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The Effectiveness of the  
Conservation Reserve Program  
In Enrolling Critical Sediment Producing Area Lands  
Along the Upper Mississippi River

Upper Mississippi River Basin Association  
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## A. Introduction

The Conservation Reserve Program was enacted in December 1985 as a part of the Food Security Act of 1985 (P.L. 99-198) to encourage farmers to retire highly erodible cropland and plant it to grass or trees. The program was enacted partly in response to the 1977 and 1982 Natural Resource Inventories which showed that cropland erosion was the most significant type of erosion in the nation and that existing soil conservation programs on cropland were not targeting highly erodible land.

As a supplement to the Master Plan recommendation that erosion in the Upper Mississippi River Basin be controlled and sediment entering the river system be reduced, the Upper Mississippi River Basin Association (UMRBA) prepared a report (UMRBA, 1984) analyzing the erosion problem in the river corridor. A Critical Sediment Producing Area shown in Figure 1 was delineated by the Soil Conservation Service and encompasses a 103-county area of approximately 39 million acres. Erosion control in this area is necessary to reduce the sediment load to the river and sedimentation to the backwaters.

Since the Conservation Reserve Program is intended to retire highly erodible cropland it could be utilized extensively for cropland in the Critical Sediment Producing Area to minimize erosion and sedimentation to the river system. This paper will analyze the effectiveness of the Conservation Reserve Program in retiring land in this Critical Sediment Producing Area.

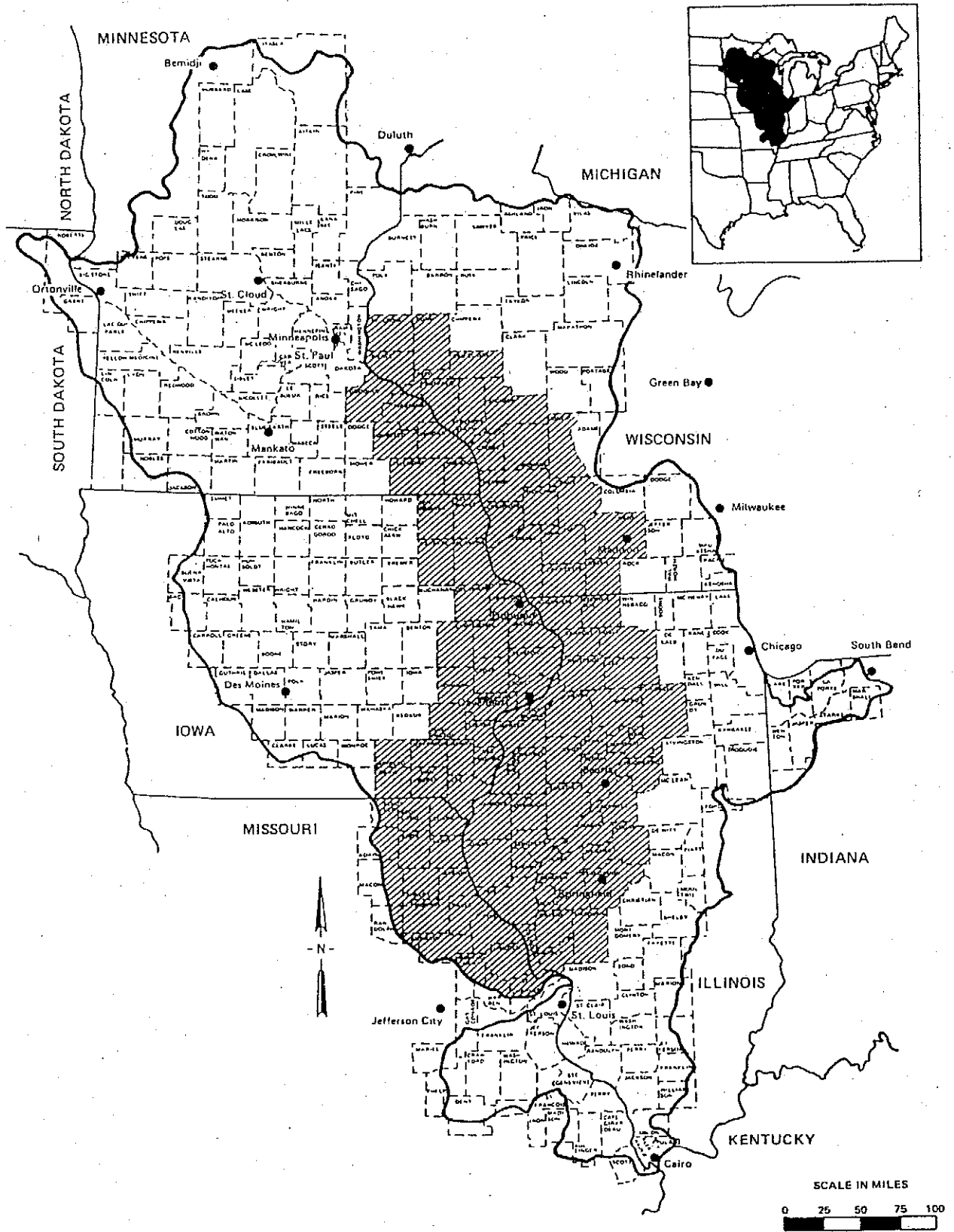
## B. Description of Conservation Reserve Program

To understand how effective the Conservation Reserve Program (CRP) has been in targeting erodible land in the Critical Sediment Producing Area, it is necessary to understand the program and its eligibility requirements. Basically the program pays farmers an annual payment for the acreage that they convert from cropland to permanent vegetation. Farmers send a sealed bid to the local Agricultural Stabilization and Conservation Service (ASCS) office indicating the amount of money they will accept for the retired land. The Soil Conservation Service (SCS) staff determines if the land is eligible based on erodibility and the ASCS determines if the bid falls within the limits set by the Secretary of Agriculture. If the bid is acceptable and the land eligible, the farmer signs a 10-year contract and agrees to implement a plan approved by the local conservation district to convert the highly erodible land in the CRP to permanent vegetation such as grass, shrubs, or trees.

