

RMJ

Rural Minnesota Journal

The Agriculture and Forestry
Issue:
Looking to the Future

2009



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RURAL POLICY
and DEVELOPMENT

Seeking solutions for Greater Minnesota's future

Landowner Attitudes and Perceptions Regarding Wildlife Benefits of the Conservation Reserve Program

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Introduction

Landowner perceptions of farmland programs are important for their successful implementation. Our purpose was to survey landowners who were participating in the Conservation Reserve Program and those who were non-participants in 1997 and 2006 to determine: (1) were there differences in how each group perceived the CRP and its associated environmental impacts; and (2) did these perceptions change from 1997 to 2006? We found that all landowners had a dramatically enhanced sense of environmental awareness regarding wildlife habitat, particularly pheasant populations, relative to the CRP in 2006, and that perceptual differences between participants and non-participants had noticeably narrowed from 1997 to 2006, indicating increased awareness of the intended conservation benefits of the CRP. While these results show that the Conservation Reserve Program has served its purpose of conserving habitat while controlling production, we believe the CRP has other new purposes in the energy area. For that reason, we believe the CRP should be reauthorized in the 2012 Farm Bill to reflect a prudent balance between farm, energy and environmental issues, which are increasingly becoming intertwined in rural locales.

Agricultural programs are dependent both on government legislation from which the programs originate and the landowners who implement these programs. Landowner acceptance of agricultural programs is paramount for success. Indicative of such interest were the large sign-ups for annual set-aside programs in the 1960s and the commensurate decline of multi-year land retirement programs such as the *Cropland Conversion Program of 1962* and the *Cropland Adjustment Program of 1965* (Berner 1988, Kimmel and Berner 1998).

A multi-year land retirement option was not available again until the Conservation Reserve Program (CRP) was authorized in the *Food and Security Act of 1985* (Kimmel and Berner, 1998). In Minnesota, a sign-up of 1.9 million acres of CRP land during the 1980s demonstrated the landowner interest in this program, and hence the CRP has been re-authorized in the Farm Bills of 1996, 2002 and 2008, albeit the current authorization lowers the national enrolled total from 39.4 million acres to 32.0 million acres as of FY 2010 (*Public Law 110-234*). Currently, almost 1.7 million acres are enrolled in Minnesota and the current CRP is set to expire October 1, 2012 (USDA 2009 and *Public Law 110-234*). The popularity of the current CRP provides a platform from which future modifications can be made to address traditional environmental issues such as soil erosion and more contemporary environmental and economic concerns related to wildlife habitat, diversification of biofuel feedstocks, energy independence and rural income stabilization.

The purpose of this study was to survey landowners in the Corn Belt region of south central Minnesota to better understand: (1) their attitudes and perceptions about the CRP; (2) its impact on wildlife abundance; and (3) whether landowner attitudes have changed over the past 10 years. Several studies described the characteristics of CRP participants (Force and Bills 1989, Hatley et al. 1989, Mortensen et al. 1989). Miller and Bromley (1989) evaluated interest of CRP participants in improving wildlife habitat and stressed improved communication between farmers and wildlife professionals. Likewise, Kurzejeski et al. (1992) found that when wildlife information was available, landowner participation in wildlife conservation measures increased.

More recent studies focus on the CRP's socio-economic effects and its perceived impacts on the rural environment. Leistriz et al. (2002) examined the socio-economic impacts of CRP in six different agricultural sub-regions of North Dakota. This study centered on surveying CRP participants and community leaders from the agri-business sector who were not participants in the CRP. In another North Dakota study, Bangsund et al. (2004) modeled the effects of greater hunting opportunities resulting from the CRP relative to the opportunity costs of the landowners enrolled in the CRP. For Minnesota, studies indicate that hunters spend approximately \$150 per hunter per year resulting in millions of dollars in economic impact on rural communities (Baumann et. al 1990, Southwick Associates 2003 and Dutton 2008). Soil erosion, a traditional environmental concern of farm programs in general, is dealt with by the CRP because the program specifically targets highly erodible

lands and places them in perennial land covers involving nominal to no cultivation (Buskol et. al 2001). Finally, the United States Geological Survey (USGS 2003) conducted a national survey of CRP participants to determine their perceptions of wildlife, vegetation, and the general impacts of the CRP on the rural landscape. This study parallels the USGS work, though ours is narrower because it covers: (a) a smaller geographical range, (b) specifically selects landowners from in-place Minnesota Department of Natural Resources (MDNR) study areas targeting upland birds, and (c) was conducted in 1997 and later in 2006.

