

ENVIRONMENTAL AND ECONOMIC RESEARCH AND DEVELOPMENT PROGRAM

Landowners Willingness to Adopt Practices and Participate in Programs to Sequester Carbon

Final Report
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Executive Summary

Report Date: January 2011.

Project Title: “Landowners’ Willingness to Adopt Practices and Participate in Programs to Sequester Carbon.”

Investigator: Edward B. Nelson, Environmental Sociologist, Bureau of Science Services, Wisconsin Department of Natural Resources.

Research

Category: Environmental and Economic Impacts of Climate Change in Wisconsin Potentially Attributable to Electric or Natural Gas Use.

Project

Period: February 1, 2009 - December 31, 2010.

Object of Study: The agriculture and forestry sectors are unique in that they not only produce greenhouse gas emissions, but also provide terrestrial sinks that absorb and sequester carbon dioxide, thus reducing net greenhouse gas emissions. *Wisconsin’s Strategy for Reducing Global Warming* (Governor’s Task Force on Global Warming 2008) suggests actions that rural landowners can take to sequester carbon through various soil management practices, maintenance of vegetative cover carbon sinks, and the planting of prairies. The Governor’s Task Force recommendations also seek to prevent the return of marginal lands to row crop production (for biofuels generation) through the use of incentive payments and tax advantages.

The Wisconsin Department of Natural Resources (Wisconsin DNR) gauged agricultural landowners’ responses to these Governor’s Task Force proposals. A better understanding of landowners’ experiences, opinions, beliefs, and desires can help inform state policy discussions as the Task Force recommendations are further debated and possibly refined as a means of reducing the impacts of electricity and natural gas use in Wisconsin.

Summary of Findings: A primary goal of Focus on Energy is to provide data that can be used by policy analysts and policy makers. Our findings provide a better understanding of agricultural landowners’ opinions, beliefs, and desires relative to policy proposals included in the Governor’s Task Force report. They also provide insights into landowners’ knowledge of and experience with various conservation incentive programs. This is relevant because landowner responses to incentives will largely determine whether or not programs developed to sequester carbon are successful.

Programs intended to encourage prairie restoration and soil management that target non-farm/recreational landowners as prime candidates for grassland restoration may have the greatest chances of succeeding. Those landowners actively farming their land are unlikely to pull profitable lands out of production. Although not specifically addressed by interviewees, prairie restoration programs that target larger land holdings may have greater chances of success as these landowners have greater opportunities to meet multiple objectives, can spread the costs of conservation over a larger land base, and may be more willing to experiment with grassland management as a part of their personal goals. Focusing implementation of such programs in southwestern Wisconsin would capitalize on the ecological potential of the area.

Landowners expressed a wide range of reasons for restoring prairies, but were largely uninterested in restoring prairies to sequester carbon. As such, programs that support restoration as a pastime or that

target habitat conservation as a primary focus may prove more attractive to landowners than programs specifically focused on carbon sequestration.

In the absence of significant incentives/benefits to offset the costs associated with restoration, many landowners will opt to not participate and may seek to reap the benefits of increased crop prices. As prairie restoration activities must be pursued over multiple years, incentive programs that spread significant benefits over a longer time period may prove more appealing to landowners than those programs that offer only one-time payments/credits. As such, the Governor's Task Force recommendation that a tax credit program for establishment and maintenance of prairie plantings be administered as an annual credit through the state income tax system, similar to the homestead tax credit or farmland preservation tax credit, may have merit in the eyes of landowners.

The level of effort associated with restoration and maintenance of prairies has implications for program design. Programs might include reimbursement provisions specifically related to investments in equipment and labor/services associated with restoration work. Cooperative approaches that allow for shared use of equipment might also prove appealing to landowners. Successful programs might also include a means of organizing volunteer labor to assist landowners with restoration and maintenance tasks, an idea not contemplated by the Governor's Task Force.

Given landowners questions regarding the effectiveness of burned prairies to sequester carbon, the Governor's Task Force proposal to fund "a competitive research grant program for investigation of carbon sequestration rates and longevity in prairie systems" may make sense to help further build the justification for such approaches.

The opinions and beliefs expressed by interviewees underscore the importance of a holistic approach to natural resources management. Programs that promote open grassland habitat may inadvertently foster growth of the deer herd that generates further conflict between various interests. On the other hand, efforts to reduce herd size, while beneficial to prairie restorations, can further consternation by some landowners.

Programs intended to encourage prairie restoration will need to consider the conflicting goals of other conservation incentive programs that may appeal to landowners. The creation and implementation of any new programs should benefit from close coordination between responsible agencies. Modifications to existing landowner incentive programs may merit further consideration/discussion.

In order to be successful, programs will need to keep paperwork and approvals to a minimum, provide consistent administration and enforcement, and remain flexible to landowners' interests and goals. A successful program will provide recognition for participation and landowner efforts, and will consider the educational and technical assistance needs of participating and potentially interested landowners. Potential program participants could benefit from a clearinghouse/one-stop-shopping approach for providing information on available programs and sources of information/assistance.

Future Directions: The findings and conclusions drawn from the structured interviews suggest four action areas that may merit further consideration by state policy makers: 1) Consider amending tax policy, 2) Provide education on prairie restoration. 3) Reduce paperwork and permissions, and 4) Conduct landowner research and evaluate programs.

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Abbreviations and Acronyms

CREP – Conservation Reserve Enhancement Program

CRP – Conservation Reserve Program

CWD – chronic wasting disease

DATCP – Department of Agriculture, Trade and Consumer Protection, Wisconsin

DNR – Department of Natural Resources, Wisconsin

ECP – Emergency Conservation Program

EERD – Environmental and Economic Research and Development, Focus on Energy

EPA – Environmental Protection Agency, U.S.

FSA – Farm Services Agency

FWP – Farmable Wetlands Program

GRP – Grasslands Reserve Program

LIP – Landowner Incentive Program

MFL – Managed Forest Law

NRCS – Natural Resources Conservation Service

PE – Prairie Enthusiasts

PSC – Public Service Commission, Wisconsin

TIP – Transition Incentive Program

TNC – The Nature Conservancy

TU – Trout Unlimited

VPA-HIP – Voluntary Public Access and Habitat Incentives Program

WICCI – Wisconsin Initiative on Climate Change Impacts

WRP – Wetland Reserve Program

1. Introduction

The agriculture and forestry sectors are unique in that they not only produce greenhouse gas emissions, but also provide terrestrial sinks that absorb and sequester carbon dioxide, thus reducing net greenhouse gas emissions. *Wisconsin's Strategy for Reducing Global Warming* (Governor's Task Force on Global Warming 2008) suggests actions that rural landowners can take to sequester carbon through various soil management practices, maintenance of vegetative cover carbon sinks, and the planting/restoration of prairies. The Task Force recommendations also seek to prevent the return of marginal lands to row crop production (for future biofuels generation) through the use of incentive payments and tax advantages.

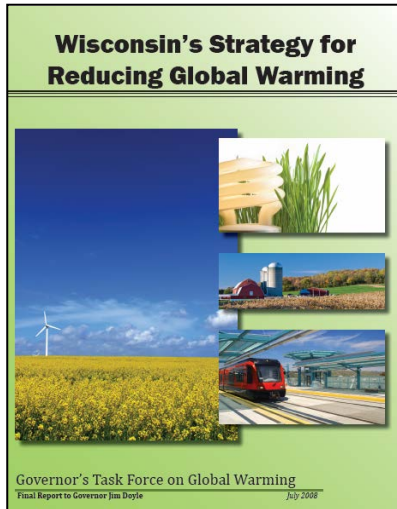


Figure 1. In 2008, the Governor's Task Force on Global Warming suggested actions that landowners can take to sequester carbon.

Focus on Energy's Environmental and Economic Research and Development (EERD) program awarded a research grant to the Wisconsin Department of Natural Resources (Wisconsin DNR) to gauge agricultural landowners' responses to these Task Force proposals¹. Will landowners, for example, be willing to plant land to prairies in order to sequester carbon and what incentives will be required for them to do so? Likewise, what level of inducements would need to be provided for landowners to embrace tillage practices that sequester carbon? And, finally, what can be done to prevent farmers from converting lands enrolled previously in the Conservation Reserve Program (CRP) to row crops once their contracts expire? A better understanding of landowners' experiences, opinions, beliefs, and desires can help inform state policy discussions as the Task Force recommendations are debated and possibly refined by state policy makers.

This report describes EERD grant-funded work undertaken to answer these and related questions, documents the deliverables produced, presents lessons learned, and makes recommendations to inform policy makers.

1.1. EERD Program Interest Areas

Our work addressed two interest areas identified in Focus on Energy's 2008 EERD request for proposals:

- Interest Area C, "Environmental and Economic Impacts of Climate Change in Wisconsin Potentially Attributable to Electric or Natural Gas Use" – Specifically, our research explores the economic aspects of various carbon sequestration strategies (point C.2. in the RFP)¹. If landowners are not interested in carbon sequestration as a goal, incentives are insufficient, or program features remain unattractive, landowners may be reluctant to enroll in incentive programs thus reducing the overall effectiveness of such strategies.
- Interest Area B, "Environmental and/or Economic Impacts of Biomass Energy Production and Use in Wisconsin" – Specifically, our research can inform policy makers on the sociological aspects that will influence the life cycle impacts and sustainability of new energy crops. If incentives to maintain marginal lands in CRP are insufficient to offset the monetary benefits of returning lands to production for biofuels, landowners will not likely renew their expiring contracts. The result could be an increase in row crop production that significantly degrades soil and water resources.

¹ The Governor's Task Force report includes numerous approaches to carbon sequestration. Our work specifically focused on landowner responses to incentive programs for prairie restoration and maintenance of vegetative cover.

2. Research Approach and Project Activities

In this chapter, we discuss the project activities that we undertook during the period of funding and our achievement of research goals and objectives. We describe the scientific and technical approach used to complete our research, including why we selected the approach and its advantages and disadvantages. Our approach included an extensive literature review and the application of qualitative social science methods (structured interviews) to understand landowners' opinions, beliefs, desires, and experiences relative to the conservation programs of interest. We also developed a survey instrument, but changes in the Conservation Reserve Program (CRP) enrollment authorization during the project period, the inability of our federal partners to provide landowner contact information, and our need for information rich cases precluded full implementation of that tool.

2.1. Project Administration

Staff in the Wisconsin DNR's Bureau of Science Services carried out the project. Key project personnel and their primary roles and responsibilities included:

Principal Investigator – Dr. Ed Nelson, an environmental sociologist, served as the principal investigator. Dr. Nelson was responsible for overall study design and implementation. He defined the sample population, finalized the interview outline/script, conducted the interviews, performed the content analysis, drafted the summary for the final report, and presented the study results.

Project Assistant – Dr. Kim Peterson, a social science researcher hired for the project, took the lead in conducting the literature review and drafting the annotated bibliography. He also assisted the principal investigator in developing the interview script and presenting the study results.

Administrative Oversight – Dreux Watermolen, Chief of the DNR's Science Information Services section, provided administrative oversight and coordination for the project. He recruited and hired the project assistant, oversaw preparation and submission of project progress reports, and assisted in preparation of the final report.

We consulted with colleagues throughout the course of the project. Specifically, we discussed our research design and draft materials with Jordan Petchenik (natural resources sociologist), Sally Kefer (Land Use Team leader), and Adam Mednick, AICP (research scientist and natural resources educator), and others with social science expertise within the Bureau of Science Services. In addition, we consulted with Wisconsin DNR staff and staff in other agencies (Natural Resources Conservation Service, U.S. Fish and Wildlife Service, University of Wisconsin-Extension) as we refined the sample population and developed the discussion outline/script to ensure our findings would be of use to policy analysts and decision makers.

2.2. Literature Review

Our initial survey of the social science literature, prior to submitting our proposal, suggested a paucity of relevant research addressing the questions posed in our grant application. Nonetheless, carbon sequestration and landowner motivations/behaviors are parts of larger climate change and environmental management "problem spaces". Because Focus on Energy and Wisconsin DNR have research interests in multiple parts of these problem spaces, we began our investigative process by conducting a much more extensive review of the literature. We were particularly interested in uncovering recent and ongoing studies with which we could collaborate or draw from.

We identified both academic disciplines and conservation incentive programs that seemed relevant, or that were implied by the identified total-problem-space perspectives. These included agriculture, agricultural economics, behavioral economics (especially related to risk), communication (mass communication and journalism), conservation, conservation biology, consumer behavior, ecology, ecological economics, economics, environmental resource economics, forestry, information science and technology, land use planning, landscape ecology, law (especially related to land use and property), political science, psychology, public policy and administration, regional science, restoration ecology, rural sociology, sociology, and urban ecology. One of our research questions deals with farmer inclinations to leave CRP at the end of their contracts, so review of that program, and similar programs was implied, including the Environmental Quality Incentives Program (EQIP), Managed Forest Law (MFL), and conservation programs related to endangered resources, habitat conservation, no-till farming, and wetland restoration.

Next, we identified the information sources most likely to produce useful results:

- Books – typically have long lead times to publication, which implied that foundation pieces should be emphasized in our review work.
- Academic papers made available prior to juried review or published as “issues in process” – generally quite timely. Contributing sources included CiteSeer, SSRN (Social Science Research Network), Ecology and Society, and the Pew Internet and American Life Project.
- Academic journals and their databases – lengthier publication lead times, but typically hold research of a more rigorous nature. We consulted CAB abstracts, Econlit, SocIndex, PAIS (Public Affairs), Social Science Citation Index (Web of Knowledge), and Google Scholar.
- Government agency reports – frequently of high quality, although often less technical or focused.
- News articles (online and print) – can be timelier and informative. Reporters often have access to local decision makers of relevance, but their stories may be less in-depth and are less likely to verify underlying science issues, and they may be more biased than academic studies (or biased in more obvious ways).
- Web sites and web logs (blogs) – high quality commentary and focused research. Sources included university extension services, state conservation agencies, environmental organizations, private sector organizations (especially agriculture related), and co-operatives.

