuous signup practices; increased maintenance payments for certain practices; and updated marginal pastureland rental rates to better reflect the market value of such lands. As of October 2000, about 1.3 million acres had been enrolled in the continuous signup with principal conservation practices being filter strips, vegetation to reduce salinity, and riparian buffers.

The Conservation Reserve Enhancement Program (CREP)—The CREP (www.fsa.usda.gov/dafp/cepd/crep/crephome.htm) is a joint Federal-State land retirement conservation program that uses the authorities of the Conservation Reserve Program (CRP) in combination with State resources to target specific conservation and environmental objectives of a State and the Nation (7 CFR Pt. 1410.50(b)). Enrollment is usually conducted under the continuous signup. The program allows States to supplement CRP incentives to address more State-specific goals. States generally provide about 20 percent of total program cost. Under this arrangement, USDA provides participants a set level of cost-sharing, an annual incentive (the rental rate plus a percentage that varies by conservation practice and by State), the up-front signing incentive and practice incentive payments of the continuous CRP, and a payment for annual maintenance of the land. States have provided enhanced cost-sharing to minimize out-of-pocket costs for participants, lump-sum signing incentive payments, and the option of permanent easements and multi-year contract extensions, a feature not available under the current CRP. States may designate up to 100,000 acres in specific areas (e.g., watersheds) as eligible to enroll in the program to meet specific State goals that relate to National environmental goals, such as improving water quality or endangered species habitat. From 1997 through October 2000, thirteen States (Maryland, Illinois, North Carolina, New York, Delaware, Minnesota, Ohio, Oregon, Pennsylvania,

Washington, Virginia, Michigan, and Missouri, by order of acceptance) have implemented programs. As of October 2000, slightly more than 100,000 acres had been enrolled, with the largest enrollment occurring in Illinois and Maryland.

"Evolution of the Environmental Benefits Index"

Most acreage currently enrolled in the CRP was accepted as part of a competitive offer process during discrete ("general") signup periods, based on a measure of expected environmental benefits and government cost. However, this was not always the case. In signups 1-9, USDA was seeking to reach mandatory minimum annual enrollment levels established in the 1985 Food Security Act. In an effort to meet these enrollment levels, USDA did not rank the offers and generally accepted all offers of eligible lands for rental rates below the maximum acceptable rental rate. Most of these contracts have now expired.

USDA ranked offers for acceptance starting with Signup 10, based on the need to enroll only a limited amount of additional acreage during 1990-95. The ranking processes were designed to select acreage that provided the greatest conservation and environmental benefits relative to the government cost of enrollment. In addition, to match rental rates more closely with market rates, new rental rate screening processes were instituted. Since Signup10, the EBI has become the principal method for determining which offers to accept from each general signup.

In signups 10-12, the rental payment requested by a producer was screened against a soil productivity-adjusted estimate of the rent that could be earned on comparable local cropland. Offers that exceeded this amount, adjusted for other costs incurred by producers due to CRP participation, were rejected. Offers that passed the rental rate screen were ranked for acceptance based on the ratio of an environmental benefits index to the government cost of the contract. The EBI was comprised of seven coequal indicators:

- Surface-water quality;
- Groundwater quality;
- Soil productivity;
- Conservation compliance assistance;
- Tree planting;
- Hydrologic Unit Areas targeted by the USDA Water Quality Initiative; and
- Conservation priority areas.

When submitting an offer, producers were not informed of the maximum acceptable rental rate for their soil or how the EBI was calculated.

For Signup 13, the EBI used in the national ranking process was comprised of five factors, four characterizing the environmental contributions of each parcel offered and one characterizing the government cost of enrolling each parcel. The environmental factors included:

- Water quality protection (both ground water and surface water; a maximum of 20 points);
- Creation of wildlife habitat (a maximum of 20 points);
- Control of soil erodibility (a maximum of 20 points); and
- Tree planting (a maximum of 10 points).

The cost factor was based on the annual rental rate requested by the producer. For two offers with the same environmental score, the offer with the lower per-acre cost received a higher ranking. In addition, certain partial-field offers (e.g., filter strips, shallow water areas for wildlife, field windbreaks, shelterbelts, and other specific practices) automatically received maximum environmental factor scores. USDA informed each applicant of the maximum annual per-acre rental payment the Government would accept (the bid cap) for the cropland offered based on the soil's productivity. Applicants could increase their likelihood of offer acceptance by bidding less than the cap.

Table 6.2.1—Conservation Reserve Program activity, 1986-2000

Event	Number of acres	Average rental payment
	Million acres	*$/acre/year*
Signup #1, March 1986[1]	0.75	42.06
Signup #2, May 1986	2.77	44.05
Signup #3, August 1986[2]	4.70	46.96
Signup #4, February 1987[3]	9.48	51.19
Signup #5, July 1987	4.44	48.03
Signup #6, February[4]	3.38	47.90
Signup #7, July 1988	2.60	49.71
Signup #8, February 1989[5]	2.46	51.04
Signup #9, July-August 1989	3.33	50.99
Signup #10, March 1991[6]	0.48	53.66
Signup #11, July 1991	1.00	59.37
Signup #12, June 1992	1.03	62.98
Early-out #1, May 1995[7]	-0.70	58.71
Signup #13, September 1995[8]	0.62	52.92
1995 expirations	-0.13	46.36
Early-out #2, 1996	-0.77	57.41
1996 expirations	-0.96	60.51
Signup #14, continuous	0.57	75.46
Signup #15, March 1997[9]	16.17	39.40
1997 expirations/terminations	-21.61	47.52
Signup #16, October 1997	5.92	45.15
Signup #17, continuous	0.22	104.15
1998 expirations/terminations	-5.28	49.50
Signup #18, October 1998[10]	4.99	45.50
Signup #19, continuous	0.27	108.11
1999 expirations	-3.51	50.27
Signup #20, January-February, 2000	2.46	52.76
2000 expirations	-0.42	53.49
Net enrollment, October, 2000[11]	33.50	45.62

