

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Great Plains Research: A Journal of Natural and
Social Sciences

Great Plains Studies, Center for

Fall 2011

FUTURE PARTICIPATION IN THE CONSERVATION RESERVE PROGRAM IN NORTH DAKOTA

Lorilie M. Atkinson

USDA Natural Resources Conservation Service

Rebecca J. Romsdahl

University of North Dakota, rebecca.romsdahl@und.edu

Michael J. Hill

University of North Dakota

Follow this and additional works at: <http://digitalcommons.unl.edu/greatplainsresearch>



Part of the [American Studies Commons](#), [Environmental Indicators and Impact Assessment Commons](#), [Natural Resource Economics Commons](#), [Natural Resources and Conservation Commons](#), and the [Natural Resources Management and Policy Commons](#)

Atkinson, Lorilie M.; Romsdahl, Rebecca J.; and Hill, Michael J., "FUTURE PARTICIPATION IN THE CONSERVATION RESERVE PROGRAM IN NORTH DAKOTA" (2011). *Great Plains Research: A Journal of Natural and Social Sciences*. 1189. <http://digitalcommons.unl.edu/greatplainsresearch/1189>

This Article is brought to you for free and open access by the Great Plains Studies, Center for at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Great Plains Research: A Journal of Natural and Social Sciences by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

FUTURE PARTICIPATION IN THE CONSERVATION RESERVE PROGRAM IN NORTH DAKOTA

Lorilie M. Atkinson

*Natural Resources Conservation Service
U.S. Department of Agriculture
Center, ND 58530*

and

Rebecca J. Romsdahl and Michael J. Hill

*Department of Earth System Science and Policy
University of North Dakota
4149 University Avenue
Grand Forks, ND 58202-9011
rebecca.romsdahl@und.edu*

ABSTRACT—The purpose of this study was to gauge the impact of agriculture and energy policies on conservation practices through a survey of conservation reserve program (CRP) contract holders in a selected Prairie Pothole Region of North Dakota—Burleigh, Kidder, and Stutsman Counties. The survey results showed that 48% of respondents are considering returning CRP acres to annual crop production once the contract expires. The largest influence on post-CRP land use was the market prices for production of annual crops. Respondents also identified lack of knowledge of conservation programs as a large hurdle to participation. This may indicate a need for improved communication from program information sources such as the Farm Service Agency and the Natural Resource Conservation Service, from where most contract holders get their information. These findings also provide interesting insight into the motivation and decision-making process surrounding conservation programs, in particular continued participation in the CRP. By understanding the main motivation and considerations for conservation participation (market prices, cost-sharing opportunities, and expected cost of production), federal conservation programs will be able to maximize conservation efforts, which will benefit landowners and resources alike.

Key Words: Conservation Reserve Program, Prairie Pothole Region, North Dakota, agriculture policy

INTRODUCTION

The Conservation Reserve Program (CRP) was a revolutionary conservation program established by the 1985 Food Security Act (Farm Bill). Initially, farmers enrolled land deemed marginal, or highly erodible, and established a persistent cover crop (mainly grasses) to prevent soil erosion in exchange for compensation, an annual rent payment as well as cost sharing and technical assistance to establish cover (FSA 2008). The responsibility of administering this program is spread across several agencies within the U.S. Department of Agriculture (USDA), namely the Farm Service Agency (FSA) and the Natural Resource Conservation Service (NRCS). These

agencies are charged with the responsibility of compensation and compliance as well as cooperation between state and federal levels. The dual purpose of the CRP was to address ecosystem conservation issues by removing marginal (highly erodible) cropland from production for an extended period and by providing subsidy payments (Johnson and Clark 2001; Ruhl et al. 2007). This focus on commodity supply limitation explains the high concentration of enrolled CRP acres in the Great Plains, as this is one of the most agriculturally productive regions in the nation.

Approximately 7% of North Dakota's 44 million acres (17.8 million hectares) of land is enrolled in the CRP. A significant proportion of the CRP land is located in the Prairie Pothole Region. The entire Prairie Pothole

Region (PPR) of North America covers 300,000 square miles (77,000,000 hectares) and contains 83 wetlands per square mile (GAO 2007). The PPR in North Dakota is considered the heart of the world's largest grassland and is extremely productive for both agriculture and wildlife (Neimuth et al. 2007; EPA 2009). Ducks Unlimited estimates that since 2002 the North Dakota counties of the PPR have lost 88,000 acres (35,748 hectares) of native prairie (Ness 2008). As of February 2008, 78% of North Dakota CRP contracts were reenrolled or extended; however, only 34% of those acres were in the PPR (FSA 2008).

Beginning in 2007, the imminent loss of CRP acres became apparent to farmers, cattlemen, and agricultural, conservation, and environmental organizations alike. According to data available from the USDA, from September 2007 to August 2008, CRP acres fell by the largest margin in program history—2.1 million acres (0.9 million hectares) (USDA 2008). North Dakota was expected to lose 250,000 CRP acres (101,171 hectares) in 2007 to contract expirations; the actual number was over 400,000 acres (161,880 hectares)—over 12% of all North Dakota CRP acres. In 2012 alone, over 800,000 CRP acres (323,748 hectares) are set to expire, twice as many as in 2007.

This increased loss of CRP acres can be attributed to high commodity prices, high cash rents, and greater demand for cropland to produce more biofuels (Wilson 2008). As these contracts expire, landowners face several options. If commodity prices stay high, most CRP acreage could return to crop production, leading to increased soil erosion, water quality issues, and other environmental impacts. The unpredictable nature of yearly crop prices as well as changes in federal agriculture and energy policies affect the contract holders' land use decisions.

Anecdotal evidence supports the general conclusion that the Northern Plains, especially North Dakota, is experiencing more conversion from grassland to cropland than previously noted (Stubbs 2007). Information about how many acres are being converted, and where the land is located, can loosely be gathered from existing federal and state data sources. However, identification of forces influencing the land conversion is limited and warrants further investigation.