We started our research with keyword searches of the online data sources. These directed searches produced extremely large numbers of research papers and news articles. We discovered, with no surprise, that the volume of literature related to the environment, natural resources, and ecosystems is extensive, as is the literature related to psychology and social systems. We therefore switched to “snowball” methods² to locate the highest quality works efficiently. To manage these large volumes of information, we partitioned the review into three general content areas, which we used as an organizing framework for reporting: (1) Environmental – literature related to ecosystems, ecosystem services, valuation of these services, and land and infrastructure management; (2) Social/psychological – literature related to human dimensions basics, including awareness/perception, values, attitudes, motivations, and metaeconomics; decision-making basics; and decision-making heuristics and biases; and (3) Integrative – concepts of limited scope, concepts of extended scope, and a summary section addressing biomass.

² Snowball literature searching involves pursuing meritorious works cited in key papers using citation-tracking software. Key papers are identified, key citations in those works are then reviewed, and authors citing these key papers are also reviewed.

The resulting annotated bibliography (Peterson 2011) highlights a large subset of papers that primarily emphasize carbon sequestration—especially landholder perceptions, attitudes, and anticipated behaviors related to adoption of sequestering practices—and will benefit anyone interested in current environmental challenges. The review is especially relevant to the design of environmental regulations and public awareness campaigns. Insights gained throughout this process informed our interviews with both landowners and agriculture and public policy experts. Relevant papers from the review are cited throughout this report as well.

2.3. Landowner Interviews

We were interested in exploring human experience and meaning, with the intent of understanding landowners' experiences, knowledge, opinions, beliefs, desires, and motivations relative to conservation programs of interest (both existing and proposed), which mandates use of qualitative rather than quantitative methods (Denzin and Lincoln 1994). Qualitative approaches lend themselves to exploration, discovery, and inductive logic (Patton 1990), beginning with specific individual information and moving toward general categories and patterns. Interviewing individuals and groups remains the most common form of data collection for qualitative studies because it involves interactive conversation (Fontana and Frey 1994). Qualitative research methods allowed us to focus on a limited number of individuals, producing more in-depth information.

Initially, we believed our research project would employ focus groups, a widely accepted form of qualitative research in which small groups of people are asked about their attitude towards a product, service, concept, or idea. Social scientists routinely use this approach to better understand how or why specific groups of people hold certain beliefs about a topic or program of interest (Stewart and Shamdasani 1990, Kreuger and Casey 2000). With this technique, questions cover a range of topics decided *a priori* and asked in an interactive setting where participants talk with other group members. In combination with participant observation, focus groups can be used for gaining access to various cultural and social groups, selecting areas for further study, sampling of such areas, and raising unexpected issues for exploration (Kreuger and Casey 2000). Upon further reflection, however, we realized it would be more beneficial to study “a limited number of case examples or innovative outliers to understand and develop the labels, variables, and models to explain and define the phenomenon” (Daft and Lewin 1993). Another practical consideration involved the identification of potential focus group participants. In the past, the Natural Resources Conservation Service (NRCS) could be relied on to identify pools of producers for focus group interviews. Now, however, agents are prohibited from disclosing the identities of those who participate in CRP or who might otherwise be of interest to our study. We therefore modified our approach to make greater use of structured interviews with a larger sample, hoping to generate applied insight that would be more useful to policy analysts and decision makers.

In making this shift we relinquished the primary advantage of focus groups: the insights that arise from group interactions. We also lost another advantage of focus groups: speed and cost (Hedges 1985). Personal interviews take longer and cost more. That said, in-depth personal interviews have certain advantages. According to Burgess (1982), such interviews provide “the opportunity for the researcher to probe deeply, to uncover new clues, to open up new dimensions of a problem and to secure vivid, accurate, inclusive accounts that are based on personal experience.” In-depth interviews offer other advantages as well. We note that the interviewer has much more time with each subject and can go into detail on any given topic. As Hedges (1985) notes, “[i]f you interview people one at a time you have more time and scope to explore their position in breadth and depth. You can get a very rounded picture of their individual beliefs, attitudes, behavior and personality, and of the interactions between these factors. Groups typically provide less opportunity to follow through with an individual.”

Focus groups often happen in facilities at a place remote from the participants' natural environments. In-depth interviews, by contrast, provide "direct and personal contact with people in the program in their own environments" (Patton 1987). Most of our interviews took place in landowners' kitchens and living rooms or while the landowners walked their properties, pointed out the parcels they were restoring, and described the difficulties they were encountering.

We gathered data from 24 in-depth individual interviews (16 males and 8 females). Every effort was made to protect the privacy, confidentiality, and anonymity of individuals and organizations participating in this study. Sample selection was theoretical, or criteria-based, rather than random. One advantage to theoretical sampling is that the researcher is allowed to specify characteristics and experience that would contribute to the focus of the study (Eisenhardt 1989, Eisenhardt and Graebner 2007, Patton 1990). An important criterion for inclusion in this study was that the individuals be rural landowners. These landowners can be categorized by their activities:

- Those farming the land
- Those transitioning out of farming
- Non-farm / recreational landowners

Initially, we intended to focus specifically on farmers, but quickly learned that this focus was misplaced. Active farmers do not constitute the bulk of those enrolled in CRP (Allen and Vandever 2003). Moreover, our initial interviews suggested that they were the least likely to put productive land into any prairie program: farmers need to have all they own or can rent in production. In place of full-time farmers, we sought "information rich cases," i.e. individuals who had experience both in prairie restoration and CRP or similar programs. These often tended to be non-farmers or those retiring or retired from farming.

Additionally, in order to focus on experienced landowners, participants were required to have owned their land for at least five years at the time of the interview. These criteria allowed for the inclusion of individuals who had experience with wildlife habitat management, prairie restoration, or other conservation programs. We focused on individuals owning land in southwestern Wisconsin (primarily Dane, Green, Iowa, Lafayette, Richland, and Sauk counties) because that is where most prairies historically occurred within the state (Figure 2) and is where opportunities for prairie restoration seem to be most abundant.

We also explored the perceptions of natural resources managers and other workplace professionals by interviewing 14 Wisconsin DNR specialists and administrators of programs in state and federal agricultural departments, University of Wisconsin-Extension agents, and others with expertise in this field including those in the non-profit sector (e.g., The Nature Conservancy, Prairie Enthusiasts, Pheasants Forever, and Blue Mounds Project). These professionals had direct experience in applying various programs to assist landowners in establishing prairies and offered keen insights into how conservation programs meshed with landowners' desires to establish prairies.

The in-depth individual interview protocol (Appendix A) commenced with introductory comments by the researcher about the study followed by the interview questioning. Each interview lasted between one and two hours. The researcher guided the discussion to probe attitudes about proposed incentive programs for prairie restoration and soil conservation (i.e. the Governor's Task Force recommendations). Discussions were loosely structured, but flowed from objectives defined *a priori* and generally followed the anticipated discussion outline. The interviewer encouraged the free flow of ideas around a few specific questions which served to initiate open-ended discussions. The researcher used straight questioning and various projective techniques, including fixed or free association, story-telling, and role-playing. In this way, the interviews could be used to garner reaction to specific concepts and prototypes. It was not uncommon for the interview to unfold in two stages: a one-two hour interview in the respondent's living

room followed by a visit to the site, with a ramble of the land, as they described their project and showed off their results. Sessions were recorded and verbatim transcripts created from the tapes.

The researcher then applied content analysis techniques to the transcripts to identify common themes/responses. Results of the interviews were compared to those reported elsewhere in order to place them in the context of the published research (see Chapter 3). Our goal in conducting structured interviews with landowners was to identify and explore issues (i.e. generate applied insight that can be useful to policy analysts and decision makers). By focusing on a limited number of case examples, we were able to better understand and develop the principal labels and variables that explain and define landowner interests and behaviors (see Chapter 3).

2.4. Landowner Survey

In 2007, over 16 million acres of CRP contracts expired, with an additional 6 million acres expiring the following year. We worked closely with UW-Extension to structure and pilot test a survey (Appendix B) aimed at two groups of landowners: 1) people who were offered CRP and did not re-enroll, and 2) those that did re-enroll. We assisted UW-Extension in preparing a Freedom of Information Act request to obtain lists of names and addresses for both categories. FSA/NRCS granted the request for both lists. However, the more critical of the two lists (those not re-enrolling) was considered “corrupted data” and thus we did not receive those names and addresses. We had hoped that ‘uncorrupted’ data would appear but it was not forthcoming, even after several months of follow up

Congress extended the CRP enrollment authority through September 30, 2012. Given that we were on the brink of a new CRP signup period, the survey professionals felt that even if the names were to appear, the survey would itself have problems because the sample population could be confused given the new enrollment period. Therefore, they recommended discontinuing the survey. We decided to see how signup progressed. If there was a strong signup, the survey would not likely provide meaningful insights or be necessary. If the signup turned out to be weak, we could tweak the questionnaire and consider a similar survey (after the grant study period).

In summary, changes in the CRP enrollment authorization during the project period, the inability of our federal partners to provide landowner contact information, and our need for truly information rich cases precluded full implementation of the survey tool.

2.5. Presentations and Publications

A goal of the Focus on Energy EERD Program is to provide research data and analyses that will be of use to policy analysts and policy makers. To this end, project investigators made a concerted effort to transfer findings. The following presentations resulted directly from work undertaken as a part of the grant agreement and transferred lessons learned.

Nelson, E. and K. Peterson. 2011. Farmers’ Willingness to Adopt Practices and Participate in Programs to Sequester Carbon. “Informed Action: Where Research and Policy Meet.” Focus on Energy Research Exposition, Madison. (January 18, 2011). Presentation slides available at http://www.focusonenergy.com/files/Document_Management_System/Environmental_Research/nelsonpetersonlandscape_ppt.pdf.

Nelson, E. 2010. Landowners and Grassland Restoration. Wisconsin DNR Science Seminar Series. Madison. (March 25, 2010).

We also prepared a fact sheet to provide background, methodology, and key findings from the study.

In addition to posting this report on the EERD website, we have developed a distribution list and will share the report with representatives of various federal agencies (FSA, NRCS, U.S. Fish and Wildlife Service, U.S. EPA) and state partners (Wisconsin DATCP, Board of Commissioners of Public Lands, PSC).

3. Findings and Implications

A primary goal of Focus on Energy's EERD Program is to provide data that can be used by policy analysts and policy makers. In this chapter, we present the most significant findings and conclusions from our work, with illustrative quotations from interview participants presented verbatim in *Italic text*. We also attempt to place our findings in the context of the published literature. Our findings provide a better understanding of agricultural landowners' opinions, beliefs, and desires relative to several policy proposals included in the final report of the Governor's Task Force on Global Warming. The findings also provide insights into landowners' knowledge of and experience with various conservation incentive programs. This is relevant because landowner responses to incentives largely will determine whether or not programs developed to promote prairie restoration, enhance soil conservation, and sequester carbon in order to offset greenhouse gas emissions are successful.

3.1. Context and Trends

Native grasslands and prairies, with their ecologically complex plant and animal communities, were important components on the landscape of early Wisconsin occupying some 3.1 million acres (Curtis 1959, Umbanhowar 1993). At the time of Euro-American settlement, the prairies were dominant features on the landscape in the southern half of the state (Figure 2), where they contributed significantly to forage production for livestock grazing and habitat for a wide variety of wildlife species. Most of the native prairies have been depleted; only isolated relic patches, representing 0.5% of the original acreage, remain (Henderson et al. 1995, Cochran and Iltis 2000). Soils that once supported vast expanses of native perennial grasses and forbs now support Wisconsin's farming economy, with most of these lands devoted to food and fiber production.



Figure 2. Historic distribution of prairie in Wisconsin. From Curtis (1959) and Corbett and Anderson (2006).

Wisconsin currently boasts 15.2 million acres of land devoted to farming. Many of the people we talked with noted that fewer and larger farms make up the rural landscape:

Twenty years ago I'd drive around the county: they were milking cows here, they were milking cows there. Now it's lucky if there's one production farmer left on each ride. It's really changed in 20 years.

Data support these anecdotal observations. According to the Census of Agriculture³, farmland decreased statewide between 1987 and 2007 by over 1.4 million acres, a staggering 8.5% reduction. From 1997 to 2007, the actual number of farms decreased by 1,078 (about 1.4%).

Statewide, Wisconsin's average farm size decreased from 221 acres in 1987 to 194 acres in 2007, but the number of farms 1,000 acres and larger increased by 31% and the number of those 2,000 acres and larger jumped by 68% during that same period.

³ The Census of Agriculture, taken every five years, provides a complete count of U.S. farms and ranches and the people who operate them. Census of Agriculture reports are available online at www.agcensus.usda.gov/.

Some interviewees also noted that farms were being subdivided:

Take a 200 acre farm from the 1950s. First, they sold off the woods to make ends meet. Then they sold the least productive cropland. Eventually, you've got five owners on the original dairy farm.

Interviewees also noted an apparent influx of newcomers to the rural landscape:

The trend is clear: there's going to be lots of people. Lots of people are moving out from the city. They all want a piece of the pie and they've all got money to do it.

Their perceptions seem to be supported by recent U.S. Census data⁴ for the southwestern Wisconsin study area. For example, between 1980 and 2010, Green County's total population grew by 23%. During this same period, the population in unincorporated towns in the county grew by 40%, adding twice as many people to the rural landscape as what the county's cities and villages did. Only one town within the county lost population during this period while several others experienced explosive growth rates (e.g., 70%, 162%, and 185%). Similarly, total population in Iowa County increased by 20% between 1980 and 2010. Although a handful of Iowa County towns experienced small losses in population during this same period, several towns had growth rates greater than 25% and nine of the twelve small villages grew, some quite fast (e.g., 85% and 113% growth rates). Other counties in the study area experienced similar population growth trends. Only Lafayette County had fewer people in 2010 than in 1980 (-3%), but its population has shown steady increases since 1990.

As stated previously (see Section 2.3), rural landowners can be categorized by their primary activities:

- Those farming the land
- Those transitioning out of farming
- Non-farm/recreational landowners

Since active farm operations rely on the land for their economic livelihoods, many managers see the non-farm/recreational landowners as the prime candidates for grassland restoration:

It's only the new landowners or the lands that aren't in grassland already, that would be the potential.