Study area

Our study area was centered on the till plains of south central Minnesota, which are located in the northern portion of the US Corn Belt (Hart and Ziegler 2008). The natural vegetation consisted of warm season grasses such as Indian grass (*Sorghastrum nutans*) and Switchgrass (*Panicum virgatum*). Oak/grass savannas were located in drier areas caused by sandier soils. Hardwood forests were found along riparian corridors and incised river valleys and ravines (Marschner 1974). Ring-necked pheasants (*Phasianus colchicus*) were introduced successfully into Minnesota in 1916 following the substantial diminishment of prairie-chickens (*Typanuchus cupido*) due to unregulated hunting and habitat modification associated with farming (MDNR 1986). Pheasants remain an important upland game bird. Since 1950, a vast expanse of corn and soybeans replete with artificial drainage abounds and grasslands are far scarcer. Indeed, less than 1% of the natural tall grass prairie remains (Tester 1995). Notable exceptions of grassland that often contain a mixture of native and introduced cool season grasses or residual tall grass prairies are mainly found in publicly held wildlife areas, Conservation Reserve Program (CRP) lands, and Re-Invest in Minnesota (RIM) lands. The latter two comprise long-term agricultural set aside programs.

Methods

In our 1997 survey, we asked landowners in south central Minnesota about land ownership, enrollment in the CRP, opinions on whether the CRP improved habitat for wildlife, and factors influencing land-use decisions (Kimmel et al. 1997). A 25-question, 6-page survey was mailed to 263 landowners who owned property located on 15 9-square-mile study areas in south central Minnesota that the DNR used for monitoring the abundance of ring-necked pheasants (*Phasianus colchicus*), gray partridge (*Perdix perdix*), and

meadowlarks (*Sturnell spp.*) based on degrees of CRP land ranging from 0% to 30% (Kimmel et al. 1992, Haroldson et al. 2006). In February 2006, we prepared a smaller 14-question telephone survey and interviewed 60 landowners chosen from the 1997 survey sample. With both studies, we divided the landowners into CRP participants and non-participants using a 50/50 ratio to identify differences in perceptions between these two groups.

Results

For the 1997 survey, 219 of the 263 surveys were returned. Undeliverable surveys and deceased landowners accounted for 44 unreturned surveys. Thus, the response rate for deliverable surveys was 83.0%. Our telephone-based survey in February 2006 had a 100% response rate with 31 CRP participants (52%) and 29 non-participants (48%) comprising the final sample.

In 1997, land enrolled in the CRP on the 15 study areas averaged 81.9 acres per farm. In 2006, this figure dropped to 37 acres. Landowners enrolled in the CRP owned an average of 390 acres in 1997 and 399 acres in 2006. Landowners without land enrolled in CRP owned an average of 280 acres both in 1997 and 2006.

In 1997, the most common response for not enrolling eligible land into the CRP related to higher potential income from crops compared to CRP payments (68%) and increased crop prices (56%). In 2006, the most common reason for non-participation was ineligibility (41%), followed by the opportunity costs of growing crops (28%).

Landowners with CRP land in 1997 indicated they enrolled land because of: (1) concern for soil erosion (73%); (2) provision of wildlife habitat (67%); (3) most profitable use of land (52%); (4) low risk associated with payments (36%); and (5) easiest way to meet conservation compliance (36%). Personal retirement (15%), and reduced labor (15%) were secondary factors. Most landowners (73%) indicated their selection of a cover crop for CRP land was to benefit wildlife. In 2006, landowners listed soil erosion control (36%), conservation/buffer strips (33%) and wildlife (29%) as the most popular factors for program participation.