Eligibility is based on many factors which include erodibility, historic cropping patterns, ownership, and condition of the land. Erodeable land is only eligible for the CRP if it meets one or more of the following criteria:

- 1) An erodibility index equal to or greater than 8 for either wind or water erosion, with an erosion rate:
  - a) Calculated with cover and management, and practice factors reflecting the crop years 1981 through 1985.
  - b) Greater than that recommended by the SCS Field Office Technical Guide.
- 2) An erosion rate in excess of 3T if land capability class is II, III, IV, and V.
- 3) An erosion rate in excess of 2T if land capability class is II, III, IV, V, and a serious gully erosion problem exists.
- 4) Land capability class VI, VII, or VIII.

Figure 1. Critical Sediment Producing Area



Source: Upper Mississippi River Basin Association, 1984

The five states combined enrolled approximately 4.7 million acres of the approximately 23.3 million CRP eligible acres (U.S. Department of Agriculture, 1982) in the first two years of the program. The states of Iowa, Minnesota, and Missouri together contain 85 percent of the CRP lands in the Upper Mississippi River Basin States, each with over one million acres enrolled. Illinois and Wisconsin each have signed up approximately 300,000 acres in the CRP.

Table 1. Acreage of CRP Lands in the UMRB States by Sign-up Period

	Sign-up Period					Total
	1	2	3	4	5	
Illinois	17,233	26,995	46,779	185,904	66,687	343,598
Iowa	38,415	95,363	200,282	918,522	167,359	1,419,941
Minnesota	64,589	158,745	298,339	672,127	208,117	1,401,917
Missouri	48,409	136,053	167,738	551,457	252,101	1,155,758
Wisconsin	11,144	24,087	36,161	163,321	97,796	332,509
TOTAL	179,790	441,243	749,299	2,491,331	792,060	4,653,723

Source: ASCS Conservation Reserve Program Data, 1986-1987

#### D. Conservation Reserve Program in the Critical Sediment Producing Area

Within the five UMRB states the U.S. Soil Conservation Service (SCS) has delineated a critical sediment producing area (CSPA) which is comprised of 103 counties covering a total of 39 million acres of which 24.8 million acres are cropland (See Figure 1). Nearly half the land has soil erosion at more than double the national average with an estimated 164 million tons of sheet and rill erosion each year (UMRBA, 1984).

The SCS used soil tolerance as the basis for determining erosion problems. Any land which had a soil loss rate greater than T was considered to have severe erosion problems. The lands with severe erosion comprise over 16 million of the 39 million acres in the CSPA or 42 percent. Of these 16 million acres though, only the 75 percent (approximately 12 million acres) that are cropland are eligible for the CRP (UMRBA, 1984).

The SCS definition of highly erodible lands differs from the CRP erodibility criteria which requires soil loss  $>2T$  or requires a specific land capability class or erodibility index. In addition there is a 25 percent county acreage limit that must be adhered to. Thus not all the highly erodible lands in the CSPA will meet the CRP criteria for enrollment. Of the 12 million acres of highly erodible cropland only 6.2 million acres (25 percent of the 24.8 million acres of cropland in the CSPA) can be enrolled in the CRP. Due to erodibility criteria of the CRP only 5.5 million of the 6.2 million acres will be eligible for enrollment in the CRP.

To determine how effective the CRP has been in retiring cropland in the CSPA, CRP acreage can be compared to 1) CSPA total cropland (24.8 million acres), 2) CSPA erosive cropland (12 million acres), or 3) the CRP eligible erodible acres (including the 25 percent county limit) in the CSPA counties (5.5 million acres). Each of these three comparisons will be utilized to determine the effectiveness of the CRP in retiring CSPA lands.

#### 1. CRP Acreage Compared to CSPA Total Cropland Acreage

The cropland in the CSPA covers a total area of more than 24 million acres. The percent of state cropland within the CSPA in each of the five states ranges from 6 percent in Minnesota to 41 percent in Illinois. The percent of CRP acres in the CSPA as compared to the state ranges from 8 percent in Minnesota to 73 percent in Wisconsin. (See Table 2).

Table 2 shows that the CSPA lands in the five states overall have proportionally the same amount of land signed into the CRP as in the rest of the state. Overall the CSPA cropland comprises 23 percent of the states' cropland and the CSPA CRP acreage comprises 22 percent of the states' CRP acreage. Using this comparison the CRP has been no more or less effective in retiring CSPA lands than in retiring non-CSPA lands in the states.