Those transitioning out of farming are also potential candidates for such programs. These observations are consistent with the literature. For example, Lambert et al. (2007) note that taking land out of production is "more attractive to retirement and residential/lifestyle farm households than full-time farm households" as farm households that depend on farm earnings may feel pressure to maximize yields by making full use of the farm's resources. Similarly, when looking at the installation of riparian buffers, Lynch et al. (2002) found that "full-time farmers appear to be the least likely to agree to take land out of production," and that the likelihood decreases for those landowners planning to farm for more than 15 years.

Implications: Programs intended to encourage prairie restoration and soil management that target non-farm/recreational landowners as prime candidates for grassland restoration may have the greatest chances of succeeding. Focusing implementation of such programs in southwestern Wisconsin would capitalize on the ecological potential of the area.

⁴ The U.S. Census counts every resident in the United States every 10 years. Wisconsin-specific data from the Census and associated American Community Survey are available online at <http://quickfacts.census.gov/qfd/states/55000.html>.

Although not specifically addressed by interviewees, it has been suggested that scale of farm operation/land ownership may be a major determinant in many farming practice decisions, including adoption of various conservation practices (Fernandez-Cornejo 1994, Fernandez-Cornejo et al. 2001). Prairie restoration programs that target larger landowners may have greater chances of success as these landowners have greater opportunities to meet multiple objectives, can spread the costs of conservation over a larger land base (see Section 3.3), and may be more willing to experiment with grassland management as a part of their personal goals (see Section 3.2). This is an area that merits further investigation and policy debate.

3.2. Motivations for Prairie Restoration

It is difficult to understand why landowners would engage in such a costly and quixotic venture as prairie restoration (see discussions of various “drawbacks to restoration” below). Yet, landowners give a range of reasons for recreating prairies and managing their grasslands (Figure 3). When asked, they say that they restore prairies because they enjoy the challenge or because they want better habitat for hunting. Others aver that they are drawn to the beauty of a prairie or because they want to recreate part of the original pre-settlement landscape.

For some landowners, prairie restoration is simply an enjoyable endeavor:

I'm enjoying the heck out of doing this job. And I'm hoping that someone will come along after me and still enjoy doing this. Like I said, it's a reason to get up in the morning.

Most likely it's a hobby but it's probably cheaper than golf. But probably not as hard on your body as golf.

It's fun and it's worthwhile. It's loads of fun. If you had a big sailboat and you sailed the Caribbean you'd have a huge more investment than we have. And it's boring. This is not boring.

So we started clearing it. We worked on it. And then they burned it. And lo and behold it came back and I got hooked. I've always loved the outdoors. I've always loved wildflowers. So it was an easy hook. And that's really what started it.



Figure 3. Many landowners have a “plan” for their property. Interviewees shared their management objectives with the researcher.

Landowners take pleasure in a restored prairie and observing the diverse life it supports:

It's pretty. It's quiet. We do get a lot of birds. On March mornings I can see the fox kits out playing and the mom sitting there watching them. There's a nest in the tree right here and this year the great horned owls have taken up residence. There's that aspect of it. Tons of butterflies. Nice birds.

Then there is the joy of discovery when they find new plants. As they work with the land and remove the overburden of cool season grasses, seeds that have lain dormant in the soil spring to life:

What's cool is this old remnant prairie. It's very tiny but I first discovered it the summer we moved in. And there are wild shooting stars all over the place. A few years later, we're discovering new savanna species that we didn't know were there. One of them - yellow pimpernel - is not that common. We had five plants initially and now there's dozens. Wild golden Alexanders - they came from nowhere.

There's certainly an ethical and esthetic aspect to the reasons for doing this. We get a lot of wild geraniums in the spring which we never planted. Then we've done a lot of seeding. I think one of the things about those plants coming back is you get a sense that no matter who comes after us, we have put seed stock back in.

Some landowners want to create habitat for game birds:

I got interested in it just from a wildlife cover standpoint. I had been hunting up in the Grand River marsh and I'd seen some big bluestem fields. And, Wow! What cover! After we developed the prairie, our pheasants began to take off. In '98 or '99, we were beginning to have a fair amount of prairie, and they did well until the winter of '07-'08.

Some interviewees said they seek to recreate the conditions that existed prior to Euro-American settlement. Others are motivated by the impulse to preserve the native prairie landscape:

And for us, we're kind of, we're saying, "What was here before Europeans were here and what would be suitable for these areas?"

I think, my husband would say, there is a little bit of a recreational aspect but mostly I think it's heritage value. We're taking care of it so that in the future people will see it and say, "This land was taken care of and this is what this pre-European settlement property would look like."

First of all, we have to preserve what we can or else it's going to be gone and nobody will know. Nobody will know all these different species.

Still others indicated prairie restoration provided an opportunity to educate others:

One of the missions I have, one of the objectives I have written into the LIP [Landowner Incentive Program] plan is community education, informing other landowners, people I have influence with, what's going on, why this is important. It's a long-term investment. It's a long-term exercise in patience.

The reasons landowners gave for restoring prairies are similar to reasons landowners have for planting trees and implementing riparian management practices. For example, Ross-Davis et al. (2005) found that small landholders in Indiana afforested their land primarily to provide for future generations, to supply food and habitat for wildlife, and to conserve the natural environment. Similarly, work with farmers in Michigan (Ryan et al. 2003) showed that farmers are intrinsically motivated to practice conservation by such factors as their attachment to their land, rather than by motivations such as economic compensation.

Implications: The intentions and interests of landowners have implications for the design of programs intended to encourage prairie restoration and soil management. Landowners expressed a wide range of reasons for restoring prairies, but were largely uninterested in restoring prairies to sequester carbon. This is not really surprising as the general public remains generally unaware of the term “carbon sequestration,” even though the public does seem to understand that trees uptake carbon dioxide (Curry 2004, Curry et al. 2004). Prairie restoration programs that support restoration as a pastime or that target habitat conservation as a primary focus may prove more attractive to landowners than programs specifically focused on carbon sequestration or economic incentives. Again, this is not surprising as considerable research suggests that landowners adopt conservation innovations when they perceive those innovations will help them achieve their personal goals and address their decision-making needs (Belin et al. 2005, Pannell et al. 2006, Lambert et al. 2007, Wilson et al. 2009).

Finally, we note that carbon sequestration programs that rely on monotypic crop plantings (e.g., switch grass) rather than prairie restoration (i.e. creation of a specific habitat and its associated values) may benefit from targeting the interests of landowners who are actively farming the landscape. We did not address this audience, however, in our interviews, and this is an area that may merit further investigation.

3.3. Drawbacks to Prairie Restoration: Cost

Prairie restoration, like home renovation, costs money. Landowners must buy seed, rent or purchase equipment, and hire consultants and other helpers to do the actual work:

We have different percentages of grasses and forbs on different parcels of our prairie. It costs an arm and a leg to plant a high forb ratio. I heard of one person spending \$40,000.00 on a 40 acre parcel for seed and it's not uncommon. We could not afford that.

[Consultants names] figure about \$1,000.00 an acre in prairie seed to get a nice prairie so that's \$4,000.00 right there in prairie seed. I wouldn't be surprised if, over the years, we've spent a couple grand on prairie seed.

It's a money sink. People are always asking how much per acre it costs. I would say \$3,000.00 an acre is probably on the low side. I'm talking about major restoration work.

Conducting a prescribed burn costs money (also see Section 3.6 for additional concerns associated with prescribed burning):

We got our burns done but it cost money.

We've gone through the burn courses with the Nature Conservancy. And we burned with PE [Prairie Enthusiasts]. That's what we started out doing. Then we hired it done for two years. When I got a bill for \$1,000.00 for burning 10 acres, the economist in me said, "Wait a minute. I could buy a lot of equipment for \$1,000.00." So we bought our own equipment. We burn our prairies ourselves.

When landowners discover that they cannot rely on local farmers to help them, they spend money on tractors and other equipment they need to manage their prairies:

The information you get from the county agent and the DNR says, “If you want your pasture mowed you can probably ask your friendly local farmer to mow it for you for a small fee.” Well, these guys are on the edge of farming. It’s not some lucrative gig. They don’t have the time. They’re busy. So I haven’t been able to tap into them as a resource. That’s why I bought a tractor and a mower. It needs to be mowed when it needs to be mowed. And I can’t say, “We’ll be there in three weeks.” Well, in three weeks, the thistle will have all gone to seed and it will be a mess.

We have two pumper units at our place – one in a pick-up truck and one in the utility vehicle, and that makes prairie burns much safer. That’s another capital investment – the pickup truck.

We’ve bought a lot of equipment – the walk behind mower, the scythe, we got one of the chainsaws on a stick – the Stiehl weed trimmers or brushers that have the bicycle handlebars... In the hilly area, you can’t get the tractor or the mower down there, that’s really your only option. We also have a chainsaw.

At least one landowner thought they should get a tax credit for the money they spend restoring their land to prairie (also see Section 3.8):

From the standpoint of someone interested in this because of the esthetic or the ethic, the tax credits that would help a lot of people, is a credit for money invested in seed or hiring a [Consultant’s name] to come in to do a plan – if you could get some tax credits to help off set those costs

Implications: Landowners concerns about the costs associated with prairie restoration have implications for the design of programs intended to encourage prairie restoration and soil management. Chouinard et al. (2008) found that some farmers are willing to forego some measure of profit to engage in stewardship practices. However, crop prices have risen dramatically since 2006, and Claassen et al. (2011) note that in 2007, “ethanol and other demand factors significantly increased corn prices” and “other crop prices rose in subsequent years, as farmers shifted cropland into corn production.” In the absence of significant incentives/benefits to offset the costs associated with prairie restoration, many landowners will opt to not participate and may seek to reap the benefits of increased crop (including biomass crops) prices. In addition, Gasson and Potter (1998) found that longer-term conservation practices required higher rental payments. As prairie restoration activities must be pursued over multiple years, incentive programs that spread significant benefits over a longer time period may prove more appealing to landowners than those programs that offer only one-time payments/credits. As such, the Governor’s Task Force recommendation that a tax credit program for establishment and maintenance of prairie plantings be administered as an annual credit through the state income tax system, similar to the homestead tax credit or farmland preservation tax credit, may have merit in the eyes of landowners.

3.4. Drawbacks to Prairie Restoration: Invasive Species

Landowners are locked in a constant, intractable struggle with various invasive species (Figure 4), and they repeatedly remarked on the rigors of controlling invasives. Once the invasive species arrive they are very difficult to root out. Sometimes the invaders have to be pulled by hand. Other times each plant must be located and individually sprayed with herbicide. Comments from interviewees suggest the attention necessary to keep these intruders at bay:

Garlic mustard is awful. You can't deal with it. And now Japanese hedge parsley. It's exhausting living out here. It's really depressing with all the invasives. You just have to do the best you can.

The invasives are terrible. We've got it on the run. We've been out there every year since '95 getting rid of first parsnip and then sweet clover. It's got a tap root and you've got to pull it or you have to cut it when it's in full bloom which is usually the hottest time of the year. You cut it by hand.

The problem is we don't know if we're making progress because every time we think we've gotten something under control, another invasive plant comes in, something else messes it up.

We spent time getting rid of parsnips. You have to learn all this. We had to go to the clinic a few times with tick bites and parsnip burns - really bad ones. So one learns. The parsnip is gone. It took five years to get it out of here. You clip it when it's blooming and then removing the stalks is easier for us than pulling. It's nasty. I can attest to that.

[A DNR employee] said to us, "If you can't control these invasives, nobody can." And it's a little scary. Wild parsnip – that's the one that causes the blisters – we used to think it was the worst thing ever until the garlic mustard came. There's all sorts of stuff. There's hedge parsley. You can pull them but pulling is pretty futile. It's either us or them. Fire can help with some of the non-native shrubs. If it's hot enough it will kill them.



Figure 4. Landowners are locked in a constant, intractable struggle with invasive species like common buckthorn and wild parsnip.

Landowners also battle various types of “woody vegetation” that threatens to overwhelm their grasslands. Biologists generally recommend that prairies be structurally open and relatively free of woody vegetation. For example, when managing for obligate grassland species that do not require much if any woody vegetation, woody cover generally should be kept to a maximum of 5% of the grassland habitat (Sample and Mossman 1997). This is because woodlots, hedgerows, and woody fence lines can fragment grassland habitat and create edges for nest parasites, predator habitat, and corridors for predator movement.

Invasives. We've worked to knock back the multi-flora rose. The prickly ash is native. But it was really ubiquitous here because of the way the land was grazed and cared for. It got a hold. And we're still fighting that. We had just a tiny bit of buckthorn and I think I've killed it off. You can't nail it all. We've been fighting thistle.

It's amazing how quickly the brush stuff starts coming back if we don't burn for a year. Some of it's saplings – the oaks and stuff which is fine. Those black raspberries, those things spread like bunnies. They create huge hedges of thorny whatever. If you burn they'll always get down to the ground and they won't get very far.

When we had the piece at Boscobel and hadn't burned it for five years, and watched the brush come back and it was just unbelievable how fast. The brush comes in and shades out the prairie understory. And then bigger trees grow in that and then pretty soon... It's pretty fast.

We spend most of our time and money on buckthorn, honeysuckle is easier, but the buckthorn and brambles and sweet clover. We got rid of the parsnips – you dig them up a few times and they're gone, they are a biannual and once they're gone they're gone. But the buckthorn and the brambles are really hard to get rid of if you don't take care of them. Grey dogwood is native but it's really invasive too.

Landowners have to look past the problems in order to enjoy their land:

I walk the dog every day, ..., and I have to force myself to stop looking at problems and to enjoy what I see. [...] I have to force myself to say, "This walk is going to be for enjoyment." That's one of the big challenges is not to become overwhelmed with problems, to continue to love your land and not be overwhelmed. And it's easy to be overwhelmed because there are just so many problems.