In 1997, only 35% of landowners with CRP land and 27% of landowners without CRP land indicated wildlife abundance was an important consideration in their choice of farming practices. By contrast, 94% of the participants in 2006 considered wildlife abundance important when selecting a farming practice. As for non-participants in 2006, we found 67% also considered wildlife as important when selecting a farming practice.

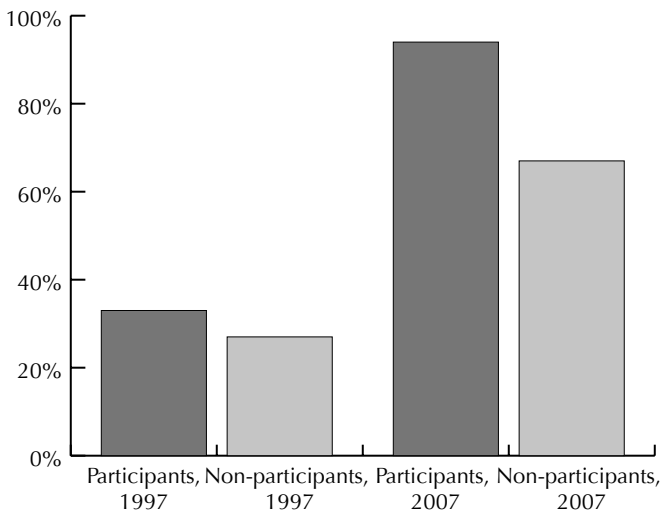
Most landowners with CRP land in 1997 (93%) indicated that the CRP improved pheasant habitat in the vicinity of their farm. The majority of landowners without CRP land (70.5%) also indicated enhanced pheasant populations. A majority of all landowners (52%) indicated the CRP improved habitat for white-tailed deer (*Odocoileus virginianus*) and gray partridge. Fewer landowners (38%) indicated that the CRP improved habitat for meadowlarks.

For 2006, 98% of all respondents agreed with the statement: "The CRP has improved the overall wildlife habitat in Minnesota." Moreover, 92% of those surveyed answered they agreed with the statement: "The CRP has improved the wildlife habitat in your area." There were only nominal differences between participants and non-participants and both groups felt pheasants (85%) and white-tailed deer (34%) were the major beneficiaries.

Discussion

Land ownership acreage between participants and non-participants were similar in 1997 and 2006. In 1997, the most common reasons for not enrolling were directly related to anomalously high prices for corn and soybeans, which, for example, in July 1996 were \$4.43 a bushel for corn (Food and Water Watch 2007). The leading factor in the 2006 survey was ineligibility, a

Figure 1: Was wildlife an important consideration in the choice of farming practice? Percentage of CRP participants and non-participants answering "yes," 1997 & 2007.



situation that occurred after the USDA tightened the criteria for CRP eligibility in 1996 and made the program more competitive. On the national level, these changes favored greater acreage in the Great Plains states within the prairie pothole region (USDA 2004). Interestingly, corn prices at roughly \$2.30 a bushel were much closer to historic averages (1990-2006) (Barnaby 2008).

Although the average size of CRP fields in our study area declined from 82 to 37 acres, the statewide aggregate acreage in 2006 was only about 100,000 acres below its late 1980s peak of 1.9 million acres (USDA 2006). This situation stems from CRP lands in Minnesota being more concentrated in the Red River valley (Lopez et al. 2000).

The most significant changes in landowner perception between 1997 and 2006 concern wildlife perceptions (Figure 1). In 1997, approximately one-third of the CRP participants indicated wildlife was important in farming considerations. This increased dramatically to 94% in 2006. A similar increase from 27% to 67% also occurred with non-participants. This change is indicative of realizing heightened wildlife benefits associated with the CRP particularly as they pertain to game species such as pheasants and white tailed deer. Interestingly, the 1997 and 2006 surveys yielded virtually identical results (93% and 92%, respectively), when examining the perception that CRP was a positive factor in improving wildlife habitat at a localized scale.