This study focused on identifying landowner attitudes and beliefs that influence conservation versus production land use. The objectives for this study included (1) determining the main factors that influence post-CRP land use decisions, (2) determining the main management issues related to these land use decisions, and (3) identifying contract holders' environmental and conservation perceptions.

THE SURVEY

Identification of Survey Area

The focus on North Dakota was chosen because of the regional emphasis on PPR conservation and high participation rate in the CRP (Bangsund and Hodur 2004; Ducks Unlimited 2008). Three North Dakota counties, Burleigh, Kidder, and Stutsman (Fig. 1, shaded gray), were identified for the survey interests based on the following criteria: (1) location within the state's PPR, (2) having 10% to 20% of cropland enrolled in CRP, and (3) high annual CRP acre loss by county.

A large percentage of CRP acreage in these three counties expired in 2007 (almost 90,000 acres [36,420 hectares] collectively); however, a larger acreage loss is expected in 2012, with a combined loss across the three counties of over 100,000 acres (40,470 hectares). While this survey analysis focuses on the CRP acreage loss through 2012, examination of future expiration schedules reveals continued cause for concern. According to figures provided by the NRCS, Kidder County is expected to have over 33,000 acres (13,355 hectares) expire in 2017. In the same year, North Dakota is anticipated to lose over 367,000 acres (148,520 hectares). Burleigh and Stutsman Counties will experience sizeable conservation acreage loss in 2019.

Survey Design and Implementation

The study was approved by the Institutional Review Board at the University of North Dakota. An adaptation of Dillman's total design method (Dillman et al. 2007) was used to implement the mail survey targeted to CRP contract holders within the three-county survey area. Paper questionnaires were sent to the identified survey population in cooperation with the USDA North Dakota Agricultural Statistics Service Field Office (NDASS).

The questionnaire design was derived from a switchgrass survey by Jenson et al. (2007) and from three farmer surveys, by Hua et al. (2004), Janssen et al. (2008), and Roberson (2008), modified to focus on this study's objectives. The survey included sections on (1) conservation participation, (2) views on environmental and conservation issues, (3) CRP participation, (4) interest and knowledge in renewable energy production, and (5) farm and respondent demographics. The survey questions included open-ended essay responses, close-ended, multiple choice (one answer or multiple answers), and rating (Likert) scale questions. A summary of survey variables used in this project are illustrated in Table 1.

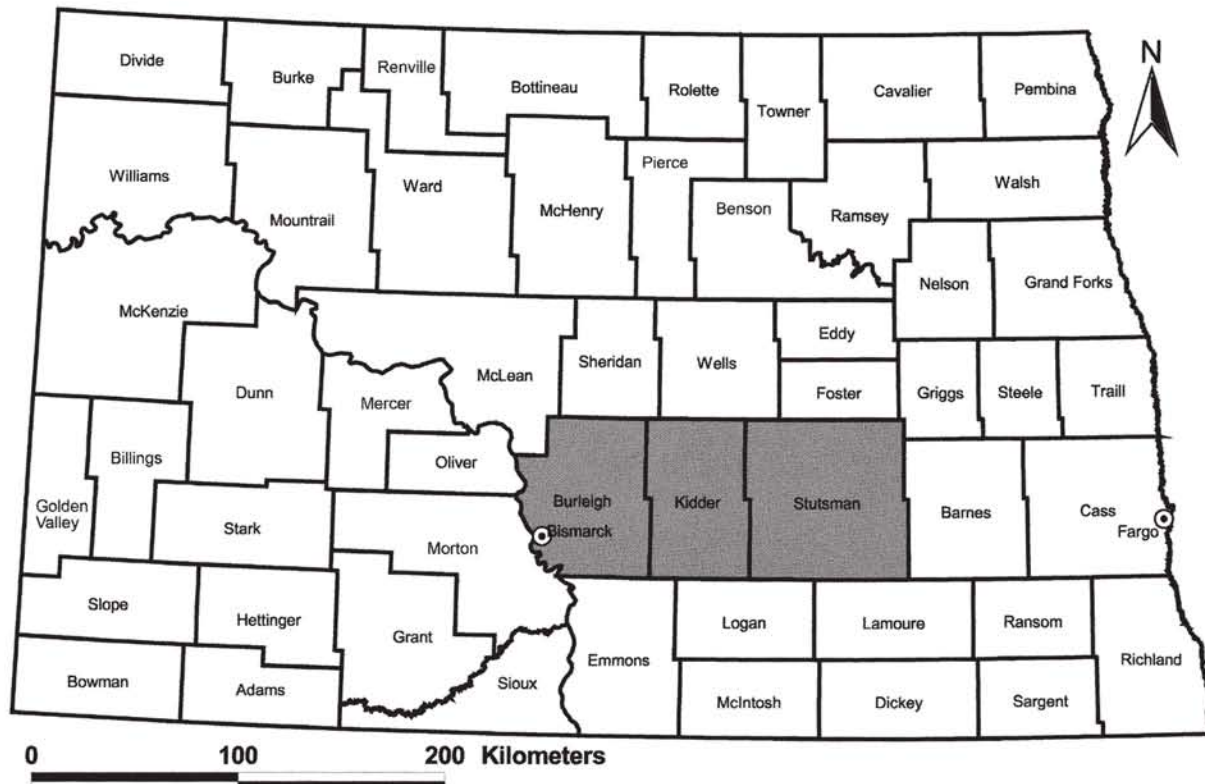


Figure 1. Counties in survey area: Burleigh, Kidder, and Stutsman (shaded gray). Map source: www.censusfinder.com.