Implications: The need for ongoing management of invasive species for successful native prairie restoration has implications for the design of programs intended to encourage such restorations. Prairie restoration programs will likely need to include provisions specifically related to the control of invasive species. Landowners will need to be made aware of various control methods available and the level of effort required. Costs for invasive species management will need to be considered. As control efforts often must be implemented over multiple years, incentive programs that spread benefits over a longer time period may prove more appealing to landowners than those programs that offer only one-time payments/credits (see also Section 3.3).

3.5. Drawbacks to Prairie Restoration: Hard Work

Restoring a prairie requires physical labor. The Governor's Task Force proposals speak lightly of planting land to native grasses to capture carbon. Managing a prairie is described as somewhat less difficult than managing a suburban lawn: "Prairies require significantly less maintenance than conventional lawns; mowing frequency and herbicide and fertilizer inputs are significantly reduced if not eliminated" (Governor's Task Force on Global Warming 2008). The landowners in these interviews, however, regard restoration as a serious endeavor requiring sustained effort; restoration is not simply recreation, it is also a lot of work, and more work than some landowners anticipated:

It's more work than you originally think it's going to be.

It's more work than you think it is. Because at first you're like, "Oh, prairie, we won't have to mow." The first couple times it's fun, after that it's just work. I could be on my deck drinking Margaritas looking at the prairie or I could be out collecting prairie seed. I've stopped volunteering elsewhere because I got enough work out there.

I was getting really plugged in and getting educated and went into this with our eyes wide open – this is going to be long-term, often times up-hill, and painful process.

Restoration is not for the faint of heart. You've got to love being outside. You've got to love fresh air. You've got to love communing with the animals and the birds and sweating your buns off and being [tired] at the end of the day. We both have demanding professional jobs and a lot of the work we're able to do is on the weekends. A lot of times I'll go to work at 7:00 and get home at 4:00 and turn around and go out for three hours. I have a sit on my butt kind of job so I have tons of pent up energy at the end of the day.

This landowner describes what she and her husband went through to restore native grasses to a single field. They repeatedly mowed, burned, poisoned, and finally seeded the field:

The back field, besides mowing it and herbiciding it, letting it grow, burning it, herbiciding it again, which is what you have to do, then you have to seed it and it took 20 hours to seed it. It was a blustery, first week of December, I sat in the back of our Kawasaki while my husband drove it and I scattered the seeds literally by hand. That's what we did and it took 20 hours. Then for the next two years you have to mow it to keep the weeds down.

As they age, some landowners worry that they won't be capable of the hard work required to maintain their restored prairies:

This is a lot of land and as we get older we think about who's going to do some of this stuff. It's really hard. I could spend full time on this and I would still feel like I need more.

To me it's very gratifying but I do have mixed emotions about the future because I don't know what's going to happen. It takes a tremendous amount of physical energy and fitness to manage a prairie.

It's really tiring. And the older you get the harder it is to lug water on your back. Carry five gallons of water on your back up and down a hill all day...

In addition to the difficulties listed above, some landowners report having a hard time finding help to manage their land. Local farmers may be too busy to help when the landowners need it:

What has been most challenging has been getting the prairies planted and tended. Just a whole variety of snafus, including not having reliable people to do the planting and mowing.

And then like the dairy farmer across the road who's been there forever. He's civil but he's not interested. We've called him – are you interested in making some money. No one returns our calls. There's a split and there might be some resentment. We look like we're rich and we're not rich.

Implications: The level of effort associated with restoration and maintenance of prairies has implications for the design of prairie restoration programs. Such programs might include reimbursement provisions specifically related to investments in equipment and labor/services associated with restoration work. Cooperative approaches that allow for shared use of equipment might also prove appealing to landowners. Finally, successful prairie restoration programs might also include a means of organizing volunteer labor to assist landowners with restoration and maintenance tasks, an idea not contemplated by the Governor’s Task Force.

3.6. Prescribed Burning

Mowing alone is insufficient to maintain grassland habitats. For best results a prairie must be burned to be kept free of woody and invasive vegetation (Figure 5). Burning also helps reduce litter build-up and stimulates grass and forb production (Sample and Mossman 1997, Sargent and Carter 1999). Such burning, however, can be dangerous, costly, and difficult:



Figure 5. *Prairies must be burned to be kept free of woody and invasive vegetation. The need for prescribed burning has implications for program design.*

If you’re managing grassland, and you want to keep it in grassland, you almost have to burn. There are some areas that people can mow but I don’t think it’s nearly as effective as burning. I guess that’s the big challenge because you don’t always have the right conditions to do that.

Fires require the proper relative humidity, temperature, and wind speed and direction in order to accomplish prescribed burn objectives. These conditions, which also must remain within acceptable limits to safely manage a prescribed burn (Ohlenbusch and Kunkel 1996, Sargent and Carter 1999), are not always present.

What’s the wind like? What’s the relative humidity? The first time I burned we had this great fire going and it stopped like that. The relative humidity changed and the fire just stopped and we couldn’t relight it and it just got slightly damper out there. The grass burns hot but it picks up moisture really fast so all those things have to align.

In addition, the timing of a prescribed burn can influence plant species composition in the prairie. Spring burns tend to suppress cool-season grasses and promote warm-season grasses, while the opposite is true of mid- to late summer burns (Sample and Mossman 1997). Fall burns generally are less complete than spring burns, leaving more stubble on the ground, and can eliminate important winter plant cover for wildlife (Schramm 1968). As a result, there is a narrow window when the weather is right for burning and this makes it more difficult to schedule both volunteers and the burn:

The problem is that everyone is trying to burn the same few weekends when the weather is just right – it’s not like you can do it any time. There’s probably maybe a month window in the spring. And you’re trying to do it on a weekend and you’re trying to get your friends. So you’re trying to get all this work done at the same time.

Several landowners noted that prescribed burns can be daunting and dangerous; prairie fires can be unpredictable and even in well-managed burns, accidents can occur (Ohlenbusch and Kunkel 1996). And, there's more to a burn than just striking a match and standing back. Landowners and their helpers must be trained in how prescribed burns are conducted:

We have to be careful about everything from when we burn, where we burn, to what herbicides we use and where and when too. We have to keep that in mind all the time.

When you've got steep topography you get funny winds. So they brought the fire around and right here – that's where they heard the thunder – I was right here – watching it – and it roared! Like you read about the Peshtigo fire and people heard it roar, this roared. It was pretty powerful. It was like a fire tornado right here. It was pretty powerful stuff. We used to burn this ourselves because it was low brome grass and it didn't have a lot of fuel. We can't do that anymore.

[The burn] actually created lightning and thunder – it created this huge whirlwind as it came up their valley – and it was huge grass and it was freaky and a scary fire. But they had pumper trucks. They had the equipment and the experience but that scares the Bejesus out of me. I don't like head fires. I would rather spend another hour and bite off a little bit than have a fire like that.

Burns can get out of control. Care must be taken so landowners do not burn down their homes or other structures. Landowners are also responsible for the safety of those helping them:

The neighbor's front field... we accidentally burnt their front field one year. I felt bad so I bought them a few hundred dollars of prairie seed so they've had more things come up.

We have some left, some yard, to prevent burning the house. Well, actually we melted it once. We did melt the house. We were sitting on our deck and we looked up and realized that you could see blue foam where you shouldn't be seeing blue foam. It was way high up – we think the heat swirled around and eddied around the house, got caught up under the eaves, and melted the siding and apparently it doesn't take much to melt vinyl siding.

The reason we don't burn down here: it would be a lot of work to make sure it's going to be safe enough and [not] start the house on fire.

I have fun burning somebody else's land. I get total anxiety over burning our land. Because I'm responsible. You just feel responsible for the people helping you.

Prescribed burns cannot be done safely by a solitary landowner; landowners must recruit a crew or find volunteers to help with their burns. A minimum crew should include four people (Ohlenbusch 1996).

And it is harder, now that we're older, to get able volunteers to help with the burn. It's a hard job.

We do it with whatever friends we can scrape up. We used to try to burn with two of us, just because it's hard to get other people in. It's not enough. The other thing being savanna, we always have some dud standing trees and stumps and once they light, they're like a chimney and you really need to watch them to keep them from getting away.

Landowners may have doubts about the effectiveness of carbon sequestration in a burned prairie. Some specifically wondered how the capture of carbon fits with the routine burning of their prairies. This is not really surprising. Even though the public does seem to understand that trees uptake carbon dioxide (Curry

2004, Curry et al. 2004), many people may not translate this understanding to prairie plants. In addition, they may understand that carbon is released through burning, but not understand the below ground sequestration of carbon in root matter or the role that soil conservation practices can play in sequestration.

Okay, you're going to sequester all this stuff and then we're going to burn?

I'm not sure what they're thinking about for carbon sequestration. When I think about that in a landscape that's undergoing a controlled burn every two or three years, how does carbon get sequestered? Is it only being fixed in the soil?

Finally, landowners note that fires are not an immediate panacea. Fires set the stage for, but do not automatically result in, the return of native species:

Even though I don't see a lot going on yet, as far as my native plants coming back, the stage is being set. It's not like we lit a match and everything is great and wonderful! Eden restored.

Implications: Programs intended to encourage prairie restoration must consider landowners concerns related to prescribed burning. As noted earlier (Section 3.2), programs that support restoration as a pastime or that target habitat conservation as a primary focus may prove more attractive to landowners than programs specifically focused on carbon sequestration. Given landowners questions regarding the effectiveness of burned prairies to sequester carbon, the Governor's Task Force proposal to fund "a competitive research grant program for investigation of carbon sequestration rates and longevity in prairie systems" may make sense to help further build the justification for such approaches. As noted elsewhere (Sections 3.11 and 3.12), successful prairie restoration programs will need to include a technical assistance aspect. Finally, successful programs might also include a means of organizing volunteer labor (and equipment) to assist landowners with prescribed burning tasks.

3.7. Pine Trees Compete with Prairies

Prairies, oak savannas, and other grasslands do not seem to evoke the same ardor as the tall pines of the North Woods (Figure 6). Interviewees suggested many people do not have the same passion for prairies as they do for pines:

The notion of grasslands doesn't grab people. They don't see it and they don't feel it. It's really hard to get people excited about prairies. I don't know what it is.

There's no sense of the prairie like you get a sense of the lake district up north. Or the forests of the North, where the trees get pointy. Haven't you read Country of the Pointed Firs?

I think it's hard for people out where I live that have been there for generations, since settlement, they don't seem to get prairie or grasslands. They don't seem to have an appreciation for it.

Some landowners in southwestern Wisconsin prefer planting pines to restoring prairies or oak savannas, and some interviewees suggested that pines are more appealing than oaks:

One of the other things about pine trees, I think we've got a religious attachment to those evergreens. Obviously with the Christmas trees and all that. It's kind of proof that there's going to be another summer. Where with these oaks, you look at them in the fall, and you're not sure there's going to be another summer. I think there is a mystical aspect to that and people get a nice feeling about planting pine trees.

Everybody likes pine trees. They're green all the time, they grow like weeds, they're idiot proof. They're really weeds.

A passion for pines is not completely surprising. Red pine (*Pinus resinosa*) remains one of the most extensively planted trees in the northern United States, being used for windbreaks and erosion control, as well as for building materials and other wood products (Kallio and Benziel 1980, Virginia Tech Forestry Department 2004). The relative ease of transplanting and rapid growth of eastern white pine (*P. strobus*)—"the monarch of the forest"—have led to its extensive use in landscape and windscreen applications. Young red and white pines also are valued as Christmas trees and ornamental landscape trees (Kallio and Benziel 1980, Clatterbuck and Ganus 2000). The Scots pine (*P. sylvestris*) has been widely planted due to its tolerance for poor, dry soils. And, with more than 217 million trees planted during the Great Dust Bowl shelterbelt project, Austrian pine (*P. nigra*) also has become a popular landscaping species (Arbor Day Foundation 2011).

Natural resource managers may give landowners conflicting advice on what to plant. Some landowners suggested Wisconsin's Managed Forest Law (MFL) seems prejudiced in favor of planting pines in all parts of the state, even when they do not fit with the local ecology.

You listen to Forestry you get one point of view: "Plant pine trees in a prairie." That was the point of view back then. Listen to the Endangered Resources people: "You're not supposed to be managing for anything. You're supposed to go crazy with as much diversity as you can manage." And that was too much. Some of it was impractical. You as the landowner had to pick what you would focus on and try to make sense of it the best you could.

We had planted pine trees back here. We didn't know. The DNR didn't have its act together on prairies enough to share it with landowners. We got out of it. The deer were destroying them for one thing. And then we realized, when the prairie ecology information started flowing out from the TNC in a more organized, helpful way, that we had done the wrong thing. We also learned what the original landscape had been like at a certain point in time.



Figure 6. Some landowners may prefer planting pine trees over prairie grasses. Current conservation programs may encourage pine plantings.

Similarly, some landowners note that the CRP supports the planting of evergreens in areas that they think are better suited to grasses:

You get equal brownie points on your CRP land if you planted evergreens and that's pretty easy and they're hardly native and it's really stupid. You plant them and you step back and you get all the same brownie points as we do for a lot of work. They're not quite natives, Douglas firs and all that.

Some interviewees took strong exception to the planting of pines in areas they think are better suited for prairies and savannas. They also think that grasslands are more effective than stands of pine for capturing and holding carbon (but see Section 3.6).

The white pine is pretty much worthless. We have a lot of white pine and they took off some big white pine but what do you do with white pine? Plywood and tin and steel have taken over. From my perspective white pine is not very valuable. This land in southwest Wisconsin, this is not pine tree land. [pounding the table] And it's raping this land to put pine trees on it, especially this prairie land. We need lands for grassland birds. Pines don't belong here. Go put them out in the sand counties.

It would be fabulous to do something to encourage people because for carbon purposes grasslands are much better than woods. And, the thing is the preserving the soil is much more important than raising trees on land that shouldn't be raising trees. This is not northern boreal forest which is where pine trees grow. You take some of these wonderful prairies and you stick them into pine trees, and you've trashed it. The soil is exposed because nothing grows under those pine trees. Nothing. You cut those pine trees down you're going to have a mess. Yes, but trees are idiot proof. Yeah, but they don't belong here and they are not idiot proof. They're ugly. I tried. They didn't grow, thank God.