Our findings paralleled a national study conducted by the USGS (2003), which examined CRP participants and their environmental perceptions of the program. This study found that in the Corn Belt 73% of landowners agreed that CRP had positive changes for wildlife and 59% agreed the program provided additional opportunities to view wildlife. As noted, our 2006 survey found that 92% of our respondents (participants and non-participants) agreed with the statement that the CRP "improved wildlife" in the local area. Both groups overwhelmingly (98%) felt the CRP improved wildlife in Minnesota at large, a finding that extends beyond one's immediate bounds.

The USGS (2003) found that CRP was sometimes viewed negatively by participants as a source of weeds (33%) and attracted unwanted hunters seeking permission to hunt (23%). Our 2006 survey found only 3% of all respondents "strongly agreed" with these criteria, although 27% and 33% "agreed" with these statements, respectively. On one hand, our 15 study areas in south central Minnesota mirror the Corn Belt regional findings, yet on the other, the intensity of these negative attributes is more muted.

The USGS (2003) also found that about 14% of the participants felt the CRP added to an unkempt appearance. In our 2006 survey, the participants matched the USGS' regional finding. However, almost 25% of our non-participants felt CRP fostered an unkempt farm appearance. It is possible that the latter could be due to ignorance. Non-participants simply may not recognize a CRP field and instead view it as unordered relative to the manicured appearance of heavily cultivated corn and soybean fields, which dominate the regional landscape. Unlike lands enrolled in a similar state-funded set-aside program called Reinvest in Minnesota (RIM), signage is not offered for CRP fields.

Finally, Leistritz et al. (2002) found that non-CRP participants, (agri-business professionals) in North Dakota felt the CRP drained money from local economies because land taken out of production did not require the same amount of purchased inputs (fertilizers, insecticides, etc.) as cropland and encouraged human population loss through retirement and relocation elsewhere. Although we did not survey agri-business professionals, the majority of our non-participants in 1997 (52%) felt the CRP was at least somewhat important in stabilizing rural incomes. In 2006, about 65% of our non-participants said the CRP was financially good for farmers. As for retirement and its perceived impact on population loss, our 1997 survey found retirement to be inconsequential when making a CRP decision. We did not survey for this criterion in 2006.

In summary, our most significant findings were that: (1) in 2006, 98% of all respondents surveyed found that the CRP benefited wildlife in Minnesota at large and that pheasants were the major beneficiaries; and (2) landowners in general presently "consider" wildlife populations when making farm-related decisions at much higher rates than in 1997. Our survey results in south central Minnesota paralleled the USGS (2003) regional Corn Belt findings, but with some qualifications, the most notable being more muted negative feelings towards CRP lands. Overall, both the non-participants and participants find the CRP to be a popular program; perhaps the finding that best states this is: 56% of those surveyed in 2006 would change absolutely nothing if given the chance to reauthorize the CRP, while the other 44% recommended essentially minor or nominal changes.

Future implications

As farm, energy and wildlife policies increasingly intersect, The Conservation Reserve Program and its future reauthorizations harbor many tangible effects for rural Minnesota. Minnesota

ranked fourth nationally with a bountiful harvest of over 650,000 pheasants in 2007 (Laingen 2008). Hunting and/or bird watching comprise additional stimuli for rural-based economies, especially when the hunters originate from urban or suburban areas (Laingen 2008). Essentially, a flow of capital to rural locales occurs. Although other factors such as climatic conditions influence the pheasant population, the CRP does have a positive impact on the population of upland game and non-game birds throughout the corn/soybean region of southern Minnesota because it creates habitat (Haroldson et al. 2006). Indeed, Minnesota's pheasant harvest from 1990 to 1999 averaged 375,000 birds a year and climbed to 475,000 a year from 2000 to 2008, a clear departure from the low harvest of 265,00 per year in the 1970s, when long-term set-aside programs were not available (MDNR, unpublished data 2009). As noted, the CRP is popular within rural Minnesota both with participants and non-participants alike, and the trend is toward greater popularity based on environmental and income stabilization benefits.