[1]Eligible acres included cropland in land capability classes II-V eroding at least three times greater than the tolerance rate, or any cropland in land capability classes VI-VIII. [2]Eligible acres expanded to include cropland in land capability classes II-V eroding at least two time the tolerance rate and having gully erosion. [3]Eligible acres expanded to include cropland eroding above the tolerance rate with an erodibility index of 8 or greater. [4]Eligible acres expanded to include cropland in land capability classes II-V eroding at least two times the tolerance rate if planted in trees. Eligibility also extended to cropland areas 66-99 feet wide adjacent to permanent water bodies for placement in filter strips. [5]Eligible acres expanded to include cropped wetlands and cropland areas subject to scour erosion. [6]Eligible acres expanded to include cropland devoted to easement practices, cropland in State water quality areas, cropland in conservation priority areas, and cropland within established wellhead protection areas. Farmed wetlands, even if otherwise eligible, were ineligible for enrollment. [7]Ineligible acres included those within 100 feet of a stream or other water body, acres covered by a CRP easement, and acres containing grass waterways, filter strips, shallow water areas for wildlife, bottomland timber on wetlands, field windbreaks, and shelterbelts established by the CRP. [8]Eligible acres included fields with an average erodibility index greater than or equal to 8, cropland areas with evidence of scour erosion caused by out-of-bank water flows and floods occurring in at least one out of 10 years, wellhead protection areas identified by the Environmental Protection Agency, any cropland determined suitable for riparian buffer/filterstrips by NRCS, small farmed wetlands contained in and part of a field that were otherwise eligible, or any cropland located in the Chesapeake Bay region watershed the Great region watershed, the Long Island Sound watershed, other areas designated as conservation priority areas in CRP signup 12, and newly approved State priority areas. [9] Eligible acres also included Prairie Pothole conservation priority area. [10] Eligible acres also included Long-Leaf Pine conservation priority area. [11]Column may not add due to enrollment upon appeal; contract terminations prior to 1995 early-out and in 1999 and 2000; enrollment under Signup 21; and rounding.
Source: ERS, based on USDA CRP contract data.

Table 6.2.2—Recent CRP activity by region and net enrollment as of October 2000

Region	Enrollment as of Dec., 1996	Signup 14 Enrollment	Signup 15 Enrollment	Acreage Exiting in 1997	Signup 16 Enrollment	Signup 17 Enrollment	Acreage exiting in 1998	Signup 18 Enrollment	Signup 19 Enrollment	Acreage expiring in 1999	Signup 20 Enrollment	Acreage expiring in 2000	Enrollment as of Oct., 2000[1]
						Thousand acres							
Heartland	6,083	226	2,071	-3,594	1,033	139	-904	682	162	-536	564	-127	5,886
Northern Crescent	1,401	12	377	-656	267	14	-218	148	15	-140	119	-53	1,276
Northern Great Plains	8,256	192	5,001	-4,829	1,722	17	-1,841	1,865	26	-1,417	595	-62	9,362
Prairie Gateway	10,036	23	5,537	-7,421	1,723	12	-1,356	1,321	12	-945	487	-46	10,145
Eastern Uplands	404	2	131	-270	45	2	-60	31	2	-26	26	-10	269
Southern Seaboard	1,599	6	618	-1,058	162	15	-286	233	24	-119	126	-31	1,241
Fruitful Rim	2,196	30	928	-1,665	469	7	-247	257	6	-136	201	-30	2,186
Basin and Range	1,593	67	824	-1,270	346	7	-148	219	12	-66	187	-15	1,750
Mississippi Portal	1,310	5	621	-784	140	7	-205	205	7	-121	138	-39	1,256
United States [2]	32,956	567	16,168	-21,612	5,924	221	-5,277	4,987	268	-3,514	2,460	-417	33,500

[1] May not add due to enrollment upon appeal, contract terminations prior to 1995 early-out and in 1999 and 2000; enrollment under Signup 21; and rounding.

[2] May not add due to rounding and acreage not included in ERS regions.

Source: USDA, ERS based on FSA data on CRP contracts.