Implications: In order to be successful, programs intended to encourage prairie restoration will need to consider the conflicting goals of other conservation incentive programs that may appeal to landowners. Modifications to existing landowner incentive programs may merit further consideration/discussion.

3.8. Taxes and Tax Credits

Landowners pay close attention to the taxes that they pay and do what they can to minimize them. Not surprisingly, they want their land taxed at the lowest possible rate and participate in programs that reduce their property taxes. Taxes on land classified as “agricultural” are significantly lower than the taxes on land classified as “recreational.” In addition, federal crop insurance, market loan, and disaster payment programs may encourage conversion of grasslands to agricultural production or further hinder prairie restoration, thus working at cross-purposes with conservation programs (e.g., see Claassen 2011).

Non-agricultural land (i.e. land without a recent cropland history) that is planted to prairies is taxed at a higher rate:

It's taxed as prime development land. The local tax assessor does not want to hear that because he's squeezed so badly the way it is with use value. He's all – all of the farm buildings are assessed high and anything that isn't cropland, they have to assess high, so they get enough taxes to run their local government and schools and so forth.

It's all junk land and almost all of it taxed at the high rate. Lots of pretty bluffs and rocks.

The land is taxed as “Recreational.” Ouch! Twenty acres taxed that way at about \$4000 an acre. The tax per acre is probably 100 per thousand – it's not cheap. Taxing this land as agricultural

would be great. It used to be pasture land and had cattle on it for years and years and years. Once the cattle went away it reverted back to recreational.

You have to have your land qualify as farmland otherwise your taxes go up four fold on the land. As recreational land it's taxed differently than farmland - under the Farmland Preservation Act. The taxes under the preservation program are \$900 – they would go to \$3,600 if they were taxed for recreation.

I don't understand why it's so darn high. Our house is pretty big but it's not that. It's the property. If this guy out here decided to farm this stuff (the prairie) he'd be paying a fraction of what we pay in taxes.

People who plant land to prairie and pay high taxes are regarded by their neighbors as “crazy.”

You'd have to have somebody who is crazy. And there are some of us. You are characterized as crazy. I bought that first piece of land out there in 1965. And at the time, I was considered crazy. Marginal land but beautiful.

Landowners suggest that land planted to prairies, whether or not it has a cropland history, should be taxed at the same rate as farmland:

Land put into prairie that meets the criteria of this carbon sequestration – it will be considered agricultural land. All it takes is a rule change. You just describe this as a prairie carbon sequestration program. Land that meets some criteria and keep it simple. You sign an agreement and you're to keep it that way and you're subject to something. You do some minimal maintenance and that way you would really be able to get land in.

If they're willing to enroll and maintain it for the good of carbon sequestration, it ought to be, by definition, agricultural land. There would be way, way more progress doing that and all it would take is a simple rule change. You could have a paragraph saying “Here's the criteria to be eligible for this program.”

Use-value assessment would encourage people to put land into other uses such as prairies:

If setting aside lands for doing this [prairie restoration], received the same tax benefits that corn ground does. This [taxation] is one of the things I would say is a big impediment to [restoration]. Because to a farmer, if he has corn ground, which means continuous corn, he doesn't pay very much taxes on that at all because of use value that is very, very low. Whereas if you have conservation land with an easement,... include that in the use value. And, if that were to happen, I think you'd see an awful lot more land would go into conservation.

Because what happens in a rural community, the cropland is all taxed very, very low. Well, you got to get taxes for something. So the buildings, the woodlands, and all land that is not cropland, the taxes on it are very high. So nobody is very anxious to take marginal land and put it into conservation purposes.

The thing is they don't make it, the tax laws are not advantageous for people who are trying to manage the land in a protective way.

Some landowners suggested that farm organizations may oppose such a change:

Land in prairie should qualify as an agricultural use under state definition, and get the tax relief. Yes, that's the way to do it and it's simple. [Person's name] from the Farm Bureau: "Oh, it's not constitutional." And you'll say "Bullshit." And the Farm Bureau will fight it. They don't want land put into prairie. They're big farmers. Where are they going to put their manure? They'll fight it. But you got to win that fight. You can do all this other stuff we're talking about in CRP and tax credits and shit, but that would be, by far the biggest.

Implications: Crop prices have risen dramatically since 2006. Claassen et al. (2011) note that in 2007, "ethanol and other demand factors significantly increased corn prices" and "other crop prices rose in subsequent years, as farmers shifted cropland into corn production." In the absence of significant incentives/benefits to offset the costs associated with restoration, many landowners will opt to not participate and may seek to reap the benefits of increased crop prices. The Governor's Task Force proposed two complementary programs to incentivize the expansion of Wisconsin's native prairies: 1) initiation of a tax credit program for establishment and maintenance of prairie plantings administered as an annual credit through the state income tax system, and 2) supplementation of the existing NRCS cost-share grant program with state dollars. They suggested the first program could be administered similar to the homestead tax credit or farmland preservation tax credit. The second idea would reimburse landowners for a portion of the establishment and maintenance costs to prairie plantings. As prairie restoration activities must be pursued over multiple years, incentive programs that spread significant benefits over a longer time period may prove more appealing to landowners than those programs that offer only one-time payments/credits. As such, the Governor's Task Force recommendation that a tax credit program for establishment and maintenance of prairie plantings be administered as an annual credit through the state income tax system, similar to the homestead tax credit or farmland preservation tax credit, may have merit in the eyes of landowners.

3.9 Easements

Conservation easements are legal agreements between a landowner and a land trust or government agency that permanently limit specific uses of the land in order to protect its conservation values. They may apply to all or only a portion of a property. Conservation easements allow landowners to continue to own and use their land. Landowners also can sell their land or pass it on to heirs, but future owners will be bound by the easement's terms. Thus, the land's conservation values are protected in perpetuity. Some landowners interviewed seek to protect their prairies by selling easements on their land. A number of those interviewed had already placed their lands in an easement, either through donation or sale:

Actually we have close to 90 acres total, about 60-some is in the easement. We donated most of it to an easement.

We donated it to the Prairie Enthusiasts so that they could leverage to buy a higher quality parcel in the area... You donate the ability to develop the land or farm it. People around us would hate that but we don't care.

Here's another thing that helps us: we sold an easement on part of the property to preserve it forever. It's partly Stewardship and The Prairie Enthusiasts. Part of the money that came from the easement went to paying for perpetual maintenance of the property.

Landowners indicated that this gives them a break on the income taxes:

And then there was a tax break for a couple of years but we didn't do it for that reason. But we are taking advantage of the tax break.

Several kinds of tax benefits are available to donors of conservation easements, including federal income tax benefits (§ 170, Internal Revenue Code), federal estate tax benefits (§ 2031(c), Internal Revenue Code), and local property tax reductions (Levin 2010). It should be noted, however, that recent research in Wisconsin shows that conservation easements tend not to be considered by local assessors as required under state law (s. 70.32, *Wis. Stats.*) or, if considered, do not result in lower tax assessments despite the limitations they impose on potential development of the protected land (Meyer 2001).

Other landowners we talked to plan to sell easements, or place other restrictions on their land's use, as a way of protecting the prairies they created:

One of the things we wanted to do was to leave things better than we found it and [person's name] mentioned that it was just cool season grasses when we first bought the land and it was corn stubble and stuff and now if you look around you don't see anything like that. Even in 5 years, it's starting to take on a maturity to it, it's going to get better and also our intent is to protect the land after we're gone. We're going to try to put it into the ownership deed that you can't subdivide it, that you can't do certain things, you can't take the prairie. We'll have to look into the legalities because I've heard things either way: you can't do it or you can do it.

Landowners make the common sense assumption that restricting the options for developing their land lessens its value and thereby reduces the taxes levied. As mentioned above, that has not, however, always proven to be the case. This suggests an opportunity to alter tax policies in a way that favors conservation easements; once land has been placed in such an easement it and its associated prairie will be protected in perpetuity.

My assumption was, and I work with conservation easements all the time, I thought you put a conservation easement on the property and you can't develop it, your taxes should go down, right? Because you can no longer put big houses on it. It doesn't happen. I think they actually go up. It doesn't help at all. The taxes have been going up and the taxes out here are outrageous.

How about this? We have a conservation easement on the whole thing which has reduced the value by half but our taxes are higher than they ever were. Our taxes are at the highest level.

I talked to them about the conservation easement and he said "Well, with a conservation easement it's worth more than it used to be." It's restricted and its sale value is less – it's half.

Landowners noticed when spiking commodity prices caused producers to plow their prairies under and plant corn. At a single stroke all the work that had gone into establishing prairie grasses and capturing carbon was undone. Had that land been protected by an easement, this would not have happened.

...out near the Thompson prairie, there was a huge CRP holding, and the guy had a ten-year prairie, and he plowed it up to plant it to corn. That's just... [laughs] it wasn't even a bad prairie. It's just such a horrible thing to do. It was just ridiculous.

Implications: The Governor’s Task Force suggested establishing a Carbon Conservation Easement program to purchase easements on private lands that would restrict disturbances of existing vegetative cover. As has been noted several times already, crop prices have risen dramatically in the recent past. In the absence of significant incentives/benefits to offset the costs associated with prairie restoration, many landowners will opt to not participate and instead may seek to reap the benefits of increased crop prices. However, landowners’ willingness to place land under perpetual easements suggests a willingness to consider long-term commitments. Such willingness should be considered in any program intended to encourage prairie restoration. The Governor’s Task Force suggested “Extended contract periods of 25 years would also be a new alternative to further increase carbon storage pools and lifespan.” Given the ongoing costs associated with restoration (see Sections 3.3 and 3.4), programs that spread payments or other benefits over time might merit consideration. Further supplementing CRP through an Energy Crop Reserve Program that would provide incentive payments to landowners for growing perennial grasses and energy crops on land previously enrolled in CRP was also suggested by the Governor’s Task Force.

3.10. Deer and Deer Damage

Landowners also have to contend with the state’s white-tailed deer herd (Figure 7). At any given time thousands of deer browse southwestern Wisconsin’s landscape. They counter landowners’ efforts at restoration, selectively culling prairie plants that landowners are attempting to re-establish. Landowners also view deer as a vector for the spread of invasive species. Reducing the size of the deer herd, however, can arouse the ire of neighbors who may care little for prairies and want to have a large herd to hunt.



Figure 7. White-tailed deer can hinder efforts to re-establish prairie plants. Reducing the size of the deer herd, however, can arouse the ire of neighbors who want better hunting opportunities.

We’re overrun by deer. Deer are one of the biggest negatives of ecological restoration there is. It doesn’t affect prairies as much but they are devastating on the rest of the property.

It has a huge impact down here as well on oak forest regeneration, on getting your prairie plants to seed, because they’ll flower and the deer will come right when the fawns are hungry and learning how to eat forbs. They’ll nip off all the flowers, if it’s ones they like. They love columbine. They destroyed our compass plants – they just come in and rip ‘em up. And they are out there all the time. They are a native species, but there really are too many [deer].

The problem with the deer is that for some reason, they don’t want to eat the brush which is what they should be eating. They’ll eat the shooting stars. You’ll have a field of shooting stars and every other one, the top is gone. They play havoc with a lot of the forbs. And they spread the invasives.

[Are deer vexing you?] I would say so. They eat some of our stuff. A few select morsels that they take like wood lilies. If we managed to grow wood lillies then the deer wipe them out and the same with some of the orchids. You have to put cages over some of those things.

Shortly after chronic wasting disease (CWD) was discovered in southern Wisconsin in 2002, the Wisconsin DNR announced its intent to pursue a goal of disease eradication. In doing so, the agency initially sought to depopulate the entire wild deer herd where the disease was present to prevent it from spreading throughout the state (Heberlein 2004, Wisconsin DNR 2010). In some areas, CWD and the measures taken to address it have temporarily reduced the size of the deer herd (Rolley 2005) and their impacts on the landscape.

When we first came out there, you'd go out to the back field and see 25 deer and 25 over here and a bunch over across the ridge. There were dozens. Now we see two-thirds less. But they are still out there and they do a lot of damage.

The steps taken to reduce the size of the deer herd and contain CWD and minimize impacts, however, caused hard feelings between older residents interested in hunting and those who want to restore prairies:

They want all the deer they can shoot at. They don't care about prairie. They think we're a bunch of eco-freaks. I'm sorry to say – it's pretty negative. Our immediate neighbors don't really like us very much and how we're managing the land. They want to hunt on it.

We have people hunt every year and we participated in the CWD sharp-shooting for a couple years. Word got around our neighborhood and they hate our guts. They think we've ruined the hunt. Seventy-five deer in two years. But there are still plenty. It was very unpopular but it was the only thing that worked.

CWD and the regulations promulgated by the Wisconsin DNR to control it may have reduced hunting pressure (but see Petchenik 2006).

We love hunting on our property. We haven't had very many [hunters]. We love to have deer hunters: the more deer hunting the better. Years ago, when we first bought the land, the neighbor and his family had traditionally hunted on our land and they hunted for years until CWD came along and then they lost interest in hunting there. They had gotten older too. Now it's a few other neighbors who hunt once in a while.

[Our hunters] stopped – I don't know that they stopped because they were afraid of CWD or because they didn't want to hunt for the DNR who wanted them to hunt. We're right in the middle of the CWD. I don't know if they quit because of the DNR or because of the CWD.

I think the DNR has done a horrendous thing. Just horrendous. They need to go back to the nine-day season. The unfortunate thing is they've turned too many people off that it's going to be hard to get people to hunt again. The neighbor over here from Madison, he would hunt. I haven't been able to get him to hunt. There's no – it was that fervor – looking forward to deer season, like Christmas eve – it's not there anymore. I think they just screwed it up and I don't know if it's going to come back. I had deer in my garden the other day.

Implications: The opinions and beliefs expressed by interviewees underscore the importance of a holistic approach to natural resources management. Programs that promote open grassland habitat may inadvertently foster growth of the deer herd that in turn generates further conflict between competing interests. On the other hand, efforts to reduce herd size, while beneficial to prairie restorations, can further consternation by some landowners. In designing programs to encourage prairie restoration, policy makers also might consider including options for discouraging, limiting, or controlling deer at sites where restorations are undertaken.