The only exception to this rule is in the state of Wisconsin where 73 percent of the CRP acreage in the state is contained within the CSPA yet the CSPA only comprises 36 percent of the cropland acreage in the state. Thus in Wisconsin, there are a disproportionately high number of CRP acres in the CSPA. This may be explained in several ways: since 12 of the 29 state designated priority watersheds (see Appendix B) are within the CSPA the state may target more funds and education efforts to these areas; possibly more of the cropland in the CSPA meets the CRP erodibility criteria; or perhaps economic factors make the CRP program more attractive to land-owners in western Wisconsin. Whether by design or chance, in Wisconsin the CRP has been more effective in retiring CSPA croplands than non-CSPA croplands.

Table 2. Acreage of CSPA/State Cropland Compared to Acreage of CSPA/State Land in CRP

	Critical Sediment Producing Area (CSPA) Cropland	State Cropland	% of State Cropland in CSPA	CRP Acreage in CSPA	CRP Acreage in State	% of Total CRP Acres in CSPA
Illinois	10,190,500	24,695,500	41%	126,463	343,598	37%
Iowa	5,707,137	27,593,518	21%	316,336	1,419,941	22%
Minnesota	1,445,100	23,028,100	6%	109,273	1,401,917	8%
Missouri	3,034,436	19,374,160	16%	225,594	1,155,758	20%
Wisconsin	4,416,696	12,324,272	36%	241,530	332,509	73%
TOTAL	24,793,869	1,070,150,000	23%	1,019,196	4,653,723	22%

Source: ASCS Conservation Reserve Program Data, 1986-1987

Comparing CRP acreage to CSPA total cropland acreage provides a good idea of how much land in the CSPA has been retired as compared to the rest of the state but it does not examine how much highly erodible land has been retired or the eligibility of the croplands for the CRP.

## 2. CRP Acreage Compared to CSPA Erosive Cropland

While there are over 24 million acres of cropland in the CSPA, the SCS only considers half or approximately 12 million of these acres as having a severe erosion problem. Thus while a comparison of the CRP acreage to total cropland acreage of 24 million provides a good comparison with the rest of a state (as in the first comparison), it does not examine how effective the CRP has been in retiring the 12 million acres in the CSPA that are considered highly erodible. Table 3 compares the CSPA acreage having severe erosion problems to the amount of CRP land in the CSPA.

The table shows that from 3 to 20 percent of the severe erosion acreage in the CSPA has been enrolled in the CRP. Overall 9 percent of these lands have been retired leaving approximately 11 million acres of CSPA highly erodible lands in production.

While this comparison shows that a large percent of the highly erodible lands have not been enrolled in the CRP it does not take into account the fact that many of these lands cannot be enrolled in the CRP because of the 25 percent county limit, the CRP erodibility requirements, or other factors. Therefore a portion of these lands would have to be retired from production through another program or the CRP criteria would have to be changed.

Table 3. Percent of Acreage in CSPA with Severe Erosion Enrolled in the CRP

	<u>CSPA Acreage with Severe Erosion</u>	<u>CRP Acreage in CSPA</u>	<u>Percent of CSPA Severe Erosion Acreage in CRP</u>
Illinois	4,382,100	126,463	3%
Iowa	3,212,700	316,336	10%
Minnesota	548,000	109,273	20%
Missouri	1,842,000	225,594	12%
Wisconsin	1,975,300	241,530	12%
TOTAL	11,960,100	1,019,196	9%

Source: ASCS Conservation Reserve Program Data 1986-1987,  
UMRBA, 1984

## 3. CRP Acreage Compared to Eligible Erodible Acres in the CSPA Counties

To accurately determine how effective the CRP has been in retiring highly erodible lands it is necessary to examine how many acres have been enrolled in the context of both eligibility based on erodibility and eligibility based on the 25 percent county limit. While a county can retire up

to 25 percent of the cropland, some counties may not contain enough eligible erodible cropland to meet this limit while other counties may have more than 25 percent of the cropland meet the eligibility requirements. For example, County A and County B both sign up 15 percent of their cropland in the CRP. Assuming 25 percent of the cropland in County A is eligible for the CRP and only 15 percent of the cropland in County B is eligible, County B will already have retired all eligible lands in the county while County A may continue to sign up landowners until they reach the 25 percent mark. Thus by examining CRP sign up of cropland without examining the eligibility requirement, the data can be misleading.

As discussed previously there are various eligibility requirements, the primary of which is erodibility. If the eligible erodible acreage and the 25 percent acreage limit for a county is known it is possible to use this acreage in a comparison with CRP acreage. Because of the difficulty in estimating erodibility at the county level though, this comparison is presently only possible for a composite of the CSPA counties in a state.

The data on eligible erodible acreage is derived from the 1982 Natural Resource Inventory (NRI). Although the data is available by county the inventory was conducted by geographic areas and thus the data is not statistically accurate at the county level. Except in some Minnesota counties where sampling points were added to the 1982 Inventory, and in scattered counties throughout the other four states where later data is used to supplement the 1982 NRI data, erodibility data cannot be used at the county level. Therefore, this comparison utilizes composite county erodibility data.

The eligible acreage based on the 25 percent county limit was derived by multiplying the total CSPA cropland acreage by 25 percent. Using this method assumes that in all the CSPA counties at least 25 percent of the cropland will meet the erodibility criteria. While this assumption is likely false it is necessary since erodibility data cannot be used at the county level, and thus one cannot determine the percent of county cropland that meets the erodibility criteria.