Figure 6.2.2--Acres under CRP contract, October 2000

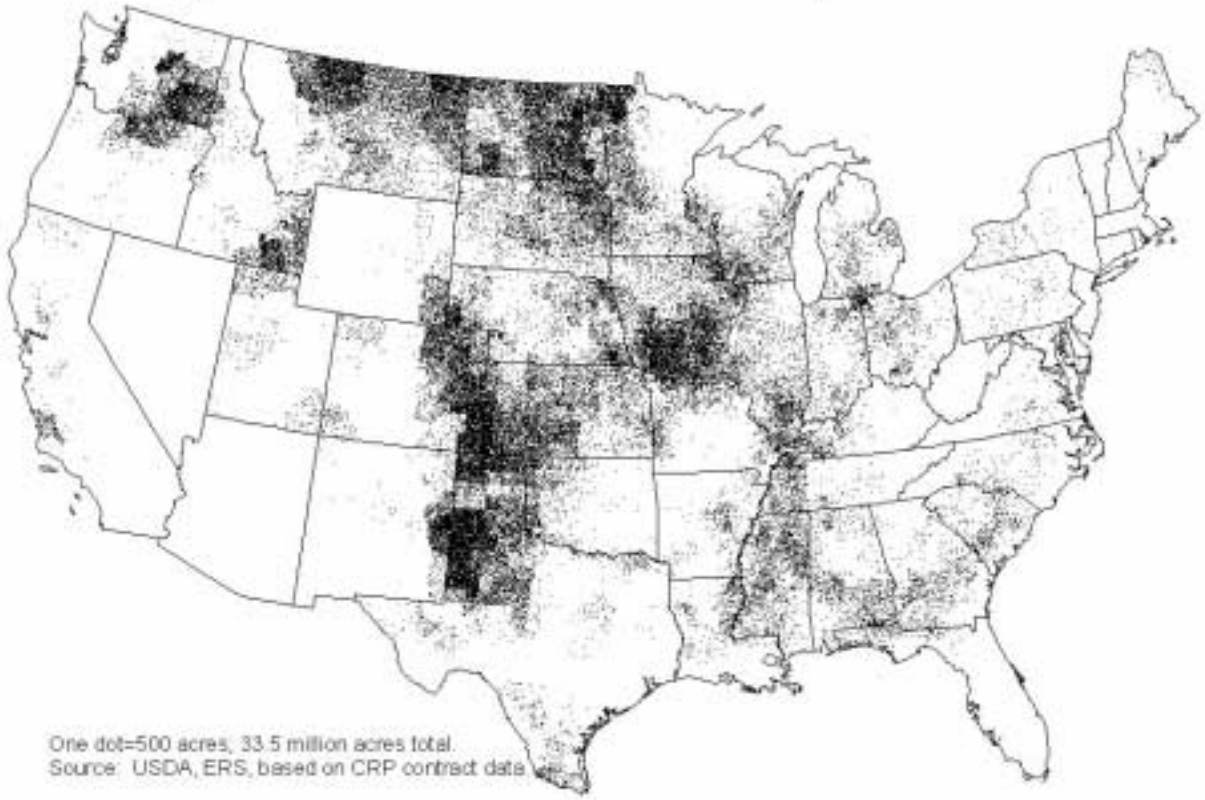


Figure 6.2.3--Regional share of total CRP enrollment and average per acre rental payment