3.11. Interacting with the Farm Service Agency (FSA)

The federal Farm Service Agency (FSA)'s responsibilities are organized into five areas: Farm Programs, Farm Loans, Commodity Operations, Management, and State Operations. FSA program implementation occurs in field offices based in states, counties, and territories. More than 2,346 state and county offices are the primary distributors of FSA programs, including the various conservation and landowner incentive programs.

FSA administers the Conservation Reserve Program (CRP), a voluntary program for agricultural landowners. Through CRP, landowners can receive annual rental payments and cost-share assistance to establish long-term, resource conserving vegetative covers on eligible farmland. The Commodity Credit Corporation (CCC) makes annual rental payments based on the agriculture rental value of the land, and it provides cost-share assistance for up to 50 percent of the participant's costs in establishing approved conservation practices. Participants enroll in CRP contracts for 10 to 15 years. Technical support functions are provided by:

- USDA's Natural Resource Conservation Service (NRCS),
- USDA's National Institute of Food and Agriculture,
- State resource agencies (including the Wisconsin DNR),
- Local soil and water conservation districts, and
- Private sector providers of technical assistance.

CRP protects millions of acres of topsoil from erosion. By reducing water runoff and sedimentation, CRP protects groundwater and helps improve the condition of lakes, rivers, ponds, and streams. Acreage enrolled in CRP is planted to resource-conserving vegetative covers, making the program a major contributor to increased wildlife populations in many parts of the country (Hays and Farmer 1990, Berthelsen et al. 1990, King and Savidge 1995, Best et al. 1998, Herkert 1998, Ryan et al. 1998, Evrard 2000, Haufler 2005).

It is not unheard of for landowners to be unhappy with governmental agencies and their associated conservation programs (e.g., see Nelson and Petchenik 1996, 1999, 2002). The landowners interviewed for this study were critical of the FSA and its administration of CRP. Yet, FSA's and other agencies' performance is central to the success of the various Governor's Task Force proposals that rely on CRP or similar approaches to promote prairie restoration and soil conservation.

In summary, landowners' complaints that we heard during interviews included the following:

- The FSA lacks an "ecological perspective."
- The program is paper and permission intensive.
- Some FSA officials are seen as hostile to non-farmers.
- Rigid application of rules precludes common sense.
- There is inconsistent and seemingly arbitrary enforcement of rules.
- FSA is more interested in monitoring compliance and enforcing rules than in assisting landowners.

As an agency functioning within the U.S. Department of Agriculture, some interviewees believe FSA workers view farmland more from a crop production perspective and may lack an ecological perspective. As a result, farm programs designed for farmers may be ineffective vehicles for the restoration of grasslands.

And that's my overall philosophical beef: FSA is used to dealing with farmers on cropland. Their whole lens, the way they look at land, is from a cropland perspective. Not ecological. There's no ecology understanding there or really very little appreciation. That's particularly true in the FSA

and local committees that have a say in how land is managed – because some are ex-farmers. And NRCS is a little better. They used to be the soil conservation service. They've been a little better.

Landowners complained that CRP was paperwork and permission intensive. Any deviation from their management plan required visits to FSA offices to file changes and get permissions.

Under our plan, FSA, they only want to burn every five years. And so not for another five years. To burn sooner you have to get an amendment to your plan. Hence the paperwork bureaucracy and the “pain-in-the-assness” of it all.

It's a lot to learn. Like I said, even an experienced farmer would have difficulty with all of that – because they're used to dealing with FSA and NRCS but nobody likes paperwork. Nobody likes having to weed through all that stuff and figure it out and stumble around and drive to Dodgeville to deliver the paper and sign the papers and go again because there's some other certification you have to have. It's endless. We've got lots of acreage in different types of programs and it is binders. We have a whole file drawer full of our land management paperwork because you need to keep it handy.

Some landowners think that some FSA staffers dislike the non-farmers who participate in farm programs like the CRP. These interviewees felt that the employees' point of view is that farm programs are only for farmers or those retired from farming – not affluent, exurban interlopers.

They do not like what they consider non-farmer landowners to receive CRP payments. The [FSA county office] has told us to our face that we are ruining the program for farmers by participating in it and getting a relatively high rate of payment because we have a high quality restored prairie now. We're ruining it because we're participating. They said it's for farmers. Not for people who are not farmers.

There's a definite prejudice against those who have not been farmers or who don't actively farm their land anymore. It's really difficult to deal with. Because we're trying to do the right thing and get high quality habitat brought back yet we have no support and, in fact, scorn from the FSA that is supposed to support the CRP program. I don't like dealing with them at all.

Landowners noted that FSA provides inadequate cost-sharing for prairie management practices (see also Section 3.3).

The one thing that's been done as part of the Farm Bill has been to allow some cost share for burning CRP grassland as long as you file a burn plan and follow it and report on the results. But the cost share is really so tiny that you really can't do much with it.

Some landowners complained that FSA's inflexible administration of CRP left them with fewer options to manage their land:

The other thing with FSA, and maybe this is your typical government program, one size fits all. There's no room for any kind of diverse range of land management practices or even planting.

Fluctuating enforcement of the rules governing CRP also provoked resentment:

In our experience most of the people who have land in CRP don't do really much of anything to it. In fact, they begrudge any of the belated enforcement that FSA and NRCS finally does. For example, a few years ago, they sent us, and all the CRP landowners, a mean letter threatening

enforcement action which would mean no payment if you left your deer-hunting “fortress” on the property. The farms around us had six or seven of these up. They just would keep them up all the time and that’s a violation of CRP. After years of not enforcing that, they finally decided to. And people didn’t like that at all.

Rigid application of the rules can alienate landowners:

People came in and saw that he had cut it [the field] and asked, “Where’s your residue?” Your rules say I’m supposed to take it off and I did. My neighbor farmer took it. One cutting. He got nailed for a fine plus a year’s payment. That was last year. That kind of stuff happens but that’s the rules. And the local guys agreed: “We just have to follow the rules, we don’t have flexibility.”

Some interviewees also suggested that there also may be a lack of cross-county consistency in the administration of CRP:

The CRP has not improved over the years. Each county has its own FSA office. Iowa County is different from Dane – Dane is more willing to work with the landowner but in Iowa County it’s “This is what you got to do.” We’ve heard of people, if you don’t do what they say, they’ll plow it up. I can’t imagine anybody being that stupid.

Landowners commented that the FSA seemed more oriented towards compliance and enforcement and did little to help them restore the land. This may point to the problematic nature of having a program to encourage prairies housed in a farm agency intent on helping farmers and administering commodity programs.

They seemed more interested in getting the land into the program than in having it taken care of. It has almost an adversarial feel rather than a helpful feel. “We’re going to come out and check and see what you’re doing.” Rather than, “Hey, do you need anything?” Of course, they’re managing huge quantities of land and all of you guys are working with fewer people, but more [customers], and everybody [is] doing more work than you ever did before. It’s that kind of a problem.

Our experience has not been terribly positive with the bureaucratic forces that run the program. They really aren’t there to help you. They are there to make sure you file your plan on time. And do the minimum. And then come out on unannounced enforcement visits upon occasion.

Some of the rules on management conflict with grassland management and restoration. In this case, for example, restrictions on burning and mowing promote the growth and spread of exotic vegetation.

And they have rules about when you can mow and that’s part of the problem. You can’t mow until the middle of July for nesting birds. The interesting thing is that it protects nesting birds, but it encourages and promotes the spread of wild parsnip and various invasives but especially parsnip. It goes to seed and then you mow so it spreads it wonderfully well. Birds are very nice but parsnip is not and they are mutually exclusive to some degree.

Some landowners noted that the NRCS has become more stringent and controlling over time but its “one size fits all” dictates don’t automatically suit all settings and situations:

The NRCS has gotten more rigorous about this. They certainly have. When we first went into CRP it was very loose. The second ten years it was tighter. And the third, by then they had everything very rigorous. You had to plant, when you planted prairie you had to have their seed

mix and it had to be burned at a certain time, and farmers with old fields now have to inter-seed / drill plant into the CRP fields with their set of seeds and some of them are yellow coneflower which will grow and black-eyed Susans. They're having them inter-seed with purple prairie clover. But purple prairie clover is not going to grow and they're making them spend all this money on seed. I'm finally getting some purple prairie clover after seeding it on a yearly basis for ten years. It's not going to happen. The program is becoming much more rigorous but not necessarily smarter.

And, few landowners like it when a governmental agency or agent tells them how to manage their land. Some avoid these programs in order to maintain their independence and keep a free hand in the management of their land.

I do it under duress. I'm very stubborn and I think I know everything and I don't like to be told what to do with my land. So FSA, in the old days, didn't mess with you. You just signed up and that was it. But NOW they want you to burn and, oh God, when I re-upped a bunch of land and put it in CREP, and I had already planted that field into oak trees, so, because that's in MFL, because we wanted to put it into savanna, the FSA in all their wisdom that a savanna is 120 trees per acre. You know that's insane. A savanna is 2 trees per acre. Maybe.

There are a lot of programs I could be in – LIP and WHIP – but I won't go near them because nobody is going to come out here and tell me “you have to cut that tree down or I want you to burn this.” So I find those programs very difficult but that's my personality more so than anything else. I know what's best for this land.

I'm very leery about anything that has a lot of strings attached. I'm more than happy to take your money. I'm more than happy to take your advice. But don't tell me what to do. You can suggest. But don't tell me what to do. Unless, if you come out here and tell me you really need to do this to protect that. I'll do it. But I don't like mandatory things.

These feelings appear to be consistent with the findings of Zulauf et al. (2003) in Ohio. Their 2001 survey of farmers found that 56% of respondents thought that farmers should be required to use reduced tillage practices in order to receive farm program benefits, and 49% agreed with requiring 20-foot buffer strips along waterways. Only 24% supported requirements for post-harvest cover crops and use of no-tillage practices. The authors hypothesize that farmers were more willing to support reduced tillage and buffer strips than no-tillage and cover crops as compliance requirements because the former policies are less intrusive on farm management decision making. For example, buffer strips could be applied to a limited subset of fields or portions of fields, whereas cover crops probably would apply to an entire field. Hence, reduced tillage and buffer strips would intrude less on existing farming practices than requiring no-tillage and cover crops.

On the other hand, support from governmental programs, primarily the Landowner Incentive Program (LIP), validates landowners' efforts to restore the landscape, recreate grasslands, and revive native plants.

Again, I keep talking about how much I appreciate Darcy and the LIP program, to have that available, and to validate our approach, our interest, our passion, was key. Here I'm thinking “Is this just some crazy ass dream that we have? Does it have value to society at large? Does anyone else care about this stuff?” Yeah, I've got my little band of ragamuffins over here but who cares about this? That was a really important chip for both of us.

Well, we get \$5000 and that's nice. Actually, as much as the money, it makes us feel like we're doing the right thing and that somebody is noticing.

Conservation groups like Trout Unlimited (TU) also recognize and validate landowners' efforts at restoration. They post signs that prominently display the names of cooperating landowners.

The TU chapter posts signs that they're cooperators and the top name on the cooperators is the landowner. They've been raising money and doing the stream rehab for seven or eight years and have been very active. There will be these great big signs posted by the side of the road so you could see who the cooperators are. It's a huge list and they put it up for everybody to see it which I think is a really good idea.

Implications: These landowner beliefs, perspectives, and experiences have significant implications for the design and implementation of a program to encourage prairie planting or soil management. In order to be successful, programs will need to keep paperwork and approvals to a minimum, provide consistent administration and enforcement, and remain flexible to landowners' interests and goals (see also Section 3.2). Programs that are viewed as being minimally intrusive are more likely to interest landowners than programs heavy with regulations and compliance requirements. A successful program also will provide recognition for participation and the efforts of landowners.

3.12. Learning Prairie Restoration

Prairie restoration requires more than cost sharing and rental payments. Landowners also need information and technical assistance. The pace and progress of restoration can be accelerated by providing such assistance. There is, however, a confusing array of programs, referred to by various acronyms, to choose from (Table 1):

One thing I have a hard time with too: there are so many programs out there, state, federal, local. Alphabet soup programs. It's hard to keep track of all of them.

Table 1. Conservation programs available to Wisconsin landowners.

<u>Program (Acronym)</u>	<u>Administering Agency(ies)</u>
Conservation Reserve Program (CRP)	FSA, NRCS
Conservation Reserve Enhancement Program (CREP)	FSA
Emergency Conservation Program (ECP)	FSA
Farmable Wetlands Program (FWP)	FSA
Grassland Reserve Program (GRP)	FSA, NRCS
Landowner Incentive Program (LIP)	Wisconsin DNR
Source Water Protection Program	FSA
Transition Incentives Program (TIP)	FSA
Voluntary Public Access & Habitat Incentives Program (VPA-HIP)	FSA
Wetland Reserve Program (WRP)	NRCS

Interviewees indicated that landowners lack basic program information:

There are a lot of people that may be attorneys or radiologists that are coming from another planet out into the countryside that don't have a clue. We have a friend in La Fayette who has owned land there for 25 years, almost 200 acres. He's bright, well educated, successful, lots of money. Until he met me, he didn't have a clue as to what government programs were out there.

Most people don't know where to start when they want to restore a prairie. They don't know where to start.

Landowners also rely, to some extent, on consultants, state agencies like the Wisconsin DNR, or federal agencies such as the Fish and Wildlife Service or NRCS. Agencies, however, have less help to offer given reductions in staff and refocusing of their missions. For example, interviewees observed that the Wisconsin DNR has reduced its private lands program and educational outreach efforts due to budget constraints:

The DNR is trying harder to do what it can to help people out. I don't think they have enough people any more to make much difference. They are not out there on the land. Look at the poor wildlife biologists. It's the same with foresters. It's like the IRS: You have to hire a tax person to do your taxes. Nothing is public any more.

Landowner experiences jibe with other recent findings. For example, lack of staff is the most commonly cited limitation to greater soil conservation effort by county conservation departments (WICCI Soils Conservation Working Group 2010), and Pease et al. (n.d.) note that technical assistance-intensive conservation practices will suffer if adequate NRCS staffing is not provided. Similarly, McDowell (2004) noted that “identifying a state where there is not a state funding crisis for Extension is difficult.”