A survey population of 1,300 CRP contract holders in the three counties was identified by the NDASS. As a statistical agency of the USDA, the NDASS collects agriculture census data and statistics for the state of North Dakota, making it an expedient way to identify the CRP contract holders within the study area. However, due to privacy issues, NDASS is not able to share personal information, such as addresses, from these databases with outside organizations. Instead, a contract agreement was established between NDASS and the primary investigator. NDASS generated a population pool of all CRP contract holders in Burleigh, Kidder, and Stutsman Counties and then printed and mailed the survey produced by the investigator. This ideal cooperation allowed for a thorough, convenient, and fast application of the survey to the target audience while protecting their anonymity. The questionnaires were mailed during the week of May 4, 2009. A postcard reminder was sent two weeks later. Survey responses were directed to the author for data collection and analysis.

Data Analyses

After the survey results were collected, all responses were entered into SurveyMonkey, an online survey site

that acted as a data organization and management tool. It provides a secure, private database that allows for browsing of individual responses and questions and can be easily shared with research advisors. SurveyMonkey also had the added features of self-generated reporting and analysis tools such as filtering and cross-tabulations as well as compatibility to Microsoft Excel and other statistical software such as SPSS for further analysis.

Analyses of the data were conducted using SurveyMonkey and SPSS version 16. To gauge representativeness, characteristics of survey respondents were compared with two attributes from the 2007 U.S. Census of Agriculture state (ND) census: age and gender. Discrepancies can be attributed to the differences in the survey design and to the smaller and more focused survey size of the North Dakota CRP survey.

RESULTS

The study received 316 completed surveys out of 1,284 successful contacts, a 25% response rate. This is a satisfactory response level given the challenges to encouraging survey participation and the difficult weather conditions when the survey was sent; snowstorms in April 2009 and

TABLE 1
BREAKDOWN OF SURVEY VARIABLES AND QUESTION

Variable	Section	Category	Focus/Assessment	Scale
Dependent	Farm and landowner characteristics	Gender, age, years farming, farm size, education, and county residency	What are landowner demographics? Levels of absentee ownership?	Multiple choice
	Conservation Reserve Program	Acres, haying and grazing, contract expiration, CRP plans	How many acres are enrolled?	Open-ended
	Energy production	Crop production, switchgrass conversion	What are the obstacles to biofuel (switchgrass) production?	Open-ended
Independent	Conservation participation	Program participation, resource perception, participation barrier, source of information, conservation assistance	What conservation programs are landowners enrolled in? Perception of resource vulnerability? Barriers to conservation participations? What assistance (financial, technical, etc.) would be helpful?	Multiple choice, Likert
	Environmental/Conservation attitudes	Importance of land, benefits and negative effects of CRP	What factors are more important for CRP enrollment? Perceived effectiveness of program?	Likert, Multiple choice
	Conservation Reserve Program	Management Influences	What factors influence land use decisions after CRP contract expiration?	Likert
	Energy production	Barrier to implementation	What are the obstacles to biofuel (switchgrass) production?	Likert

flooding in May 2009 delayed mail delivery, as county roads and streets were impassable. Due to financial and time limitations, incentives could not be offered to solicit more responses, and therefore survey success had to rely strictly on voluntary participation. These two factors likely influenced the return response rates.

A 25% response to this survey (one questionnaire and followup postcard) is acceptable. A return of 316 surveys gives a 95% confidence interval, with sampling tolerances of ± 3 to 5 percentage points. Reported percentages are rounded to the nearest whole number, causing small variations in reported percentage totals (99% or 101%). Unless otherwise noted in parentheses, reported percentages are based on the total number of responses ($n = 316$).

Farm and Respondent Characteristics

Demographic Data. General demographic characteristics of survey respondents are reported in Table 2. Overall, the breakdown of gender across counties was

83% male, 17% female ($n = 282$). The response distribution by gender of landowners surveyed was similar to the 2007 North Dakota Agriculture Census data by county in which there were predominantly more male landowners (see Table 2). Male to female contract holders occur in an almost 5 to 1 ratio. The majority of female contract holders are 65 years or older; by contrast the majority of male contract holders are 45 to 64 years of age. The age distribution of survey respondents was 5% age 25–44, 44% 65 years or older, and 51% age 45–64 ($n = 285$), which aligns closely with the 2007 North Dakota Agriculture Census data.

Survey respondents have a relatively high level of education. Nearly one-half are college graduates or post graduates, with one-fourth of all others attending some college (Table 3). Less than 10% of respondents had less than a high school diploma.

Farm Information. The average acreage of CRP contracts for the three-county survey area is 227 acres (89.8

TABLE 2
SELECT DEMOGRAPHIC (AGE AND GENDER) CHARACTERISTICS
OF NORTH DAKOTA CRP SURVEY RESPONDENTS

County	North Dakota Agricultural Census data Principal operator		Survey data Respondent		North Dakota Agricultural Census data Average age
	Male	Female	Male	Female	
Burleigh	890 (87%)	136 (13%)	62 (82%)	14 (18%)	56.8
Kidder	510 (86%)	80 (14%)	58 (85%)	10 (15%)	58.2
Stutsman	881 (85%)	162 (15%)	96 (82%)	21 (18%)	57.7
Gender	25–44 years	45–64 years	65 years or over	Total	
Female	1	18	28	47	
Male	12	126	94	232	

Source: North Dakota Tri-County CRP Survey, May–June 2009 and 2007, North Dakota Agriculture Census.