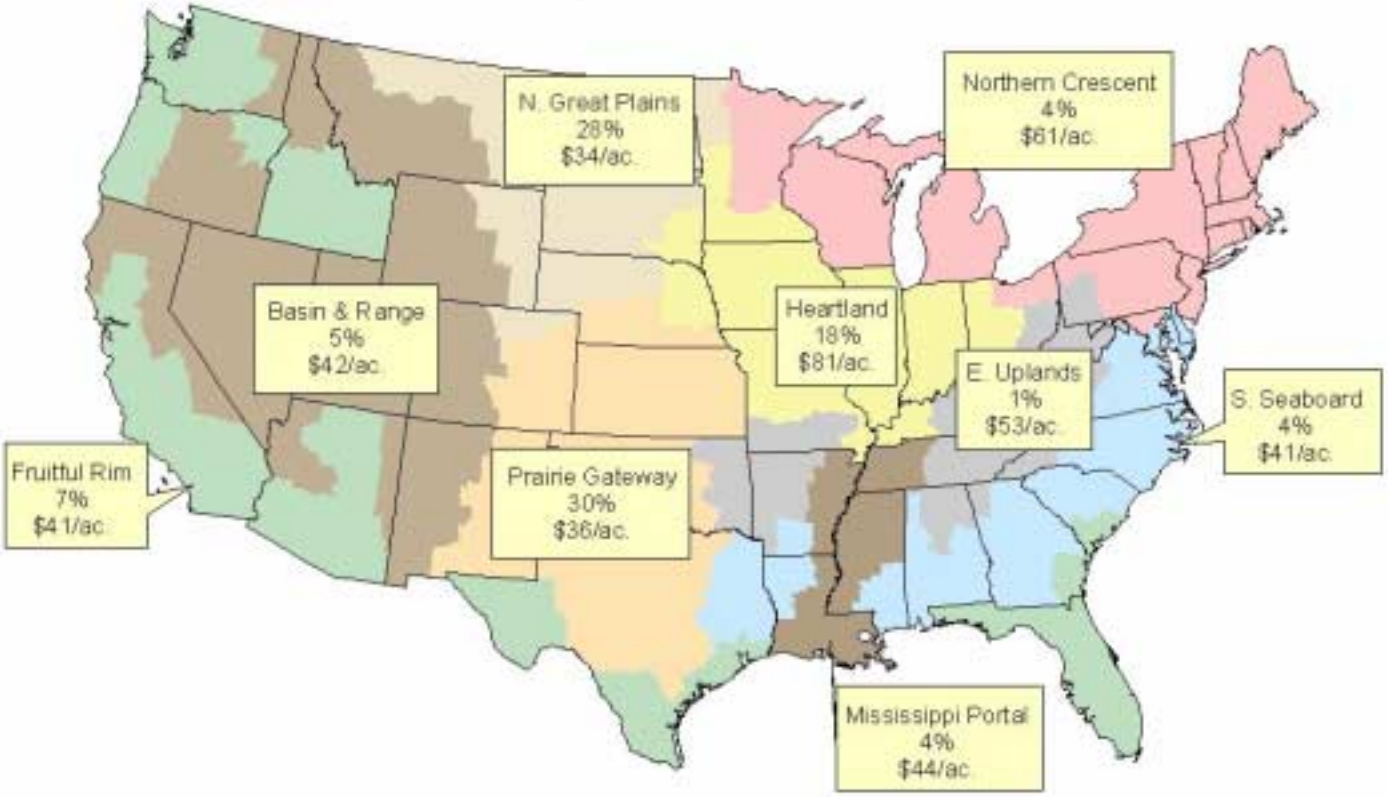


Table 6.2.3—CRP characteristics: Conservation practices

Region	Conservation Practice							
	Grass Plantings	Existing Grass Cover	Tree Plantings	Existing Tree Cover	Wildlife Habitat Plantings	Wetland Restoration	Buffers	Other
	Share of national enrollment (percent of acres)							
United States	32.2	44.8	3.7	3.2	6.8	4.9	2.0	2.5
	Regional share of conservation practice (percent)[1]							
Heartland	20.0	14.3	12.1	4.2	24.8	11.4	69.7	20.8
Northern Crescent	3.1	4.1	8.3	3.5	3.9	2.1	5.8	2.8
Northern Great Plains	26.6	25.6	1.1	0.8	42.8	78.8	2.1	43.0
Prairie Gateway	34.4	40.1	0.3	0.3	9.3	1.1	3.2	18.8
Eastern Uplands	0.8	0.8	2.0	2.9	0.2	0.0	1.0	0.6
Southern Seaboard	0.4	1.1	36.2	46.0	1.4	0.5	7.1	1.5
Fruitful Rim	6.3	6.9	5.2	8.6	11.7	0.6	6.4	0.8
Basin and Range	7.2	5.1	0.4	0.3	4.5	0.2	1.4	10.5
Mississippi Portal	0.9	1.9	34.3	33.3	0.9	2.9	3.0	1.0
Other	0.4	0.2	0	0	0.5	2.4	0.2	0.3

[1]Columns may not sum to 100 due to rounding.

Source: USDA, ERS based on FSA data on CRP contracts.

National Conservation Buffer Initiative—In April 1997, USDA officially launched the National Conservation Buffer Initiative (NCBI) and pledged to help landowners install 2 million miles of conservation buffers by the year 2002 (www.nhq.nrcs.usda.gov/CCS/Buffers.html). The initiative, reinforced by the Clinton Administration's Clean Water Action Plan, is led by USDA in cooperation with State conservation agencies, conservation districts, and numerous other public and private partners. Programs used for the NCBI include the continuous Conservation Reserve Program (CRP) sign-up, as well as the Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentives Program (WHIP), Wetlands Reserve Program (WRP), Stewardship Incentives Program (SIP), and Emergency Watershed Protection Program (EWP). As of August 25, 2000, more than 3.2 million acres (approximately 890,000 miles) of buffers have been established under the Initiative (Rayburn, 2000).

Recent Signup Results and Relative Environmental Benefits

Results of general signups since Signup 15 are shown in table 6.2.4. The declining share of accepted acres that had previously been enrolled reflects, in part, the expiration schedule of acreage accepted in the early years of the program. Following the initial peak of signups in 1987, enrollment in the general signups mostly declined through 1997 (fig. 6.2.5). Consequently, the number of acres expiring each year that could potentially be re-enrolled in a general signup peaked in 1998, when the bulk of those first contracts expired. The number of expiring acres has mostly declined since then. "New" land (acreage not enrolled in the program at the time of a general signup) has thus grown in relative magnitude among accepted acreage. This growth is reflected in the distribution of conservation practices in recent signups. For example, the share of new grass planting practices has risen since Signup 15 when large amounts of CRP acres planted to grass were re-enrolled under an existing grass cover practice. Evidence that applicants are responding to the incentives of the EBI toward wildlife habitat protection and enduring benefits is seen in the rise in the percentage of enrollment for wildlife habitat plantings and tree plantings compared to earlier signups. The percentage of contracts with existing tree practices, though down over recent signups, is still greater than in earlier signups, and may reflect re-enrolled forested acres. Growth in acreage enrolled in wetland-restoration practices reflects expanded eligibility for wetland restoration with Signup 15.

Table 6.2.4—Recent General CRP Signup results in perspective

Signup	Acres Offered	Acres Enrolled	Re-enrolled Acres	Grass plantings	Existing Grass Cover	Tree Plantings	Existing Tree Cover	Wildlife Habitat Plantings	Wetland Restoration
	Thousands	Thousands			Percent of enrolled acres				
1-13[1]	57,024	37,033	n.a.	81.0	6.7	6.7	0.2	4.7	1.1
15	23,276	16,168	72.7	22.8	63.3	1.6	4.9	2.5	4.8
16	9,505	5,924	65.6	39.6	35.5	2.5	2.5	13.8	5.1
18	7,101	4,987	41.7	35.0	23.6	6.5	2.2	18.6	9.1
20	3,490	2,460	8.4	55.8	13.6	9.5	1.7	7.3	6.3

[1] Percentages for signups 1-13 based on 32.96 million acres active as of December 1996. Difference between enrolled and active acres due to contract terminations and expirations.
Source: USDA, ERS based on FSA data on CRP contracts.

In each general signup since Signup 15, about 2-3 million acres of land that was not expiring from the CRP has enrolled in the program. This indicates either that land that expired may have remained out of the program temporarily, or other factors encourage applicants to offer new lands for enrollment that had not been offered during an earlier signup. Indeed, in 1991, about one-third of CRP payments went to whole-farm enrollees. These individuals were older than either part-farm enrollees or non-CRP participants, had smaller average farm sizes than part-farm enrollees, and were considered not likely to return to full-time farming upon contract expiration (Dodson and McElroy). Using data from 1997, Hoppe, Perry, and Banker found that retired farmers accounted for about 30 percent of CRP and WRP acreage, which provides some credence to the earlier findings.