Table 4 lists the eligible erodible acreage and the county acreage based on the 25 percent limit. Since estimates of erodibility are not available for all the erodibility criteria\* the amount of eligible erodible land (7.3 million acres) is likely underestimated. Since not all counties will have 25 percent of their cropland meet the erodibility criteria, the amount of eligible CRP acreage based on the 25 percent county limit (6.2 million acres) is overestimated. The numbers utilized in this report are the best estimates possible based on these limitations.

Table 4 shows that in all of the states except Illinois the limit on the amount of land that can be enrolled in the CRP is controlled by the 25 percent acreage limit. Even though more than 25 percent of the acres meet the erodibility criteria they cannot be signed-up unless the 25 percent restriction is waved. In Illinois though, less than 25 percent of the land meets the erodibility requirement so erodibility is the controlling factor.

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\* See NOTE on bottom of next page.



Table 4. Percent of CRP Acreage Compared to Maximum CRP Eligible Acres in CSPA

	Eligible Erodible Acres in CSPA*	25% Cropland Limit in CSPA	Maximum CRP Eligible Acres in CSPA	CRP Acreage in CSPA	% of Maximum Eligible CSPA Acres Enrolled in CRP
Illinois	1,800,000	2,547,625	1,800,000	126,463	7%
Iowa	2,100,000	1,426,787	1,426,787	316,336	22%
Minnesota	400,000	362,875	362,875	109,273	30%
Missouri	1,400,000	758,619	758,619	225,594	30%
Wisconsin	1,600,000	1,104,175	1,104,175	241,530	22%
TOTAL	7,300,000	6,200,081	5,452,446	1,019,196	19%

\*NOTE: The CRP eligible erodible acreage was derived from the SCS office in Washington, D.C. from the 1982 NRI data. The acreage includes lands with:

- 1) Erodibility index  $\geq 8$ ,
- 2) Erosion rate  $\geq 3T$  with land capability class II, III, IV, or V, and
- 3) Land Capability class VI, VII, or VIII.

The acreage does not include lands in capability class II, III, IV, or V that have erosion  $\geq 2T$  but  $< 3T$  and have an erosion index  $\leq 8$  and it does not include lands in the fifth erodibility category that will be planted to trees. The erodibility criteria originally included only the three criteria noted above. The erodible acres that were included in this criteria were derived from the 1982 NRI data. In the second year of sign-ups the 2T criterion was added to increase the number of CRP eligible acres. Since the 1982 NRI data does not contain data for the 2T category there is presently no way to estimate how many acres this includes in the CSPA. The fifth erodibility criterion on tree planting is not included in the total erodible acres but is expected to have little impact in the Midwestern states.

While the data underestimates the amount of eligible land based on erodibility alone, it likely overestimates the amount of land which will actually be eligible since CRP requirements for land ownership and cropping patterns, and other economic variables are not accounted for. Not all the land that meets the erodibility requirement will meet the other eligibility requirements. Since it is not possible to estimate the acreage which will be disqualified due to historic cropping patterns or land ownership or because of landowner disinterest, and since the erodible acres in the additional erodibility categories cannot be estimated, the data shown in Table 4 is the best estimate possible.

Based on estimable erodibility and the 25 percent county limit, the maximum CRP eligible acres in the CSPA is approximately 5.5 million. Of these 5.5 million acres, 1 million acres or 19 percent of the lands are signed up in the CRP. Minnesota and Missouri have the highest percent of eligible CSPA lands enrolled in the CRP while Illinois has the lowest percent.

E. Effectiveness of Conservation Reserve Program in Critical Sediment Producing Area

Overall the states in the UMRB have signed up a considerable amount of land in the CRP as compared to the rest of the country. Of the 5 states, Minnesota has enrolled the most acres in the CRP and ranks sixth in the country behind Texas, Kansas, Montana, Colorado, and South Dakota in CRP acreage. The 5 states also rank in the top 10 states in the country in number of CRP contracts, with Minnesota and Iowa ranking 1 and 2. This high rank may be due to the fact that farms in the 5 Basin states contain less acreage than farms in other parts of the country and thus more contracts are required to sign up comparable acreage. The rank of the 5 states is shown in Table 5.

Table 5. Nationwide Rank of UMRB states for Acres Enrolled in the CRP and Number of CRP Contracts

	<u>Acres Enrolled in CRP</u>	<u>Number of CRP Contracts</u>
Illinois	17	9
Iowa	8	2
Minnesota	6	1
Missouri	7	4
Wisconsin	12	6

Source: ASCS Conservation Reserve Program Data, Summary by State, 1988.

Within the CSPA 12 million acres of cropland are defined as highly erodible by the SCS. Based on CRP erodibility criteria alone only 7.3 million acres could be enrolled in the program, leaving 4.7 million acres of highly erodible land in production. Since the CRP has a 25 percent limit on the amount of cropland enrolled in a county, only 5.5 million of the 7.3 million acres can potentially be enrolled in the program. Thus the CRP will be ineffective in retiring over half of the highly erodible lands in the CSPA since the eligibility criteria exclude approximately 6.5 million of the 12 million acres.

Of the 5.5 million acres that are eligible for the program, approximately 1 million acres (19 percent) have been enrolled in the CRP. This leaves 4.5 million acres that are eligible for the program but must be signed up before the program meets its goals.

Based on the evaluation in this paper the 25 percent limit is the major limiting factor in the amount of land that can potentially be enrolled in the CRP. Since none of the counties are presently near the 25 percent county limit though, it is possible that this limit may not ultimately be as important as it appears. It is likely that other factors are in reality the variables that are affecting the fact that only 19 percent of eligible CRP lands are currently enrolled.