TABLE 3
DISTRIBUTION OF SURVEY RESPONDENTS' EDUCATION

Education	Percentage (%)	<i>n</i> = 280
Some high school or less	7	21
High school graduate	20	55
Some college	25	70
College graduate	29	80
Post graduate	19	54

Source: North Dakota Tri-County CRP Survey, May–June 2009.

hectares), slightly lower than reported (283 acres [114.5 hectares]) in the North Dakota CRP survey (Hodur et al. 2002), but above the average reported for the Northern Plains (178 acres [72.0 hectares]) (Allen and Vandever 2003). Three-fifths of respondents have been farming for over 30 years ($n = 272$). Sixty-nine percent of respondents indicated they were living in the same county as the CRP contract county. Of the remaining 31% in outside counties, 35% of those were out-of-state residents. In another study, Hodur et al. (2002) found 87% of landowners are North Dakota residents, and 61% lived in the survey county. Most CRP acres are contracted by respondents owning farms of 1,000 acres (404.9 hectares) or less (55%, $n = 280$) (Table 4). According to the 2007 North Dakota Agriculture Census, the average farm acreages by county are Burleigh, 857; Kidder, 1,277; and Stutsman, 1,144 acres (346.8, 493.0, and 516.8 hect-

ares, respectively). The same general trend was seen in the survey responses between counties as well (Fig. 2), with more Kidder County farms in the size category 501–1,000 acres (203.0–404.7 hectares) than there were in Burleigh and Stutsman Counties, where most farms were in the size category of 1–500 acres (0.4–202.3 hectares).

Conservation Participation

At the time of the survey, 29% of respondents indicated that part of or their entire CRP contract had expired; 72% currently had active CRP contracts ($n = 280$). When asked about participation in farm conservation programs, 96% indicated having been enrolled in CRP ($n = 246$). The absence of 100% CRP participation in response to this survey question could be attributed to the fact that the

TABLE 4
SURVEY RESPONDENTS' FARM DEMOGRAPHIC DATA

Farm size (acres)	Percentage of respondents (%)	n = 280	Years farming	Percentage of respondents (%)	n = 272
1–500	32	90	9 or less	11	30
501–1,000	23	65	10–19	14	39
1,001–1,500	10	28	20–29	15	41
1,501–2,000	12	33	30–49	36	98
2,001–3,000	9	26	50+	24	64
3,001–4,000	4	10			
4,001–5,000	4	11			
5,000+	6	17			

Source: North Dakota Tri-County CRP Survey, May–June 2009.

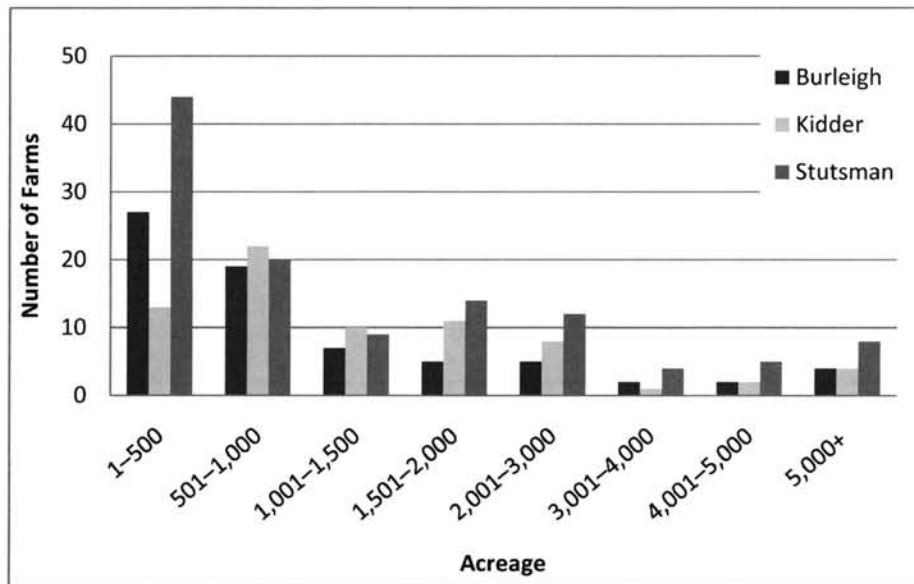


Figure 2. Survey respondent farm acreage by county. Source: North Dakota Tri-County CRP Survey, May–June 2009.

current CRP contract had expired by the time the survey reached the respondent, or to respondents' interpretation of the question. A question on participation in other conservation programs was included in order to assess possible connections between programs. Participation in conservation programs other than CRP was low across the board, with no program garnering more than 15% participation ($n = 258$) (Fig. 3).

Overwhelmingly, respondents indicated that their source of information for conservation programs is

through the Farm Service Agency (79%, $n = 223$). Approximately 40% ($n = 258$) of respondents indicated getting conservation information from the Natural Resource Conservation Service, other farmers and neighbors, media, university-based Extension Service, and Soil Conservation Districts.

When asked about perceived threats to resources, wetlands and native grasses were overwhelmingly perceived as *not threatened* (49% and 34%; $n = 266$ and 271, respectively). Respondents considered the CRP as

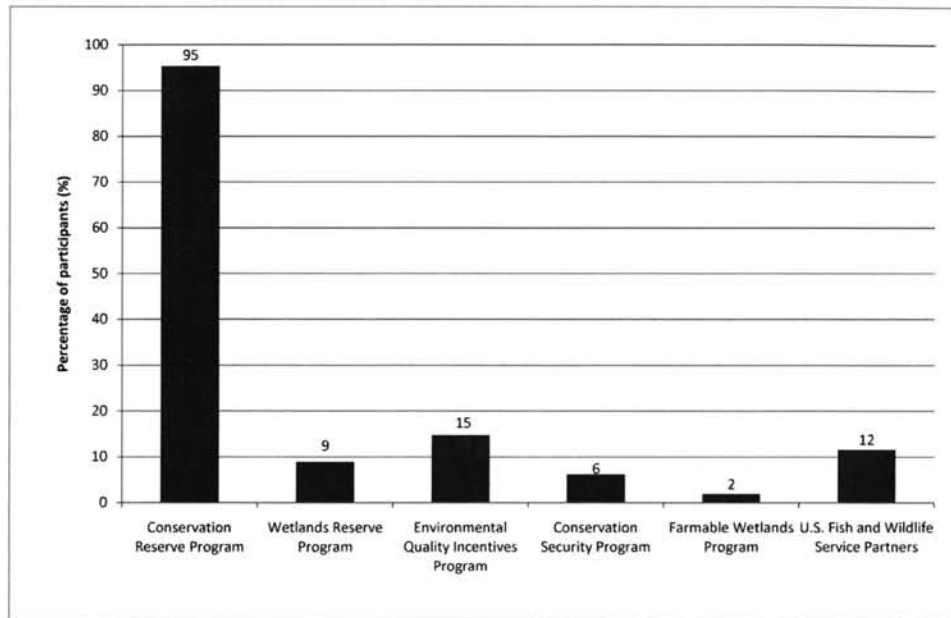


Figure 3. Participation in farm conservation programs. Source: North Dakota Tri-County CRP Survey, May–June 2009.