Changes in CRP enrollment criteria and procedures over time have resulted in changes in the expected environmental benefits of land enrolled in the program. Applying a standardized EBI scoring procedure for a subset of EBI factors to land enrolled by signup provides an indication of how some expected benefits may have changed over time (fig. 6.2.6; Barbarika and Smith). To illustrate all the selected EBI scores on one graph, scores are shown relative to their Signup 15 average. For example, an N3 (erosion factor) score of close to 1.20 for the first signup indicates that the average of the indicator for erosion-reduction benefits was about 20 percent greater for the first signup than it was for Signup 15. Results indicate that land enrolled in recent signups provides more water quality benefits and benefits related to conservation priority areas (areas defined for specific conservation purposes) than earlier signups, and, to a lesser extent, air quality benefits as well. However, benefits from erosion reduction (both from wind and water) were greatest in the earliest signups. Indeed, the average erosion factor scores for Signup 15 and more recent signups would have been lower had it not been for the re-enrollment of expiring CRP acreage with relatively high erosion factor scores. This is consistent with the share of highly erodible land (erodibility index at least equal to eight) enrolled in the CRP declining from almost 90 percent in Signup 13 to less than two-thirds in recent signups.

Figure 6.2.5--CRP enrollment by initial contract year

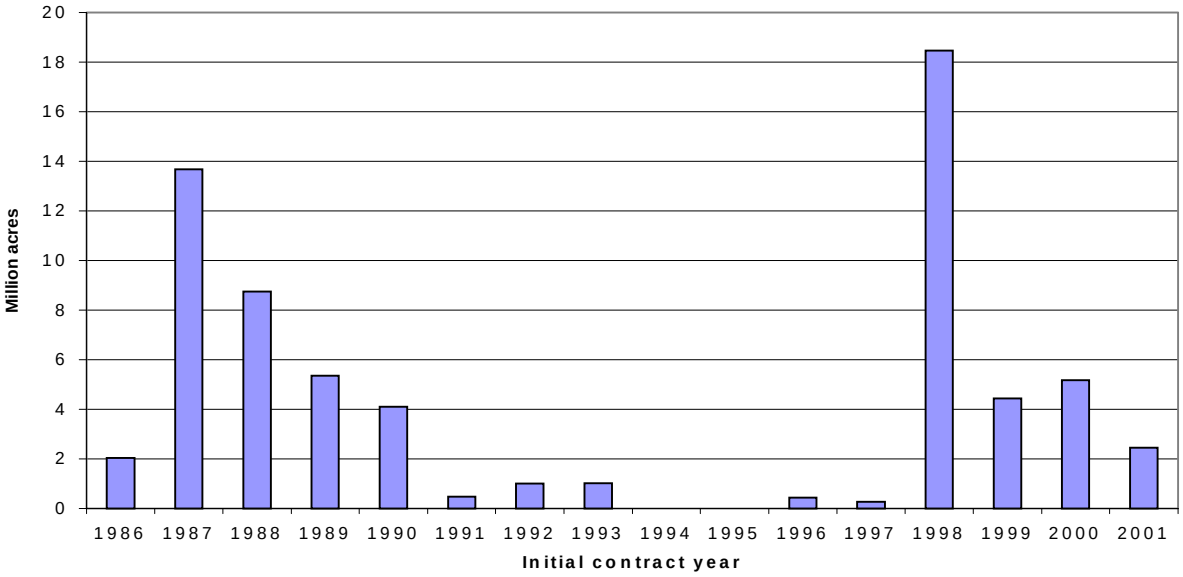
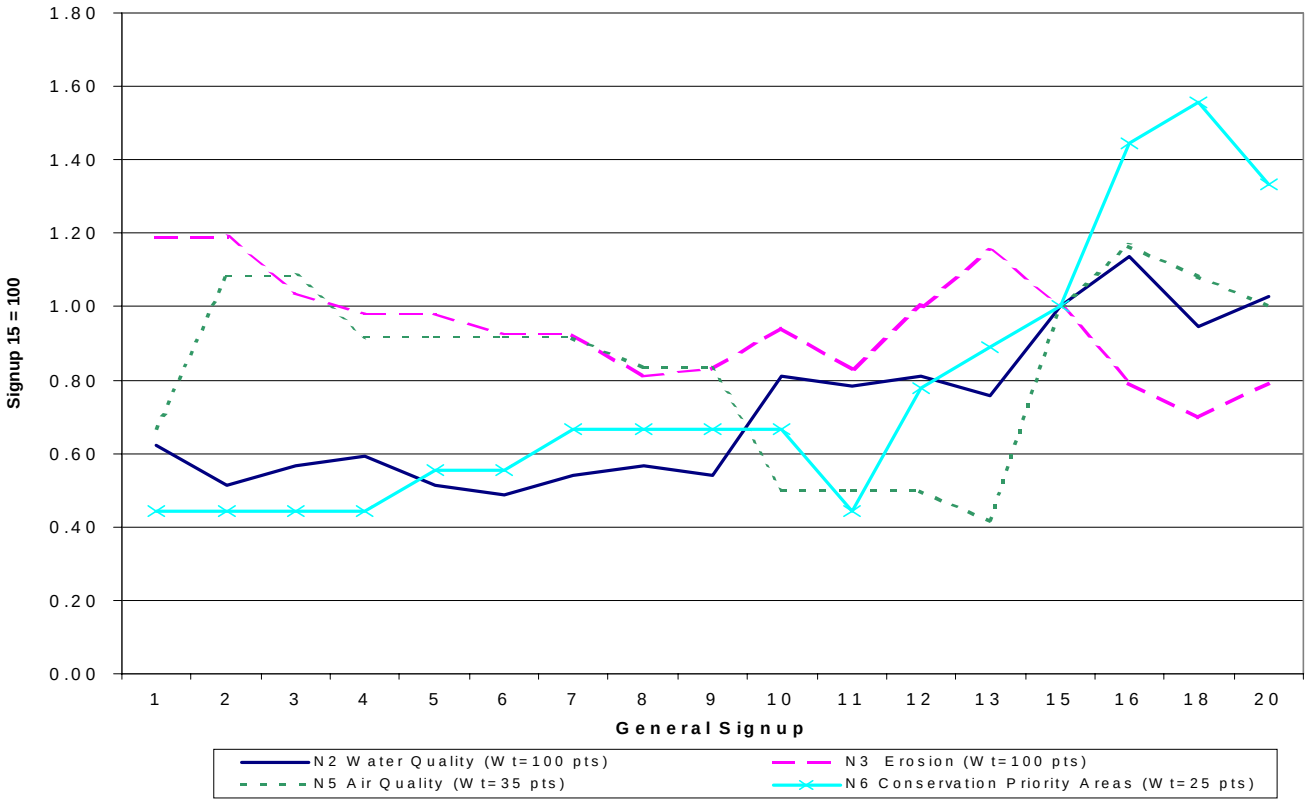