One variable that plays a major role in determining the extent of CRP enrollment is the landowner's willingness to participate in the program. The decision to retire land in the CRP is based largely on economic incentives. If a farmer can make more money by planting crops on CRP eligible lands than by enrolling them in the program, the incentive to retire lands is gone. Included in this decision is an important concept called "base bite" where an acre entered into the CRP proportionately reduces a farmer's aggregate acreage base which is used to determine the farmer's U.S. Department of Agriculture deficiency payments. The lower the acreage base, the less acreage that is permitted to be planted to program crops for deficiency payments. The end result is lower deficiency payments to the farmers. Thus the cost of retiring lands in the CRP includes variables other than the lost income on the retired lands.

While the economic variables are important in understanding whether a landowner will enroll land in the CRP, they cannot presently be quantified or generalized. Since this report could not cover the scope of the economic issues, these variables were not utilized. (For further information see Taff and Runge, 1988.)

Other factors which affect CRP enrollment but are nearly impossible to quantify on a large regional scale, are historic cropping patterns and land ownership. If a landowner meets the erodibility criteria of the program but fails to meet either of these requirements, the land will be ineligible. While this criteria is important in determining if specific lands can be enrolled in the program they cannot easily be quantified on a broad scale and thus were not discussed in depth in this report.

Utilizing the CRP criteria that can be quantified, the CRP has retired 19 percent or approximately 1 million CSPA acres. While this is a good start it still leaves 4.5 million of the 5.5 million eligible acres in production. If these acres are to be retired from production they must be enrolled before the CRP funds are exhausted and/or the national goal of 45 million acres is reached, or they must be eligible for funding or assistance from state programs or other federal programs.

APPENDIX A

Conservation Reserve Program Data  
for Counties in Critical Sediment Producing Area

ILLINOIS

COUNTY	SIGN UP					TOTAL OF SIGN UPS	TOTAL COUNTY CROPLAND	% CROPLAND IN CRP	TOTAL ELIGIBLE ACHES (25% LIMIT)	% ELIGIBLE IN CRP
	1ST	2ND	3RD	4TH	5TH					
ADAMS	315	312	619	4568	2747	8561	352500	2.4	88125	9.7
BROWN	56	307	605	291	368	1627	107700	1.5	26925	6
CALHOUN	115	629	218	2589	142	3693	54500	6.8	13625	27.1
CARROLL	92	0	156	3002	590	3840	188100	2	47025	8.2
CASS	35	218	76	529	372	1230	162900	.8	40725	3
FULTON	307	200	505	1242	966	3220	320800	1	80200	4
GREENE	247	208	475	4733	910	6573	234600	2.8	58650	11.2
HANCOCK	404	1398	945	3139	1266	7152	334200	2.1	83550	8.6
HENDERSON	10	0	0	379	60	449	159000	.3	39750	1.1
JERSEY	38	423	240	910	668	2279	141700	1.6	35425	6.4
JO DAVIESS	256	177	1064	4794	1633	7924	186900	4.2	46725	17
KNOX	83	25	0	1436	496	2040	299600	.7	74900	2.7
MCDONOUGH	104	216	261	1050	178	1809	282900	.6	70725	2.6
MACOUPIN	121	231	137	2098	952	3539	365800	1	91450	3.9
MARSHALL	21	20	27	207	68	343	185000	.2	46250	.7
MASON	460	374	901	4641	1649	8025	263600	3	65900	12.2
MENARD	20	40	14	473	358	905	153100	.6	38275	2.4
MERCER	59	122	168	3587	787	4723	256300	1.8	64075	7.4
MORGAN	82	61	86	401	80	710	280300	.3	70075	1

ILLINOIS (CONTINUED)

COUNTY	SIGN UP					TOTAL OF SIGN UPS	TOTAL COUNTY CROPLAND	% CROPLAND IN CRP	TOTAL ELIGIBLE ACRES (25% LIMIT)	% ELIGIBLE IN CRP
	1ST	2ND	3RD	4TH	5TH					
BEOTHIA	0	7	31	230	192	460	245100	2	61275	8
PIKE	1719	3087	2433	8698	1794	17731	352600	5	88150	20.1
PUTNAM	17	0	101	49	24	191	66300	3	16575	1.2
ROCK ISLAND	0	29	108	1475	447	2059	152300	1.4	38075	5.4
SANGAMON	76	66	76	752	158	1128	413000	3	103250	1.1
SCHUYLER	59	118	297	1389	616	2479	150100	1.7	37525	6.6
SCOTT	273	11	161	377	388	1210	114800	1	28700	4.2
STEPHENSON	31	24	40	3424	1046	4565	380400	1.2	95100	4.8
TAZEWELL	10	0	97	576	373	1056	313000	3	78250	1.4
WARREN	0	45	49	842	19	955	284700	3	71175	1.3
WOODFORD	58	11	23	639	229	960	265900	4	66475	1.4
WHITESIDE	0	24	255	2041	263	2583	351400	7	87850	2.9
BUREAU	173	152	87	3838	492	4742	461500	1	115375	4.1
HENRY	149	184	255	3448	772	4808	426100	1.1	106525	4.5
LA SALLE	76	79	335	1707	552	2749	599300	5	149825	1.8
LEE	34	0	11	1477	103	1625	383200	4	95800	1.7
LOGAN	80	8	14	332	64	498	359800	1	89950	.6
OGLE	145	36	629	4954	1557	7321	382800	1.9	95700	7.7
STARK	22	0	129	402	148	701	158700	4	39675	1.8
TOTAL	5747	8842	11628	76719	23527	126463	10190500	1.2	2547625	5