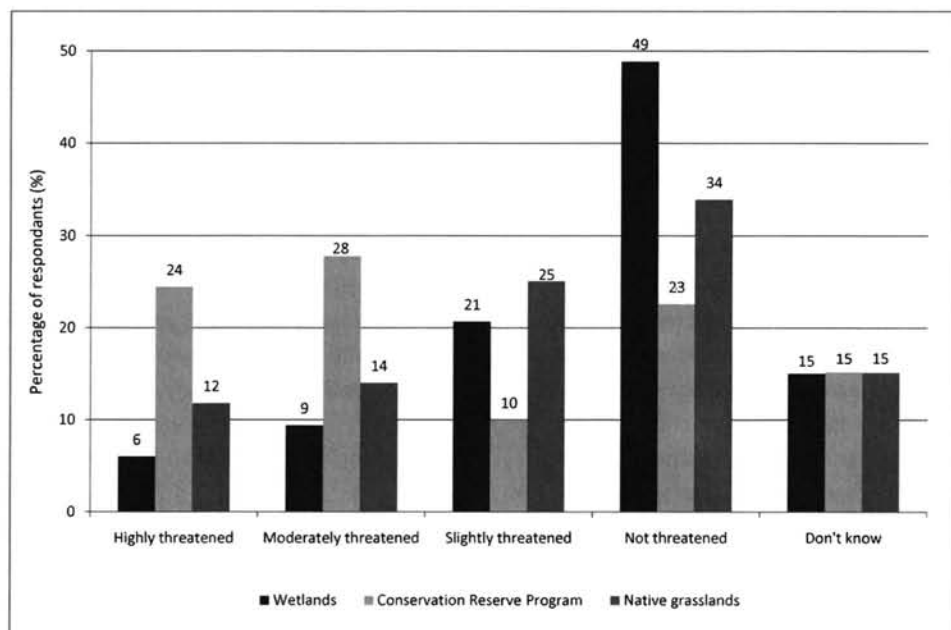


Figure 4. Farmer's views on environmental issues. Source: North Dakota Tri-County CRP Survey, May–June 2009.

moderately to highly threatened ($n = 270$) (Fig. 4). This is an interesting dichotomy, especially given the close relationships between these three features in this region. It is the combination of grassland and wetland that provides the Prairie Pothole Region with an ideal habitat for wildlife, especially waterfowl (GAO 2007; Gleason et al. 2008). If one feature is threatened, by definition all fea-

tures are threatened. The CRP preserves both of these habitat structures, but native grasslands and wetlands have been increasingly targeted for intensive farming practices due to high commodity prices.

When asked about possible barriers to implementing conservation programs (Table 5), over half of respondents (52% to 69%) *agreed* or *strongly agreed* with a variety of

TABLE 5
 PERCENTAGE OF RESPONDENTS WHO AGREE OR STRONGLY AGREE REGARDING THE POSSIBLE
 BARRIERS TO IMPLEMENTING CONSERVATION PROGRAMS

Please indicate your level of agreement with the following statement:		Respondents who agree or strongly agree (%)	Average score ^a
The program does not offer enough money to be of interest.	<i>n</i> = 279	69	2.12
There is too much bureaucracy associated with applying.	<i>n</i> = 277	65	2.16
Landowners do not want government working on their land.	<i>n</i> = 276	52	2.45
The landowner may not qualify for the programs that would be of most interest.	<i>n</i> = 275	59	2.32
The landowner may not be aware of the relevant programs.	<i>n</i> = 274	61	2.42

Source: North Dakota Tri-County CRP Survey, May–June 2009.

^aLikert scale question where 1 = strongly agree, 2 = agree, 3 = no opinion, 4 = disagree, 5 = strongly disagree. There was no significant difference between the average score of the responses.

barriers (*n* = 281). For example, 69% (*n* = 279) *agreed* or *strongly agreed* that the program does not offer enough money to be of interest, indicating this as one of the top barriers. The statement *landowners do not want government working on their land* garnered the least concern of all the statements, and may explain the high level of existing and ongoing participation in federal conservation programs in these counties.

When asked about the value of financial or technical assistance (Table 6), 63% (*n* = 269) said establishment of cover crop to prevent soil erosion would be somewhat or very useful, followed by creation or improvement of wildlife habitat (58%, *n* = 270). Almost half the respondents indicated either payments to restore, protect, or enhance wetlands, or assistance with development of renewable fuels from crops, would be useful. Assistance in transition to organic production, protection of working easements, and carbon sequestration were favored the least (23%, 24%, and 36% [*n* = 270, 269, and 266], respectively).

Land Management Factors

The most significant factor in land management decisions was *land as a source of income*, which was considered to be *very* or *moderately important* (*n* = 278) in over 75% of responses. This corresponds with a 2006 High Plains (Colorado, Kansas, Nebraska, New Mexico, Oklahoma, and Texas) landowner survey where 86% of respondents indicated that their land as a source of income was *very* or *moderately important* (Witter 2006). The next most significant factors were *the means of passing on rural*

life (55% indicating *very important*) and *a source of land and water resources* (46% indicating *very important*) (*n* = 274 and 271) (see Fig. 5). A lower percentage of respondents identified land as *a source of hunted* (31%, *n* = 277) and *nonhunted* (21%, *n* = 273) *wildlife* and as *a source of outdoor recreation* (20%, *n* = 273) as *very important* to influencing land management decisions.