Figure 6.2.6--Index of Selected Standardized EBI Scores

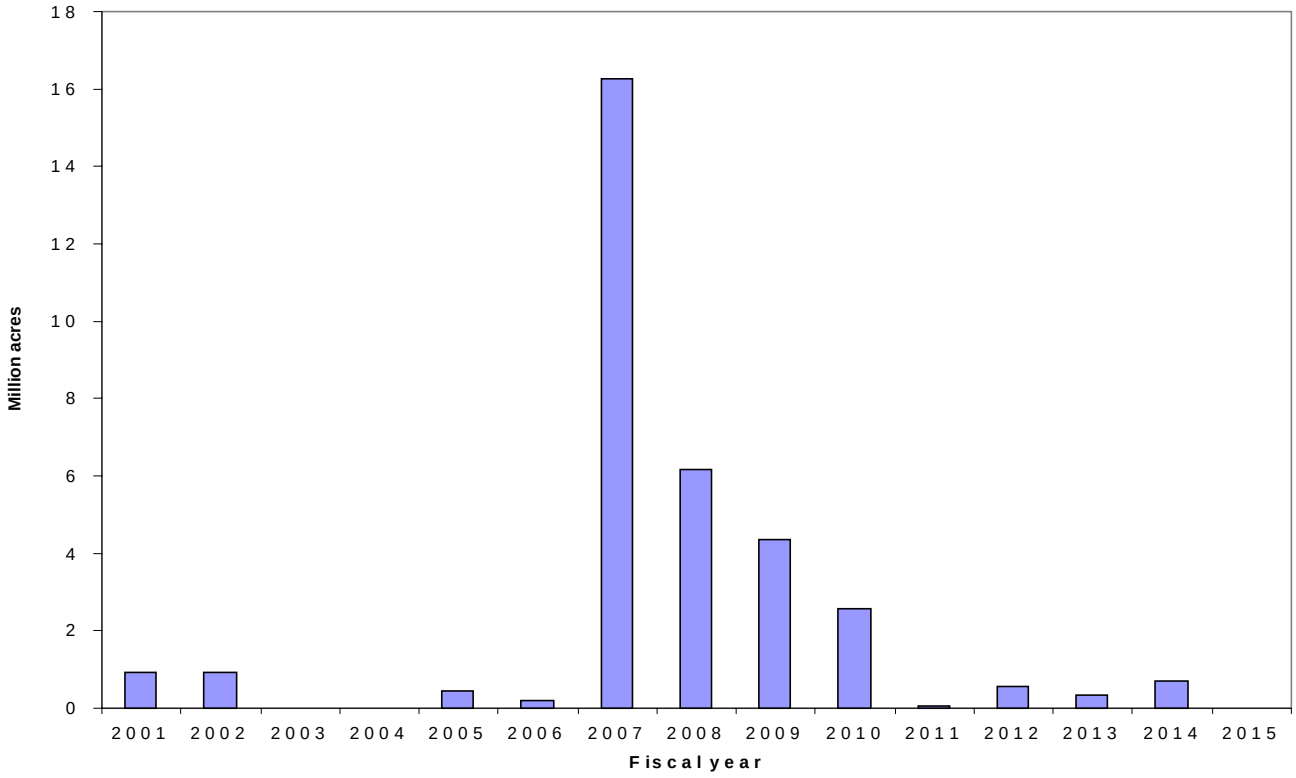


Scheduled Contract Expirations and Potential Expansion

At the end of the CRP contract period, annual rental payments made by USDA to CRP contract-holders cease, and producers may decide the next use of their land. Figure 6.2.7 shows that while close to 1 million acres are scheduled to expire in each of fiscal years 2001 and 2002, expirations in subsequent years will be quite small. Significant expirations are not scheduled until fiscal year 2007. This implies little need or, given the 36.4-million-acre cap, little opportunity, to make major changes in the CRP in a future farm bill unless the cap is raised.

With relatively little land expiring and the program approaching its statutory limit, there is relatively little scope to enroll new acreage. Further, recent signups have elicited more offers than could be accommodated with expiring contract acreage. Hence, there has been interest in raising the cap set in 1996 to 40 million acres as proposed by USDA in 1999 or to the original 45 million acres set in 1985. An estimate of the distribution of enrolled acres in a 45-million acre CRP may be made using the National Resources Inventory (which shows land characteristics, cover, and use, and other physical variables), other information on the amount and location of acres that might be offered for enrollment, assumptions about certain management practices likely to be

Figure 6.2.7--Schedule of CRP contract expirations



employed, and rents and cost-shares that might be asked (Smith). Simulation results show that were more acreage enrolled in an expanded CRP, the mean EBI score of CRP acreage would likely fall because of how offers are ranked and accepted. Assuming eligibility criteria do not change, the average erosion-reduction factor of the EBI would be expected to decline the most as more acreage is enrolled. This follows given that fewer highly erodible acres have been offered and enrolled in successive recent signups. The average of all other environmental factors of the EBI is estimated to remain relatively constant. Hence, with greater acreage

placed in conserving uses under an expanded program, total erosion-reduction benefits would likely increase even though new enrollment would have less per-acre erosion-reduction benefits compared to other environmental benefits.