COUNTY	SIGN UP					TOTAL OF COUNTY CROPLAND	% CROPLAND IN CRP (25% LIMIT)	TOTAL ELIGIBLE		
	1ST	2ND	3RD	4TH	5TH			ACRES	% ELIGIBLE IN CRP	
ALLAMAKEE	316	1052	1679	17922	3114	24083	209937	11.5	52484	45.9
CEDAR	131	224	726	6750	273	8104	308667	2.6	77167	10.5
CLAYTON	1628	2606	6522	21021	1581	33358	312730	10.7	78183	42.7
CLINTON	84	1095	1154	14067	389	16789	349469	4.8	87367	19.2
DAVIS	897	3397	2017	19317	2233	27861	196921	14.1	49230	56.6
DELAWARE	107	357	763	5633	596	7456	303628	2.5	75907	9.8
DES MOINES	84	211	100	2962	246	3603	177938	2	44485	8.1
DUBUQUE	65	270	622	12188	1371	14516	260927	5.6	65232	22.3
FAYETTE	159	954	2364	12289	2123	17899	365635	4.9	91409	19.6
HENRY	145	840	1872	4035	1913	8805	192477	4.6	48169	18.3
JACKSON	247	568	1632	20826	2097	25370	245878	10.3	61470	41.3
JEFFERSON	34	1104	430	8055	993	10616	196211	5.4	49053	21.6
JOHNSON	146	778	589	5251	1237	8001	280130	2.9	70033	11.4
JONES	101	835	553	8885	698	11072	268064	4.1	67016	16.5
LEE	85	243	171	2443	1045	3987	194896	2	48724	8.2
LINN	65	162	540	3581	985	5333	313294	1.7	78324	6.8
LOUISA	662	427	452	2690	388	4619	172245	2.7	43061	10.7
MUSCATINE	142	145	206	1941	325	2759	196889	1.4	49222	5.6
SCOTT	3	9	62	856	7	937	214026	4	53507	1.8
VAN BUREN	393	1759	4390	15317	3020	24879	182304	13.6	45576	54.6
WARRELD	139	428	386	7435	1812	10200	170960	6	42740	23.9
WASHINGTON	120	526	995	7636	501	9778	283297	3.5	70824	13.8
WINNEBIEK	690	1469	4080	25500	4582	36321	310414	11.7	77604	46.8
TOTAL	6443	19459	32305	226600	31529	315336	5707137	3.5	1426787	22.2

MINNESOTA

COUNTY	SIGN UP					TOTAL OF COUNTY CROPLAND	% CROPLAND IN CRP	TOTAL ELIGIBLE ACRES (25% LIMIT)	% ELIGIBLE IN CRP
	1ST	2ND	3RD	4TH	5TH				
ILLINOIS	820	1666	3253	29781	4118	363100	10.9	90775	43.7
WOODHUE	834	993	1931	7427	1510	328500	3.9	82125	15.5
HOUSTON	235	317	725	5579	1867	142900	6.1	35725	24.4
ELMSTED	296	1403	2126	18629	4421	254900	10.5	63725	42.2
BARBASHA	514	1119	2315	7852	1568	186100	7.2	46525	28.7
VINONA	828	633	219	5064	1230	176000	4.5	44000	18.1
TOTAL	3527	6181	10569	74332	14714	109273	7.5	362875	30.1



MISSOURI

COUNTY	1ST SIGN UP	2ND SIGN UP	3RD SIGN UP	4TH SIGN UP	5TH SIGN UP	TOTAL OF SIGN UPS	TOTAL COUNTY	% CROPLAND IN CRP	TOTAL ELIGIBLE ACRES	% ELIGIBLE IN CRP
ADAIR	819	2746	1375	11165	3109	19214	187523	10.2	46880	41
CLARK	302	1601	1348	10701	4732	18684	193411	9.7	48352	38.6
KNOX	543	1033	2570	17041	5406	26593	211235	12.5	52808	50.4
LEWIS	177	1330	2084	12625	3894	20110	199614	10.1	49903	40.3
MARION	0	968	854	5705	3576	11103	168291	6.6	42072	26.4
MONROE	286	626	1606	10204	7224	19946	225812	8.8	56453	35.3
PIKE	337	597	742	3701	2295	7672	231153	3.3	57788	13.3
RALLS	152	480	568	5012	1991	8203	172992	4.7	43248	19
SCHUYLER	1217	2522	3482	7135	2432	16788	111061	15.1	27765	60.5
SCOTLAND	863	4663	5189	19489	5330	35534	169770	20.9	42442	83.7
SHELBY	181	389	707	4397	3974	9648	203491	4.7	50872	19
AUDRAIN	927	1072	2265	7121	3339	14724	333153	4.4	83288	17.7
LINCOLN	40	535	329	1696	1280	3880	198790	2	46697	8.3
MONTGOMERY	131	940	883	6672	1093	9719	172274	5.6	43068	22.6
ST. CHARLES	32	47	122	440	282	923	177692	5	44423	2.1
WARREN	13	179	404	1741	516	2853	90240	3.2	22560	12.7
TOTAL	6020	19728	24528	124845	50473	225594	3046502	7.4	758619	29.7