Witter (2006) indicates that High Plains respondents characterized only one item, *source of income*, as very important. This indicates respondents in the North Dakota survey place a comparatively high value on wildlife and recreation opportunities. While land as *a source of income* plays a large role in management decisions, environmental issues are also an important component in decision making.

Conservation Reserve Management

Forty-eight percent of respondents hayed their CRP acres within the last five years under emergency provisions (*n* = 279). Under these same conditions, only 24% had hayed within the last year, which may be due to restrictive haying and grazing boundaries set forth by the FSA. Eighty-eight percent of respondents had not grazed CRP acres (*n* = 284), reinforcing the predominance of cropland over pasture in these three counties. Twenty-four percent of respondents in the 2003 National CRP Survey reported haying CRP acres at least once during emergency conditions (Allen and Vandever 2003). Compared across the nation, the Northern Plains utilizes the CRP acres for designated emergency haying and grazing more frequently than any other region (Allen and Vandever 2003).

TABLE 6
PERCENTAGE OF RESPONDENTS WHO WOULD FIND FINANCIAL OR TECHNICAL ASSISTANCE
VERY USEFUL OR SOMEWHAT USEFUL

Type of assistance		Respondents who answered very useful or somewhat useful (%)	Average score ^a
Development of renewable fuels from crops or wood fiber	<i>n</i> = 268	49	2.54
Creation or improvement of wildlife habitat	<i>n</i> = 270	58	2.49
Payment to restore, protect, or enhance wetlands	<i>n</i> = 271	49	2.67
Establishment of cover crops to prevent soil erosion	<i>n</i> = 269	63	2.39
Improvement of water quality through nutrients or manure managements	<i>n</i> = 272	41	2.93
Transition from conventional to organic production	<i>n</i> = 270	24	3.38
Protection of working farm land through easements	<i>n</i> = 269	23	3.26
Carbon sequestration on farm land	<i>n</i> = 266	36	2.89

Source: North Dakota Tri-County CRP Survey, May–June 2009.

^a Likert scale question where 1 = very useful, 2 = somewhat useful, 3 = uncertain, 4 = not very useful, 5 = no use at all. There was no significant difference between average scores of the responses.

Future CRP Plans

Survey respondents were asked about possible future plans for their enrolled CRP acres. In this question, they were given the option to select all responses being considered; therefore the sum of percentages exceeds 100%. Almost half (48%, *n* = 247) of respondents indicated they may return CRP acres to annual crop production after their contract expires. Thirty-one and fifteen percent, respectively, are considering keeping CRP acres in grass for hay production, or to prevent soil erosion. Twenty-nine percent of respondents have no plans or indicated uncertainty about future plans after their CRP contract expires (Fig. 6).

In deciding future land use, 43% of respondents indicated market prices for production after CRP expiration and 30% indicated the expected cost of planting and harvesting are *very important* (*n* = 275). Availability of cost-sharing for wildlife and expected sale price of land were considered *not important*, by 30% and 33% of respondents, respectively (*n* = 275).

DISCUSSION

Survey respondent demographics provide an interesting picture of rural life in these three counties and may

play an important role in considering future conservation policies in the area. In general, smaller farms with older than average landowners are the most common participants in land retirement programs, and are more reliant on nonfarm sources of income (Lambert et al. 2006). This trend was observed in the tri-county survey as well. The majority of survey respondents were male, ages 45 and above, and indicated having farmed for over 30 years. This follows the general trend of land retirement programs attracting mature landowners. Given the average age of landowners in these three counties in the mid- to late 50s, their pending retirement is a relevant factor in consideration of expanding or reenrolling acres.

If North Dakota landowners continue the trend of moderate-sized farms (under 1,000 acres [404.9 hectares]), and there is every indication that this is likely, continued participation in the CRP seems assured. However, the future of landownership in the state is speculative given the aging rural population. The 2008 Farm Bill provided incentives to sell land to young or disadvantaged farmers and offered other financial assistance to support beginning farmers. How this will impact North Dakota landownership and conservation participation remains to be seen. High education levels are also relevant, as research has indicated these individuals are more interested in conservation programs (Onianwa et al. 1999).

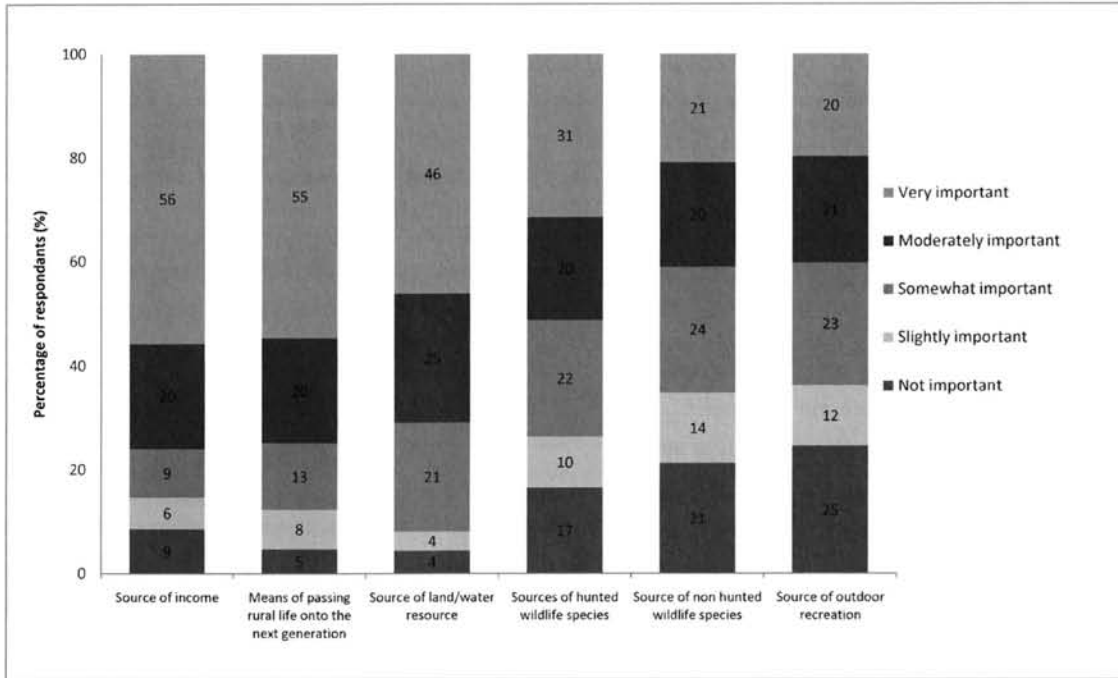


Figure 5. Importance of land on management decisions. Source: North Dakota Tri-County CRP Survey, May-June 2009.