The *Food Conservation and Energy Act of 2008 or Farm Bill of 2008* cut the national cap on CRP acreage from 39 million to 32 million acres (*Public Law 110-246*). The popularity of the CRP with rural landowners as demonstrated by our study supports an increase in the CRP cap during the next re-authorization and a re-examination of CRP rents and grassland utilization in light of the rise of corn-based ethanol. Ethanol, which was previously a minor factor in rural America, including Minnesota, has boomed in the last few years. For example, the national capacity for ethanol distillation surged from 1.75 billion gallons in January 2000 to 3.9 billion gallons in 2005 and finally to 10.3 billion gallons as of March 2009 (Renewable Fuels Association 2009). Minnesota currently ranks fifth in ethanol production with a capacity of 862 million gallons.

This ethanol boom stems from a convergence of four major factors. First, the Clean Air Act of 1990 resulted in mandating oxygenated fuels as a means of reducing carbon monoxide emissions in cold environments or in air basins prone to atmospheric stability, i.e. poor circulation (Duffield et al. 2008). Demands for Midwest-based corn ethanol further increased when California banned its petroleum-based oxygenate MTBE (methyl tertiary-butyl ether) in 2003 (US EPA 2004). Second, the *Alternate Motor Fuels Act of 1988* allowed automobile manufacturers to circumvent higher CAFE (corporate average fuel economy) standards by introducing flex fuel vehicles powered by E85, which the industry began producing in the late 1990s (*Public Law 100-494*). Third, the *Farm Security and Rural Investment Act or Farm Bill of 2002* contained a bioenergy

section aimed at increasing farm income through biofuel production (biodiesel and ethanol) (*Public Law 107-171 Title IX*). Fourth, as a result of market volatility associated with oil prices and Middle East instability, the *Energy Policy Act of 2005* and the *Energy Independence and Security Act of 2007* were passed (*Statutes at Large* 119:54 2005 and *Public Law* 110-140, *HR 6* 2007). These Acts attempt to diversify domestic energy production by means of subsidizing biofuels including those based on sugarcane and cellulosic feedstocks. The ultimate goal is to achieve 36 billion gallons per year of biofuels by 2022, most of which would be ethanol. Indeed, as of April 2009, 26 sugarcane/cellulosic ethanol projects were under construction in 22 states, though none in Minnesota (RFA 2009b). For example, one plant in Montana and another in Tennessee will use switchgrass as a major feedstock (RFA 2009b.)

The CRP provides a reserve of grassland that aside from comprising wildlife habitat, can also function as a cellulosic reserve in a more bio-fuel based transportation system, something that serves rural and urban-based interests. Essentially, the CRP can continue to serve as a rural income stabilization program especially given the volatility of commodities prices, which are increasingly tied to political and economic events associated with the energy markets, particularly oil. Our concern is that a short-sighted wholesale conversion of CRP land into corn or allied crops would not only result in a tangible drop in wildlife habitat and increased soil erosion, but would increasingly concentrate the biofuel sector into one feedstock, i.e. corn, leaving rural landowners in a more vulnerable position should the energy / commodity markets crash. In the meantime, as a nation we would lose a major cellulosic base that could easily be incorporated into a diverse biofuel regime with more nominal wildlife and soil erosion impacts.

The next Farm Bill clearly requires prudence in “balancing” the short- and long-term costs and benefits associated with achieving multiple objectives, which involve stabilizing rural income, protecting and enhancing the environment and habitat, plus fostering national security by moving away from complete dependence on foreign petroleum reserves.

Such balancing would incorporate the goal of achieving a diverse biofuel industry and provide at least one tangible method to achieve the goal of substantial energy independence in the next 10 years. Indeed, such deliberations are inherent in the present convergence of farm, energy, environmental and rural policy issues.

Acknowledgements

The authors wish to acknowledge Roxanne Franke and Nancy Moritz of Minnesota State University, Mankato, for their assistance. Funding for the initial surveys was provided by the Minnesota Department of Natural Resources, Farmland and Wildlife Populations and Research Group in Madelia, Minn., and the College of Social and Behavioral Sciences, Minnesota State University, Mankato.

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