Intermediaries, in some agencies, can be of assistance. In addition, this void has been filled, somewhat, by private groups such as the Prairie Enthusiasts and The Nature Conservancy and by individuals who take it upon themselves to coach those new to prairie restoration. Local conservation groups provide coaching and information on grassland restoration:

[Person's name] helps interpret. I think a go-between like that can be very helpful.

I've always been interested in plants and ecology and ... it's trial by fire and that's why groups like the Blue Mounds Area Project have been helpful to urbanites like us, who are trying to do the right thing.

The Prairie Enthusiasts have a great newsletter full of information, testimonials, and actual experiences. It's very helpful. There was a nice piece just the last issue about hedge parsley.

Our experience is similar to that of the WICCI Soil Conservation Working Group (2010) which found that “Increasingly, civil society organizations, e.g., River Alliance of Wisconsin and Trout Unlimited, are playing a role in connecting farmers with government-provided assistance and cost-share funds.”

Landowners also learn from each other and build on mutual experiences:

A lot of the landowner groups [help]. People have property down Hwy F: [names of two people], and they have been really helpful. My husband had a friend who did ecological restoration and he was really helpful to learn from.

I just love getting into a group of people like that because the enthusiasm and amount you can learn from them is amazing. The one thing [person's name] did was organize these landowners so we go to each other's properties and we talk about what's working and what's not working and share experiences. "What kinds of herbicides do you use on garlic mustard?"

How we got involved with the Fish and Wildlife Service, and our 48 acres of prairie, is that there was a guy named [person's name] who was a prairie nut, a retired radiologist and knows an awful lot about prairie and has established a lot of prairie in this part of Wisconsin. A real expert in it. And he kind of keeps track of who's moving in. And he talked to a friend who we knew who talked to us, who said "you want to come to a little gathering at my house and there's going to be this guy [person's name]." When he talked about it, it was like, "Yeah, I'll do it." He gave me a personal tour. You just got in his car and drove all around the township and told me, "This is something I did."

And then that spring we took a one day course with [person's name] at Goose Pond on how to plant a prairie. And we figured out that we could do that... He gave a workshop... He had some people talk and we did field trips in the afternoon. [person's name] is the best thing around because his goal is to get prairie planted. He's been wonderful to us and taught us everything we know essentially.

There are quite a few people like us—landowners that have relatively large amounts of land. We have two or three tours every summer. They rotate around. This landowner group goes around to visit other landowners and the idea was that you'll feel better if you see that other people have the same problems and you also see how they're solving their problems or not... Very useful. Having the networks. Having the relationships. That's been hugely important.

An important aspect of landowner learning is improvement in the landowners' skills in applying conservation innovations to their own lands (Abadi Ghadim and Pannell 1999). Most prairie restoration practices (seeding, mowing, prescribed burning, herbicide treatments, etc.) require a certain level of knowledge and skill for them to be applied in practice, and there can be many choices in how landowners implement those practices (e.g., timing, sequence, scale, intensity, etc.). Our interviews clearly showed that landowners learn by doing:

And we're learning. Every time we do restoration we learn more about how to do it.

Through learning-by-doing, necessary skills can be established and enhanced. However, such learning must be supported with technical assistance and resources to reduce trial-by-error.

Implications: A successful program to encourage prairie restoration must consider the educational and technical assistance needs of participating and potentially interested landowners. As Pannell et al. (2006) point out: adoption of conservation practices is a learning process. In addition, extension and promotion programs by government workers or the private sector have been shown to be positively related to adoption (e.g., Llewellyn 2002), and the availability of expert advice may help induce the adoption of specialized conservation practices (Lambert et al. 2007). Phillips (1985) found that, when considering major changes to their operations, dairy farmers sought information from up to 40 people, often those they viewed as experts. Potential program participants could benefit from a clearinghouse/one-stop-shopping approach for providing information on available programs and sources of information/assistance.

In addition, the creation and implementation of any new programs would benefit from close coordination between responsible agencies. As has been noted elsewhere (Claassen 2011), some of these programs may work at cross-purposes with crop insurance, market loan, and disaster assistance programs.

Notes

4. Conclusions and Future Directions

Wisconsin's Strategy for Reducing Global Warming (Governor's Task Force on Global Warming 2008) suggests various actions that rural landowners can take to sequester carbon. The report recommendations also seek to prevent the return of marginal lands to row crop production (for future biofuels generation). The Wisconsin DNR gauged agricultural landowners' responses to these Task Force proposals⁵. We gathered data from 24 in-depth interviews with individuals who had experience both in prairie restoration and CRP or similar programs and who had owned their land for at least five years. We also explored the perceptions of natural resources managers and related professionals by interviewing 14 staff from UW-Extension, state and federal agricultural agencies, and several non-profit organizations. These professionals had direct experience in applying various programs to assist landowners in establishing prairies and offered keen insights into how conservation programs meshed with landowners' desires to establish prairies. Our findings provide a better understanding of agricultural landowners' opinions, beliefs, and desires relative to several policy proposals included in the Task Force report. They also provide insights into landowners' knowledge of and experience with various conservation incentive programs. It is important to recognize that landowner responses largely will determine whether or not programs developed to promote prairie restoration, enhance soil conservation, and sequester carbon are successful. Our findings and their implications, presented in Chapter 3 of this report, suggest some future directions/recommendations that merit consideration by policy makers. These can be summed up in four action statements. Each is discussed briefly below.

4.1. Consider Amending Tax Policy

Non-farm landowners are more likely to put their prairie lands in permanent easements. Tax policy could be amended to reward them for limiting development and lessening the value of land placed in an easement. Land so protected will remain in prairie in perpetuity.

Land planted to, and maintained as, prairie could qualify as farmland and be taxed as such. This is one of the simplest and most fundamental changes a program for carbon sequestration / grassland restoration could make.

Consider allowing landowners to deduct the money they spend on prairie restoration from their taxes.



Figure 8. Tax policies affect landowners' decisions. This landowner receives a tax credit for pine trees planted in an area that was historically oak savanna and an agricultural land taxation rate for planting corn along his road.

4.2. Provide Education on Prairie Restoration

Policy makers could look to create programs that train landowners in all aspects of prairie restoration and maintenance. Landowners acknowledge that they start out knowing very little about grassland restoration.

Agencies, with the support of non-profit partners, could provide hands-on technical assistance with all phases of restoration and management. In the early days of the CRP, the Wisconsin DNR provided just

⁵ The Governor's Task Force report includes numerous approaches to carbon sequestration. Our work specifically focused on landowner responses to incentive programs for prairie restoration and maintenance of vegetative cover.

such assistance and helped landowners establish thousands of acres of prairie, often learning by doing. Management needs, and the resulting requisite practices, however, change over time resulting in a need for long-term provision of training and technical assistance.

4.3. Reduce Paperwork and Permissions

Policy makers will need to look at ways to lighten the regulatory burden for landowners, give them more flexibility in the management and use of their land, and require fewer written approvals to their plans. Similarly, program administrators should look for ways to stabilize incentive program rules and ensure their consistent and equitable application. Fluctuations in the stringency can alienate landowners and drive them from programs. Program administration needs to be as friendly to non-farmers as to farmers.

4.4. Conduct Landowner Research and Evaluate Program

Agencies should seek systematic feedback from landowners on program performance. This can be done through interviews, small group discussions, and/or surveys. Such feedback would alert managers to emerging problems. They could then proactively address these problems and keep landowners in the program. The suggestions of Marsh (1998) and Pannell et al. (2006) offer insight and can help shape research approaches.

5. Acknowledgments

While we cannot identify them by name, we do thank the two dozen landowners whose comments and insights supply the bulk of this report. Work such as this depends on landowners' willingness to show their land to a complete, albeit curious, stranger from the Wisconsin DNR and to describe what they are doing. All spoke with enthusiasm about their work on the land and frankly about the various government programs intended to help them. It was a privilege to sit on their porches and to walk their properties. One kind soul spent an entire day driving Kim Peterson and Ed Nelson from prairie parcel to prairie parcel, recounting his four decades-long effort to restore the land to its pre-settlement condition. The resource professionals, of all stripes, that we met with were similarly helpful. They shared their insights on the use of grasslands to sequester carbon and the challenges of implementing programs in ways that assist landowners. While there were any number of institutional barriers, every individual we met with was unfailingly generous with their time and ideas. We thank them for it.

6. Literature Cited, Further Reading, and Background Material

Here, we list all works cited throughout the report, as well as additional sources that we found helpful in defining, developing, and carrying out our work. These include references related to sociological research methods, previous work regarding landowner incentives, and related topics. We hope others will find this consolidated list useful.

- Abadi Ghadim, A.K. and D.J. Pannell. 1999. A conceptual framework of adoption of an agricultural innovation. *Agricultural Economics* 21:145-154.
- Afolabi, M. 1992. The review of related literature in research. *International Journal of Information and Library Research* 4(1):59-66.
- Allen, A.W. and N.W. Vandever. 2003. A national survey of Conservation Reserve Program (CRP) participants on environmental effects, wildlife issues, and vegetation management on program lands. *Biological Science Report USGS/BRD/BSR--2003-0001*. Fort Collins, CO: U.S. Geological Survey, Department of the Interior. 51pp.
- Arbor Day Foundation. 2011. arborday.org Tree Guide. Available online at www.arborday.org/index.cfm.
- Bamberger, M.J., J. Rugh, and L. Mabry. 2006. *RealWorld Evaluation: Working Under Budget, Time, Data, and Political Constraints*. Thousand Oaks, CA: Sage Publications.
- Belin, D.L., D.B. Kittredge, T.H. Stevens, D.C. Dennis, C.M. Schweil, and B.J. Morzuch. 2005. Assessing private forest owner attitudes toward ecosystem-based management. *Journal of Forestry* 103 (1):28-35.
- Berthelsen, P.S., L.M. Smith, and R.R. George. 1990. Ring-necked pheasant nesting ecology and production on CRP lands in the Texas southern High Plains. *Transactions of the North American Wildlife and Natural Resources Conference* 55:46-56.

- Best, L.B., H. Campa III, K.E. Kemp, R.J. Robel, M.R. Ryan, J.A. Savidge, H.P. Weeks, and S.R. Winterstein. 1998. Avian abundance in CRP and crop fields during winter in the Midwest. *American Midland Naturalist* 139:311-324.
- Chouinard, H.H., T. Paterson, P.R. Wandschneider, and A.M. Ohler. 2008. Will farmers trade profits for stewardship? Heterogeneous motivations for farm practice selection. *Land Economics* 84(1):66–82.
- Claasseen, R., F. Carriazo, J.C. Cooper, D. Hellerstein, and K. Ueda. 2011. Grassland to cropland conversion in the Northern Plains: the role of crop insurance, commodity, and disaster programs. *Economic Research Report* 120. Washington, DC: Economic Research Service, U.S. Department of Agriculture. Available online at www.ers.usda.gov/publications/err120/.
- Clatterbuck, W.K. and L. Ganus. Tree crops for marginal farmland: white pine with a financial analysis. PB1462-1M-9/00(Rev). Knoxville, TN: Agricultural Extension Service, University of Tennessee.
- Cochran, T.S. and H.H. Iltis. 2000. Atlas of the Wisconsin prairie and savanna flora. *Technical Bulletin* 191:11-226. PUB-SS-191-00. Madison, WI: Bureau of Integrated Science Services, Wisconsin Department of Natural Resources.
- Cooper, H.M. 1988. The structure of knowledge synthesis. *Knowledge in Society* 1:104-126.
- Cooper, H.M. 1989. *Integrating Research: A Guide for Literature Reviews*, 2nd ed. Newbury Park, CA: Sage Publications.
- Corbett, E. and R.C. Anderson. 2006. Landscape analysis of Illinois and Wisconsin remnant prairies. *Journal of the Torrey Botanical Society* 133(2):267–279.
- Curry, T.E. 2004. Public awareness of carbon capture and storage: A survey of attitudes toward climate change mitigation. M.S. Thesis. Cambridge, MA: Massachusetts Institute of Technology. Available online at <http://sequestration.mit.edu/bibliography/policy.html>.
- Curry, T.E., D.M. Reiner, S. Ansolabehere, and H.J. Herzog. 2004. How aware is the public of carbon capture and storage? Paper presented at the Seventh International Conference on Greenhouse Gas Control Technologies, Vancouver, Canada, September 2004. Available online at <http://sequestration.mit.edu/bibliography/policy.html>.
- Curtis, J.T. 1959. *The Vegetation of Wisconsin*. Madison, WI: University of Wisconsin Press.
- Daft, R.L. and A.Y. Lewin. 1993. Where are the theories for the “new” organizational forms? An editorial essay. *Organization Science* 4(4):i-vi.
- Denzin, N.K. and Y. Lincoln (eds.). 2005. *The SAGE Handbook of Qualitative Research*. Thousand Oaks, CA: Sage Publications.
- Eisenhardt, K.M. 1989. Building theories from case study research. *Academy of Management Review* 14(5):532-550.
- Eisenhardt, K.M. and M.E. Graebner. 2007. Theory building from cases: opportunities and challenges. *Academy of Management Journal* 50(1):25-32.