WISCONSIN

COUNTY	SIGN UP					TOTAL OF SIGN UPS	TOTAL COUNTY CROPLAND	CROPLAND IN CRP (25% LIMIT)		TOTAL ELIGIBLE ACRES	TOTAL ELIGIBLE % ELIGIBLE IN CRP	
	1ST	2ND	3RD	4TH	5TH			%	%			
EAU CLAIRE	442	441	561	4558	886	6888	179159	3.8	44790	15.4		
JACKSON	349	686	668	2184	959	4846	164684	2.9	41171	11.8		
BUFFALO	146	1340	989	4527	1473	8475	1922794	4.4	48199	17.6		
CRAWFORD	513	1062	983	4275	2430	9263	138026	6.7	34507	26.8		
DUNN	693	714	1386	5585	4574	12952	292213	4.4	73053	17.7		
JUNEAU	147	486	603	2044	882	4162	102919	4	25730	16.2		
MONROE	237	332	620	3292	2268	6749	202462	3.3	50616	13.3		
PEPIN	162	306	159	1663	966	3256	73765	4.4	18441	17.7		
PIERCE	341	1526	1412	11988	5328	20597	210193	9.8	52548	39.2		
RICHLAND	351	252	205	1860	1666	4334	149060	2.9	37265	11.6		
ST. CROIX	546	913	2029	5767	12280	21535	288345	7.5	72086	29.9		
TREMPEALEAU	953	1135	1899	8033	2913	14933	255140	5.9	63785	23.4		
VERNON	81	173	612	4442	2750	8058	226781	3.6	56695	14.2		
DANE	1295	2675	3880	13663	7581	29294	442979	6.6	110745	26.5		
GRANT	157	1146	3513	12464	4895	22175	376122	5.9	94031	23.6		
LA CROSSE	212	52	364	1957	3054	5639	103201	5.5	25800	21.9		
GREEN	100	196	378	5193	2935	8802	274390	3.2	68598	12.8		
IOWA	920	1935	2682	18456	6207	30200	230977	13.1	57744	52.3		
SAUK	946	596	1018	3788	3313	9661	252873	3.8	63218	15.3		
LAFAYETTE	247	918	615	6817	1114	9711	260613	3.7	65153	14.9		
TOTAL	8838	17086	24576	122556	68474	241530	4416696	5.5	1104125	21.9		

up to 50 percent of the cost for voluntary implementation of approved permanent soil and water conservation practices or to encourage no-till planting. Five percent of the funds are used to provide up to 75 percent of the cost of implementing approved permanent soil conservation practices on watersheds above publicly owned lakes. The last five percent of the funds are used to cost-share soil erosion control practices that are required in an administrative order from the soil and water conservation district due to a complaint of excessive soil erosion. Approved soil and water conservation practices range from no-till planting, contouring, and terracing to establishing field windbreaks and grass strips.

In addition to the three primary programs, funding is used for special watershed projects, the woodland fencing program, the wind erosion control incentive program, and research. The special watershed projects involve five or more contiguous farm units that constitute at least 75 percent of the agricultural land in a watershed, where the owners jointly agree to a water conservation plan in conjunction with their respective farm unit soil conservation plan. The woodland fencing program provides funds to fence in woodlands if the landowner agrees to maintain the fence and follow a prescribed forest management plan. The wind erosion control incentive program provides incentive payments to landowners for installing and maintaining control practices to reduce wind erosion which interferes with the maintenance of highways and safe operation of vehicles. The state also is funding research programs like the southeastern Iowa tillage research program.

In 1987, \$6.5 million was appropriated for the soil and water conservation program. While this money is not targeted to the Critical Sediment Producing Area, it can be used as a supplement to the CRP for the lands which do not meet CRP requirements.

### Minnesota

In 1986, Minnesota passed the Reinvest in Minnesota Resources Act (RIM) as an outgrowth of a 1984 study on ways to improve state tourism through improvement of wildlife habitat and protection of soil and water resources. The soil conservation aspect of the bill is similar to the CRP in that farmers are paid to take marginal cropland out of production. In RIM though, the land is retired for twenty years or permanently. If the land is permanently retired, the farmer receives up to 90 percent of the equalized average estimated market value of tillable land in the township. Payments for 20-year easements are 65 percent of the permanent easement payment in that township. For all RIM easements, the farmer is paid either one lump sum or four equal consecutive annual payments.

The eligibility requirements for erodibility are different from those for the CRP. Erodiability is based on the suitability of soils as a rooting environment and their resistance to productivity losses from erosion. PI (productivity index) utilizes values of available water capacity, bulk density, and pH to determine the suitability of soils as a rooting environment. RI (resistance index) utilizes environmental factors (RKLS) from the universal soil loss equation and factors (ICL) from the wind erosion equation to determine the resistance to productivity losses from erosion. The combination of PI and RI determine if a soil is eligible for the RIM program. (Halbach et. al, 1987).

Since the CRP has had basically unlimited funding as compared to the RIM program, RIM is used as a supplement to the federal program. Farmers are encouraged to utilize the CRP first and then contact the state with any lands

that may fit RIM criteria. RIM funding for FY 1988 totals \$5.25 million with 6.5 percent (\$343,000) going to counties in the critical sediment producing area. This funding is similar to funding amounts in other parts of the state. (Minnesota State Agriculture Department, 1987).