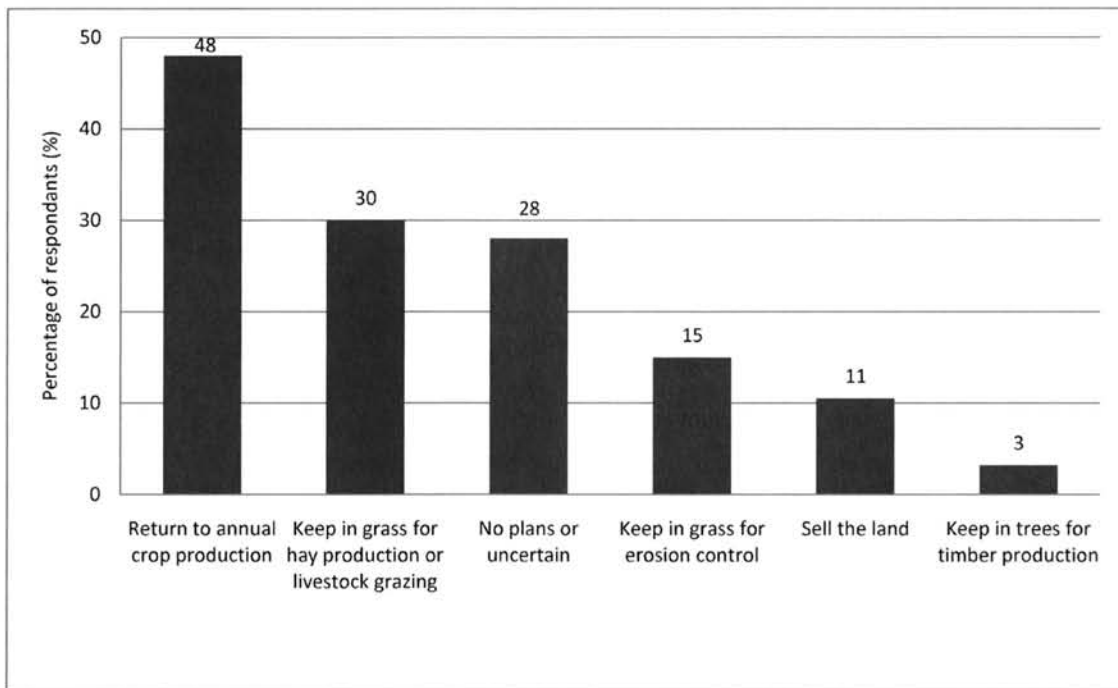


Figure 6. Land use options after CRP contract expires (Source: North Dakota Tri-County CRP Survey, May-June 2009).

The responses to a question about vulnerable ecosystems revealed a split in perception. The majority of respondents indicated a belief that CRP was *moderately* or *highly threatened*. However, contrary to published biological research, an overwhelming percentage of contract holders feel that native grasslands are *not threatened*. This may indicate that contract holders clearly discriminate between native grasslands such as National Wildlife Refuges, National Grasslands, and other preserved areas outside the agricultural production system, and CRP lands which may be private remnants, hayfields, and actively sown grassland regarded as part of the agricultural production system. The relationship between perceptions of conservation and production status for grasslands, depending upon ownership and land use context, requires further investigation and analysis.

At the time of the survey (May 2009), 72% of the respondents still had active CRP contracts. Survey respondents identified many positive aspects associated with CRP; however, nearly half of the respondents indicated they were considering returning CRP acres to annual crop production once the contract expires. This contradiction is further explained by the survey responses identifying market prices for annual crop production as having the largest influence on post-CRP land use decisions. This is a deciding factor to focus on for analyzing future CRP participation.

Over half of the respondents identified barriers to implementing conservation programs. For example, respondents noted that blanket policies did not fit every farm and called for more localized control. Survey respondents also requested increased interaction with USDA staff for information on plant species, vegetation management, and maintenance of wildlife habitat. CRP contracts that are not competitive with land rental rates and the challenges posed by government bureaucracy are significant drivers of decline in conservation acres.

Along with market forces, a lack of knowledge of conservation programs plays a large role in participation. Additional communication efforts from the leading agencies, the Farm Service Agency and the Natural Resources Conservation Service, should be a priority, as this is where respondents get their information about programs. Increased availability of information, both in terms of accessibility and in terms of relevance, clarity, and completeness of content may help to increase conservation participation. This may also indicate where other programs could be promoted to increase conservation efforts. Programs such as the Environmental Quality Incentives Program (EQIP), Conservation Security

Program (CSP), and Farmable Wetlands Program (FWP) are working-land conservation programs. An increase in acreage enrollment in these programs could play a large role in a transition from long-term land retirement programs and would provide an ecological compliment to crop production. The survey results support the need for more aggressive outreach by federal and state agencies to address these bureaucratic and communication issues.