Under a program expanded to 45 million acres, cropland with lower EBI scores would be allowed into the program, increasing enrollment in all regions. The simulations indicate that slight changes in the distribution of acreage could result as relatively more acreage would be enrolled in some regions compared with others. The share of enrollment would increase most in the Heartland region (by three percentage points to 21 percent) and to a lesser extent in the Northern Crescent region. The Prairie Gateway, and, less so, the Northern Great Plains and Fruitful Rim regions, would in turn slightly lose share of total acreage, even though total CRP acreage would still rise in those regions. The share of other regions would remain constant.

CRP Costs and Benefits

The CRP produces a wide range of environmental and economic effects as it idles about 10 percent of U.S. cropland. With projected budget outlays of $1.7 billion for fiscal year 2001, the CRP ranks as the largest agricultural conservation program, not only in terms of acres idled but in expenditures as well (See chapter 6.1, "Overview of Conservation Programs and Expenditures"). However, budget outlays reflect transfer payments between regions or sectors of the economy, not a change in real goods or services produced. Outlays also fail to reflect the cost of raising tax revenues. Hence, outlays alone do not reflect how national welfare is changed by the program.

Social costs and benefits associated with the CRP reflect changes in the quantity or quality of real goods and services valued by society (e.g., food, water quality, recreational activities) and are comprised of both market and non-market effects. Market effects are estimated as changes in prices and quantities traded between suppliers and consumers, while non-market program impacts are more difficult to estimate. Non-market effects involve goods and services with which there may not be a price or even quantity associated, though there may be a real value placed on the good (e.g., clean air).

Table 6.2.5 shows selected estimated market and non-market impacts of the CRP, based on a maximum 36.4-million-acre program (slightly larger than the current program), except where noted. With land retired, production falls, but since commodity prices rise proportionately more than production declines, farm income from crop production increases. Wheat, corn, and soybean prices were estimated to rise by 12, 15, and 13 percent, respectively, compared with prices in the absence of the CRP (USDA, FSA). While a gain to crop producers, this is a cost to commodity users (i.e., livestock producers, consumers). Another effect is that of increased timber value. If land enrolled in the CRP is planted to trees, the net worth of future timber harvests affects the landowner's wealth. An earlier study estimated that timber values for relevant CRP contract holders would rise about $160 million annually from anticipated tree plantings on CRP lands (calculated from Osborn and Konyar). Impacts on employment and personal income due to the CRP were estimated to be small nationally, though some local economies in areas with high CRP enrollment might experience significant effects from the program (Dodson et al.). Table 6.2.5 shows environmental benefits of the CRP from on-farm soil productivity, off-farm water quality, air quality, and recreational benefits. Estimated off-farm benefits significantly exceed on-farm soil productivity benefits. Among those off-farm measures, water quality benefits are the greatest. However, many potential economic impacts of the CRP have not been measured yet. Further research is needed to quantify a more complete set of benefits and costs.

Targeting land retirement to those acres that provide the greatest environmental benefit can enhance program performance. For example, comparing results of CRP implementation before and after passage of the 1990 FACT Act shows that active targeting of offers based on relative comparisons of expected environmental benefits and contract costs improves program cost-effectiveness (Osborn, 1997b). Further, consideration of the

productivity of offered acres in each bid can reduce the likelihood of overpayment. Feather, Hellerstein, and Hansen show how use of the multi-objective EBI to determine acceptance of offers increased selected recreation benefits compared with CRP acreage enrolled when acceptance was based primarily on erosion and erosion potential. They also highlight the impact of human population in developing target criteria. For example, improving the environment near heavily populated areas results in more recreational benefits than the same change in a sparsely populated area. Hence, considering proximity to population when choosing the size of weights in a targeting criterion is likely to improve recreational benefits, although it may also increase the cost of enrollment (Feather, Hellerstein, and Hansen).

Table 6.2.5 CRP: Selected Economic Effects

Indicator	Annual Impact ($billion)	Source
Farm income (inc. CRP payments)	7.60	USDA,FSA
Timber (value to relevant contract holders)	0.16	(annuity value of estimate by Osborn and Konyar)
Higher domestic commodity expenditures	-4.90	USDA,FSA
Environmental Effects:		
Soil productivity	0.20	USDA,FSA
Water quality (inc. recreational fishing)	0.46	USDA,FSA
Air quality	0.08	(annuity value of estimates by Osborn and Konyar ranges from $0.04 billion to $0.11 billion.)
Pheasant hunting	0.08	Feather, Hellerstein, and Hansen
Small-game hunting	0.44	Young and Osborn (cited in Feather, Hellerstein, and Hansen)
Waterfowl hunting	0.18	John (cited in Feather, Hellerstein, and Hansen)
Wildlife viewing	0.35	Feather, Hellerstein, and Hansen
Freshwater recreation	0.04	Feather, Hellerstein, and Hansen
Big-game hunting	Unknown	
Threatened and endangered species protection	Unknown	
Reduced nutrient damages	Unknown	
Reduced flooding damages	Unknown	
Carbon sequestration	Unknown	
Landscape amenities	Unknown	

USDA, FSA estimate based on a 36.4-million-acre program. Osborn and Konyar estimate based on 33.9-million-acre program. Feather, Hellerstein, and Hansen estimate based on 36.4-million-acre program as of 1992. Young and Osborn estimated effects of a 45-million-acre program.

Determination of optimal weights for specific environmental factors and cost in a multi-objective EBI can be difficult and contentious. Use of monetary valuation techniques for nonmarket goods and services related to environmental benefits is one means to select weights (Feather, Hellerstein, and Hansen). Rather than use an indirect proxy for environmental benefits, such as the EBI, use of economic valuation techniques could more clearly indicate where the net benefits of land retirement may be largest, and hence direct the program's focus to those lands first. However, to do so, further research is required to capture the scope and scale of associated environmental benefits, as table 6.2.5 indicates.

The Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary program through which eligible landowners can restore wetlands with long-term agreements. The 1996 Farm Act supplemented the permanent and 30-year easement options with 10-year restoration cost-sharing contracts with no easement involved. Further, the Act required that

beginning in fiscal year 1997 enrollment be equally divided among the enrollment options (i.e., one-third each for permanent easements, 30-year easements, and cost-share agreements) (Osborn, 1996). The Act also reduced the acreage cap from 1 million acres to 975,000 acres. In exchange for establishing a permanent easement, the landowner receives payment up to the agricultural value of the land and 100 percent of the costs for wetland restoration. The 30-year easement payment is 75 percent of what would be provided for a permanent easement on the same site and 75 percent of the restoration cost. The cost-share agreements are for a minimum 10-year duration and provide for 75 percent of the cost of restoring the involved wetlands. Easements and restoration cost-share agreements establish wetland protection and restoration as the primary land use for the duration of the easement or agreement. The landowner controls access to the land; maintains the right to hunt, fish, trap, and pursue other appropriate recreational uses; and may sell or lease land enrolled in WRP.

Like the CRP, the WRP is also approaching its enrollment cap. As of September 2000, USDA had enrolled approximately 915,000 acres, though another 560,000 acres were offered but were unfunded (table 6.2.6). Greatest enrollment has occurred in Louisiana, Mississippi, and Arkansas, accounting for one-third of the total. There were only about 40,000 acres remaining that could be enrolled under the existing acreage cap, but fiscal year 2001 appropriations, signed in October 2000, added 100,000 acres to the cap (USDA, 2000). On a smaller scale, enrollment in the Emergency Wetlands Reserve Program stood at close to 200,000 acres, with another 158,000 acres unfunded as of September 2000. Moving beyond a policy of "no net loss" of wetlands, the Clinton Administration's Clean Water Action Plan adopts a policy goal of increasing wetland acreage by 100,000 acres per year through 2005 (USDA/U.S. EPA). (See also chapter 6.5, "Wetlands Programs") As part of that goal, the Clinton Administration recommends removing the WRP acreage cap and enrolling 250,000 acres annually (USDA, 2000). (*Mark E. Smith, (202) 694-5490 [mesmith@ers.usda.gov]. Contributor: Dwight Gadsby.)*

Recent ERS Reports on Land Retirement

Economic Valuation of Environmental Benefit and the Targeting of Conservation Programs: The Case of the CRP. AER-778. April 1999 (Peter Feather, Daniel Hellerstein, and LeRoy Hansen). This report examines the effects of environmental targeting of the CRP on the magnitude and type of environmental benefits and outdoor recreational opportunities created by such a program, and demonstrates how nonmarket valuation models can be used in targeting conservation programs such as the CRP. Includes estimates of benefits from freshwater-based recreation, pheasant hunting, and wildlife viewing due to the CRP.

Wetlands and Agriculture: Private Interests and Public Benefits. AER-765, Aug. 1998 (Ralph Heimlich, Keith Wiebe, Roger Claassen, Dwight Gadsby, and Robert House). This report examines the debate between public and private interest in conserving wetlands. An economic framework for viewing wetland conservation, trends in wetland losses and gains, and the evolution of wetland policy are presented. An assessment of progress toward the "no net loss" goal is made. Future prospects for conversion, conservation, restoration, and compensation are examined. Contains a comprehensive review of wetland valuation literature.

"Conservation Reserve Program Approaches Acreage Limit." *Agricultural Outlook* (June-July 1999):23-26. (Mark Smith) Discusses a simulated expansion of the CRP and reviews environmental benefits from Signups 15-18.

"Conservation Reserve Enhancement Program: Early Results from a Federal-State Partnership." *Agricultural Outlook* (December 2000):16-20. (Mark Smith) Discusses characteristics of and progress under the variety of state Conservation Reserve Enhancement Programs.

Table 6.2.6 Wetland Reserve Program results, by State, 1992-2000

State[1]	Applications enrolled	
	Number	***Acres***
Louisiana	358	132,319
Mississippi	233	92,107
Arkansas	200	87,664
California	127	53,125
Missouri	359	50,975
Florida	24	45,225
Iowa	381	40,236
Texas	99	34,892
Oklahoma	116	30,304
New York	621	28,805
Illinois	159	26,362
Wisconsin	345	25,609
South Dakota	250	25,261
Indiana	195	24,445
Minnesota	233	20,683
Michigan	183	20,255
Montana	43	19,631
Oregon	65	19,136
North Carolina	49	18,216
Nebraska	117	16,956
Washington	104	16,296
Tennessee	83	13,976
South Carolina	80	13,507
Ohio	229	13,166
Utah	10	10,476
Kansas	80	9,104
Kentucky	49	7,613
Georgia	20	7,374
Colorado	45	5,957
Idaho	24	5,456
Wyoming	55	4,775
North Dakota	23	4,463
Maine	13	3,622
Pennsylvania	165	3,291
Maryland	27	1,773
Arizona	2	1,637
Alabama	15	1,410
Virginia	28	1,063
West Virginia	33	712
Vermont	8	578
Hawaii	4	431
New Jersey	8	386
New Hampshire	19	312
New Mexico	1	175
Connecticut	2	81
Delaware	3	52
Massachusetts	2	30
U.S. total	5,230	915,175

[1]Ranked in order of acres enrolled. No enrollment from Alaska, Nevada, and Rhode Island.

Source: USDA, ERS, based on NRCS program data at http://www.wl.fb-net.org/

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