In addition to RIM, Minnesota Chapter 40.036 passed in 1977 and amended in 1982, authorizes cost sharing funds to reduce nonpoint pollution. The funds are administered by the soil and water conservation districts and can be used for eight different nonpoint control practices. These practices are long term practices (i.e. terracing) and do not include practices like strip cropping or conservation tillage. A landowner is eligible for cost sharing when erosion is greater than 2T. (This requirement varies for lands along a water body.) The statute lays out variable cost share rates based on the priority of the problem.

The goal of the cost sharing program is to adequately protect soil on land in production. Lands that are not suitable for farming do not receive cost share funds. Basically a farmer retires whatever land possible in the CRP or RIM and then utilizes cost share funds to reduce erosion on the remaining eligible land.

### Missouri

In 1984, Missouri residents approved a five year Park and Soils Sales Tax of one-tenth of one percent on retail sales to help solve the state's erosion problems. The funds are administered by the Soil and Water Districts Commission within the Missouri Department of Natural Resources and are utilized for five programs -- cost-share, loan interest-share, special area land treatment, soil surveys, and direct assistance to soil and water districts.

The cost share and loan interest-share programs are only applicable for specified conservation practices. These practices include among others reduced tillage, terracing, strip-cropping, contour farming, and field windbreaks. In the cost-share program the landowner's cost of implementing the conservation practices is offset by the state's contribution. On the average 75 percent is cost-shared. With the loan-interest share program the state refunds a major portion of annual interest costs on commercial loans for complete conservation systems. The average interest rebated to the landowner is 6.5 percent.

The special area land treatment program combines both the cost-share and loan interest-share programs in areas designated as selected watersheds by a soil and water conservation district. If the landowner in the selected watershed develops a conservation plan within two years they are eligible for additional incentives over the next five years. In addition the district receives additional funding for resource management in the selected watershed.

The new funding has accelerated completion of soil surveys. Presently half of the surveys are complete and it is predicted that field-mapping of the state will be complete by 1995. (Missouri Department of Natural Resources, 1987) In addition each soil and water district receives funds for clerical services and administrative expenses to compensate for the extra work necessary to implement the programs.

While none of the programs specifically target lands in the critical sediment producing area, this area does benefit since lands that do not meet the criteria of the Conservation Reserve Program may meet the criteria of the state program.

## Wisconsin

In 1978, the Wisconsin Legislature created the Nonpoint Source Water Pollution Program to control nonpoint pollutant sources to protect or rehabilitate the state's water resources. The program determines "priority watersheds" in which educational, financial, and technical assistance is given to individual property owners, cities, and villages. The program deals with all categories of nonpoint sources with approximately 1/3 of the funding going to "best management practices" for cropland management. (Llewelyn, 1987).

The Wisconsin DNR identified areas of the state where nonpoint source pollution would have the most significant impact on water bodies. The area includes 130 of the 330 watersheds found in Wisconsin (Wisconsin DNR, 1982) and includes portions of all of the counties in the critical sediment producing area to the Mississippi River. Presently twelve of the 29 priority watersheds are contained within the critical sediment producing area. See Appendix Figure 1.

The Wisconsin nonpoint program is administered independently of the CRP. Since the CRP provides an annual payment and cost sharing for revegetating the land, it may be more advantageous for a farmer to retire the highly erodible land in the CRP than receive a one time cost share amount to implement best management practices on the land. The nonpoint program is useful for land which does not meet the criteria of the CRP.

## References

Conservation Reserve Program Annual Report, FY. 1987.

Gray, Mack, Agricultural Stabilization and Conservation Service, Assistant to Chief for Strategic Planning and Budget Analysis, Washington, D.C., personal communication, April 21, 1988.

Halbach, Daniel W., Runge, C. Ford, and Larson, William E., Making Soil and Water Conservation Work: Scientific and Policy Perspectives, Soil Conservation Society of America, 1987.

Illinois Department of Agriculture, "1987 Annual Progress Report," Division of Natural Resources, 1987.

Illinois Environmental Protection Agency (EPA), "Agriculture and the Water Quality Management Plan -- A Midcourse Review of the Soil Erosion and Sedimentation Control Component," IEPA/WPC/86-009, Division of Water Pollution Control, May 1986.

Llewelyn, Michael T., "Wisconsin's Nonpoint Source Water Pollution Abatement Program" from the Conference Proceedings of Nonpoint Source Pollution -- New Initiatives for Management, St. Paul, Minnesota, June 17-18, 1987.

Minnesota State Agriculture Department, FY 1988 RIM Allocations, August 19, 1987.

Missouri Department of Natural Resources, Lost Land - Solutions To Missouri's Soil Erosion, 1987.

Taff, Steven J. and Runge, C. Ford, "Wanted: A Leaner and Meaner CRP," Choices magazine of the American Agricultural Economics Association, First Quarter Issue, 1988.

U.S. Department of Agriculture, Soil Conservation Service, 1982 National Resource Inventory Data, Washington, D.C.

Upper Mississippi River Basin Association (UMRBA), "Erosion in the Upper Mississippi River System: An Analysis of the Problem," January 1984.

Wisconsin Department of Natural Resources (DNR), "The Wisconsin Nonpoint Source Water Pollution Abatement Program -- A Report to the Governor and Legislature," Bureau of Water Quality Management, March 1982.