CONCLUSIONS

The conservation reserve program remains popular in this region, especially among more mature landowners with smaller acreage. The popularity of working-lands conservation programs also continues to increase and will likely play a larger role in the future, along with land retirement conservation programs. Findings from this survey provide insights into the motivation and decision-making processes of landowners in regard to conservation programs, specifically, continued participation in the CRP. Results indicate that landowners value both the revenue and ecological benefits provided by their land. Although the financial importance of land supports the need for more competitive CRP contract rental rates, the equivalent ranking of diverse economic and environmental resources indicates that conservation decisions are not based solely on financial incentives. This helps explain why the CRP has been and continues to be a popular program, providing stable farm income, securing natural resources, and maintaining wildlife habitat. Successful conservation programs will need to include all these considerations in order to garner attention and participation into the future.

ACKNOWLEDGMENTS

The authors would like to thank the staff, faculty, and students of the University of North Dakota Department of Earth System Science and Policy for their contributions to this research. The authors would like to acknowledge the North Dakota Agriculture Statistics Service for survey collaboration and the staff of the Natural Resources Conservation Service Grand Forks Field Office and Scott Stephens of the Ducks Unlimited Great Plains Regional Office for technical assistance and data. The Agricultural Research Service provided funding for this study. The authors would also like to thank two anonymous reviewers for their time and valuable comments during the review process.

REFERENCES

- Allen, A.W., and M.W. Vandever. 2003. *A National Survey of Conservation Reserve Program Participants on Environmental Effects, Wildlife Issues, and Vegetation Management on Program Lands*. U.S. Geological Survey, Biological Science Report 2003-0001.
- Bangsund, D.A., and N.M.J.L.L. Hodur. 2004. Agricultural and recreational impacts of the Conservation Reserve Program in rural North Dakota, USA. *Journal of Environmental Management* 71:293–303.
- Dillman, D.A., J.D. Smyth, and L.M. Christian. 2007. *Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method*. Wiley, Hoboken, NJ.
- Ducks Unlimited. 2008. Ducks Unlimited says CRP loss over next four years may be more than five million acres. January 28, 2008.
- Environmental Protection Agency (EPA). 2009. Prairie Potholes. <http://water.epa.gov/type/wetlands/potholes.cfm>. Accessed January 13, 2009.
- Farm Service Agency (FSA). 2008. *Conservation Reserve Program Summary and Enrollment Statistics*. Farm Service Agency, Washington, DC.
- Government Accountability Office (GAO). 2007. *Prairie Pothole Region: At the current pace of acquisitions, the U.S. Fish and Wildlife Service is unlikely to achieve its habitat protection goals for migratory birds*. GAO-07-1093. Report to the Subcommittee on Interior, Environment, and Related Agencies, Committee on Appropriations, House of Representatives.
- Gleason, R.A., M.K. Laubhan, and J.N.H. Euliss. 2008. Ecosystem services derived from wetland conservation practices in the United States Prairie Pothole Region with an emphasis on the U.S. Department of Agriculture Conservation Reserve and Wetlands Reserve Programs. U.S. Geological Survey, Professional Paper 1745. Reston, VA.
- Hodur, N.M., F.L. Leistriz, and D.A. Bangsund. 2002. Local socioeconomic impacts of the Conservation Reserve Program. 16 pp. *Agribusiness and Applied Economics*, Report 23640. Fargo, ND.
- Hua, W., C. Zulauf, and B. Sohngen. 2004. Ohio farmers' conservation decision: 2004 survey results. Ohio State University, Agricultural, Environmental and Development Economics Report AEDE-RP-0045-0: 20 pp. Ohio State University, Columbus, OH.
- Janssen, L., N. Klein, G. Taylor, E. Opuku, and M. Holbeck. 2008. Conservation Reserve Program in South Dakota: Major findings from 2007 survey of South Dakota CRP respondents. Economics Research Report 2008-1. South Dakota State University, Brookings, SD.
- Jensen, K., C.D. Clark, P. Ellis, B. English, J. Menard, M. Walsh, and D.D.L.T. Ugarte. 2007. Farmer willingness to grow switchgrass for energy production. *Biomass & Bioenergy* 31:773–81.
- Johnson, J.B., and R.T. Clark. 2001. *The Conservation Reserve Program: 2002 Farm Bill policy options and consequences*. The Farm Foundation, Oak Brook, IL.
- Lambert, D., P. Sullivan, R. Claassen, and L. Foreman. 2006. *Conservation-Compatible Practices and Programs: Who Participates?* Economic Research Service Report No. 14.
- Neimuth, N.D., F.R. Quamen, D.E. Naugle, R.E. Reynolds, M.E. Estey, and T.L. Shaffer. 2007. Benefits of the Conservation Reserve Program to grassland bird populations in the Prairie Pothole Region of North Dakota and South Dakota. Prepared for the United States Department of Agriculture Farm Service Agency Reimbursable Fund Agreement OS-IA-04000000-N34. Bismark, ND.
- Ness, E. 2008. Preserving Prairie Pothole. Forest Carbon Portal. <http://www.forestcarbonportal.com/content/preserving-prairie-potholes>. Accessed January 13, 2009.
- Onianwa, O., G. Wheelock, and S. Hendrix. 1999. Factors affecting conservation practice behavior of CRP participants in Alabama. *Journal of Agribusiness* 17:149–60.
- Roberson, T.D. 2008. Assessing farmer support for conservation programs in the Farm Bill. Master's thesis, Nicholas School of the Environment and Earth Sciences. Duke University, Durham, NC.
- Ruhl, J.R., S.E. Kraft, and C.L. Lant. 2007. *The Law and Policy of Ecosystem Services*. Island Press, Washington, DC.
- Stubbs, M. 2007. Land conversion in the Northern Plains. Congressional Research Service, RL-33950.
- U.S. Department of Agriculture (USDA). 2008. CRP Contract Summary and Statistics. <http://fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=rns-css>. Accessed January 23, 2009.
- Wilson, R. 2008. CRP R.I.P? *North Dakota Outdoors*, 4–9. June 2008.
- Witter, D.J. 2006. High Plains landowner survey 2006: Farmers, ranchers, and conservation. Playa Lakes Joint Venture, Mishawaka, IN.