- Evrard, J.O. 2000. The Conservation Reserve Program and duck and pheasant production in St. Croix County, Wisconsin. *Research Report* 183:1-9. PUB-SS-583. Madison, WI: Bureau of Integrated Science Services, Wisconsin Department of Natural Resources.
- Fernandez-Cornejo, J. 1994. Nonradial technical efficiency and chemical input use in agriculture. *Agriculture and Resource Economics Review* 23(1):11-21.
- Fernandez-Cornejo, J., S. Daberkow, and W.D. McBride. 2001. Decomposing the size effect on the adoption of innovations: agrobiotechnology and precision agriculture. *AgBioForum* 4(2):124-136.
- Fontana, A. and J.H. Frey. 1994. Interviewing: the art of science. Pp. 361-376 In N.K. Denzin and Y.S. Lincoln (eds.). *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Gasson, R. and C. Potter. 1988. Conservation through land diversion: a survey of farmers' attitudes. *Journal of Agricultural Economics* 39(3):340-351.
- Governor's Task Force on Global Warming. 2008. *Wisconsin's Strategy for Reducing Global Warming*. Madison, WI: Wisconsin Department of Natural Resources and Public Service Commission of Wisconsin. Available online at http://dnr.wi.gov/environmentprotect/gtfgw/documents/Final_Report.pdf.
- Hart, C. 2001. *Doing a Literature Search: A Comprehensive Guide for the Social Sciences*. London; Thousand Oaks, CA: Sage.
- Haufler, J.B. (ed.). 2005. *Fish and Wildlife Benefits of Farm Bill Conservation Programs: 2000-2005 Update*. Technical Review 05-2. Bethesda, MD: The Wildlife Society.
- Hays, R.L. and A.H. Farmer. 1990. Effects of the CRP on wildlife habitat: Emergency haying in the Midwest and pine plantings in the southeast. *Transactions of the North American Wildlife and Natural Resources Conference* 55:30-39.
- Heberlein, T.A. 2004. "Fire in the Sistine Chapel": how Wisconsin responded to chronic wasting disease. *Human Dimensions of Wildlife* 9:165-179.
- Henderson, R., D. Sample, E. Epstein, R. Hoffman, J. Dobberpuhl, T. Meyer, M. Martin, and M. Mossman. 1995. Grassland communities. Pp. 116-129 In *Wisconsin's Biodiversity as a Management Issue*. Madison, WI: Wisconsin Department of Natural Resources.
- Herkert, J.R. 1998. The influence of the CRP on grasshopper sparrow population trends in the mid-continental United States. *Wildlife Society Bulletin* 26:227-231.
- Kallio, E. and J.W. Benzie. 1980. *Red pine: an American wood*. FS-255. Washington, DC: U.S. Forest Service, U.S. Department of Agriculture.
- King, J.W. and J.A. Savidge. 1995. Effects of the Conservation Reserve Program on wildlife in southeast Nebraska. *Wildlife Society Bulletin* 23:377-385.
- Krueger, R.A. and M.A. Casey. 2000. *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks, CA: SAGE Publications.
- Lambert, D.M., P. Sullivan, R. Claassen, and L. Foreman. 2007. Profiles of U.S. farm households adopting conservation-compatible practices. *Land Use Policy* 24(1):72-88.

- Levin, R. 2010. Tax benefits of donating conservation land. PLN Library, Private Landowner Network. Available online at www.privatelandownernetwork.org/library/.
- Llewellyn, R.S. 2002. Adoption of integrated weed management by grain growers. Ph.D. Thesis. Perth: School of Agricultural and Resource Economics, University of Western Australia.
- Lynch, L., I. Hardie, and D. Parker. 2001. Analyzing agricultural landowners' willingness to install streamside buffers. Working Paper No. 02-01. College Park, MD: Department of Agricultural and Resource Economics, University of Maryland. 35pp. Available online at www.arec.umd.edu/publications/papers/Working-Papers-PDF-files/02-01.pdf.
- Marsh, S.P. 1998. What can agricultural researchers do to encourage the adoption of sustainable farming systems? SEA Working Paper 98/05. Perth: School of Agricultural and Resource Economics, University of Western Australia. Available online at www.crcsalinity.com.au/newsletter/SeaNews/dpap987f.htm.
- McDowell, G. 2004. Is Extension an idea whose time has come—and gone? *Journal of Extension* 42(6):1-6. Available online at www.joe.org/joe/2004december/comm1.shtml.
- Meyer, E. 2001. *The Impacts of Conservation Easements on Property Taxes in Wisconsin*. Unpubl. Rept. to Gathering Waters Conservancy. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin. Available online at www.gatheringwaters.org/assets/documents/conservation-easements/The_Impacts_of_Cons_Easements_on_Property_Tax_in_WI.pdf.
- Nelson, E and J. Petchenik. 2002. *The National Conservation Buffer Initiative: Barriers to Program Participation*. Madison, WI: Applied Research.
- Nelson, E and J. Petchenik. 1999. *The National Conservation Buffer Initiative: A Qualitative Evaluation*. Madison, WI: Applied Research.
- Nelson, E and J. Petchenik. 1996. *Qualitative Evaluation of the Continuous Sign Up Program: Results of Five Focus Groups*. Madison, WI: Applied Research.
- Ohlenbusch, P.D. 1996. *Prescribed Burning-Planning and Conducting*. L-664. Manhattan, KS: Kansas State University Agricultural Experiment Station and Cooperative Extension Service.
- Ohlenbusch, P.D. and J.W. Kunkel. 1996. *Prescribed Burning Safety*. L-565. Manhattan, KS: Kansas State University Agricultural Experiment Station and Cooperative Extension Service.
- Pannell, D.J., G.R. Marshall, N. Barr, A. Curtis, F. Vanclay, and R. Wilkinson. 2006. Understanding and promoting adoption of conservation practices by rural landowners. *Australian Journal of Experimental Agriculture* 46:1407-1424.
- Patton, M. 1990. *Qualitative Evaluation and Research Methods*. Newbury Park, CA: Sage.
- Pease, J., D. Schweikhardt, and A. Seidl. (No date). Conservation provisions of the Food, Conservation and Energy Act of 2008: evolutionary changes and challenges. *Choices* 23(3).

- Petchenik, J. 2006. *Landowner Response to Chronic Wasting Disease and Its Management in Wisconsin's Southwest Disease Eradication Zone*. Miscellaneous Publication PUB-SS-1022. Madison, WI: Bureau of Integrated Science Services, Wisconsin Department of Natural Resources.
- Peterson, K. 2011. *Landowner Willingness to Adopt Practices and Participate in Programs to Sequester Carbon: An Annotated Bibliography*. Miscellaneous Publication PUB-SS-1067. Madison, WI: Bureau of Science Services, Wisconsin Department of Natural Resources.
- Phillips, T.I. 1985. The development of methodologies for the determination and facilitation of learning for dairy farmers. M.Ag.Sci. Thesis. Melbourne: School of Agriculture and Forestry, University of Melbourne.
- Rolley, R.E. 2005. *Controlling Chronic Wasting Disease in Wisconsin: A Progress Report and a Look toward the Future*. Madison, WI: Bureau of Integrated Science Services, Wisconsin Department of Natural Resources.
- Ross-Davis, A.L., S.R. Broussard, D.F. Jacobs, and A.S. Davis. 2005. Afforestation motivations of private landowners: an examination of hardwood tree plantings in Indiana. *Northern Journal of Applied Forestry* 22(3):149–153.
- Ryan, M.R., L.W. Burger, and E.W. Kurzejeski. 1998. The impact of CRP on avian wildlife: a review. *Journal of Production Agriculture* 11:61-66.
- Ryan, R., D. Erickson, and R. De Young. 2003. Farmers' motivations for adopting conservation practices along riparian zones in a Mid-western agricultural watershed. *Journal of Environmental Planning and Management* 46(1):19-37.
- Sample, D.W. and M.J. Mossman. 1997. *Managing Habitat for Grassland Birds - A Guide for Wisconsin*. PUBL-SS-925-97. Madison, WI: Wisconsin Department of Natural Resources.
- Sargent, M. and K.S. Carter (eds.). 1999. *Managing Michigan's Wildlife: A Landowner's Guide*. Lansing, MI: Michigan United Conservation Clubs.
- Schramm, P. 1968. A practical restoration method for tall-grass prairie. *Proceedings of a Symposium on Prairie and Prairie Restoration, Knox College*. Galesburg, IL: Knox College. Available online at <http://www.knox.edu/academics/academic-facilities/green-oaks/a-practical-restoration-method.html>.
- Stewart, D.W. and P.N. Shamdassani. 1990. *Focus Groups: Theory and Practice*. Applied Social Research Methods Series, Vol. 20. Newbury Park, CA: Sage Publications.
- Suddaby, R. 2006. What grounded theory is not. *Academy of Management Journal* 49(4):633-642.
- Umbanhowar, C.E., Jr. 1993. Classification of Wisconsin prairie: reanalysis and comparison of classification methods. Pp. 289–303. In J.S. Fralish, R.P. McIntosh, and O.L. Loucks (eds.). *John T. Curtis: Fifty Years of Wisconsin Plant Ecology*. Madison, WI: Wisconsin Academy of Sciences, Arts, and Letters.
- Virginia Tech Forestry Department. 2004. Red pine: *Pinus resinosa*, forest and range.org. Available online at <http://dendro.cnre.vt.edu/LandownerFactsheets/detail.cfm?Genus=Pinus&Species=resinosa>.

Wilson, R.S., N. Hooker, M. Tucker, J. LeJeune, and D. Doohan. 2009. Targeting the farmer decision making process: a pathway to increased adoption of integrated weed management. *Crop Protection* 28(9):756–764.

Wisconsin DNR. 2010. *Wisconsin's Chronic Wasting Disease Response Plan: 2010–2025*. WM-482-2010. Madison, WI: Bureau of Wildlife Management, Wisconsin Department of Natural Resources.

Zulauf, C., B. Sohngen, L. Hoskinson, and A. Lines. 2003. Conservation compliance: the once and future farm environmental policy tool. *Choices* 18(4): 23-26.

Appendix A: Individual Interview Protocol

The in-depth individual interview commenced with introductory comments by the researcher about the study followed by the interview questioning. Each interview lasted between one and two hours. The researcher guided the discussion to probe attitudes about proposed incentive programs for carbon sequestration. Discussions were loosely structured, but flowed from objectives defined *a priori* and generally followed the anticipated discussion outline.

Description of the land that you own

How long have you had it and what does it look like?

What's special to you about this property?

Ask what special resources they have on the land / what's special to them about this property?
(Streams, trees, other features)

When they're not working on their property what else do they do – employed elsewhere or strictly making a living / retired to the land?

What are you trying to accomplish on your land? What are you committed to causing on your land? What are their objectives for this land? What does it provide for them? What are they getting out of it? [the flip side – what are some of the burdens to having this land – taxes, trespass, maintenance]

- desire for landscape preservation / restoration
- income from management – working farm / landscape idea
- recreation
- esthetics

Also some question about the benefits (see above) and burdens of owning this property – what are the headaches (trespass, neighbors)

What was their preparation for managing this property?

What's challenging about being a land manager for this property?

Agencies and programs that you have had interactions with:

Fish and Wildlife Service

Natural Resources Conservation Service

County conservationist

UW-Extension

Nature Conservancy

Pheasants Forever

Blue Mounds Project

Prairie Enthusiasts

Trout Unlimited

Department of Natural Resources

Military Ridge/Prairie Heritage Area

How did they find out about these programs / agencies?

About their interactions

What are the contacts that you've had? Which of these have you had contact with?

What help did you get? Who was the most helpful?

What difference did they make?

Explain any programs/agencies that you considered and then rejected or decided against pursuing?

Ideal program

Come back to establishing grasslands/prairies on your property. Suppose we were creating the ideal program for landowners to establish grasslands on their land – convert a portion of their property to prairie – suppose we wanted to encourage landowners to convert a portion of their land to prairie.

What advice would you give us on how to structure and implement a program so that it would work for landowners?

- Contract length
- Technical assistance / consulting
- Cost sharing
- Maintenance
- Rental rates
- Monitoring compliance

What else should we be considering?

Global Warming – Prairies – capture of carbon

What's their sense for climate change?

Is it happening?

Is it a concern?

What do they think of a strategy that includes prairies as a way of capturing carbon in the air and putting it / sinking it in the soil?

Had they heard anything about that?

Appendix B: Draft Survey Instruments

Version 1 of Survey

Your Views on The Conservation Reserve Program (CRP)

Thank you for participating in this survey. The survey can be completed by any household adult involved in decisions regarding the land referred to in this survey. Unless otherwise instructed, please fill in the circle that best matches your response.

Background Information

1. What is your age as of your last birthday? _____ Please write a number.
2. What is your gender?
 - Male
 - Female

Your 2006 Decision Regarding CRP

In 2006, the United States Department of Agricultural Farm Service Agency (FSA) wrote to you about applying for re-enrollment or a contract extension for land you already had in the Conservation Reserve Program (CRP). These questions ask about that time period.

3. How many total acres of CRP land within Wisconsin did you have when the Farm Service Agency (FSA) contacted you in 2006 about re-enrollment or an extension?
_____ Please write a number.
4. In 2006, how many different CRP contracts involving Wisconsin land did you have?
_____ Please write a number.
5. In 2006 when FSA contacted you, were you fully retired, semi-retired or not retired?
 - Fully retired
 - Semi- retired
 - Not retired
6. In 2006 when FSA contacted you, were you a full- or part-time farmer or not a farmer? To farm means to produce and sell products with the aim of making a profit.
 - Full time farmer
 - Part time farmer
 - Not a farmer
7. Which of the following CRP re-enrollments or contract extensions was offered to you in 2006? If you can not recall check here.
 - 15 year enrollment
 - 10 year enrollment
 - 5 year contract extension
 - 4 year contract extension
 - 3 year contract extension
 - 2 year contract extension

8. Your CRP land was inspected by staff of a federal agency before an offer was final. Did the inspection find any problems or issues?

- Can not recall
- No problems or issues
- Yes, some cited problems and issues

9. In 2006, did you think about rejecting the final offer made to re-enroll in CRP or extend any contracts? If yes, what were you concerned about?

- No
- Yes. Check all you were concerned about.
 - Potential to make more money from growing crops on CRP land
 - Accepting an offer you had from someone to rent your CRP land
 - Impressions that CRP rules and requirements were burdensome
 - Impressions that CRP rules and requirements are inflexible
 - Costs for being in CRP
 - Time and effort to maintain CRP land
 - Advantages of joining other federal or state conservation programs
 - If the inspection found problems, cost of remedying these
 - If a 15/10 year enrollment is offered, new requirements for maintenance activities

10. What was the one factor in 2006 that influenced you the most to continue in CRP?

Your CRP Land as Of 2006

When answering the following questions keep in mind land you had in CRP as of 2006 and before the opportunity to re-enroll or extend your contract.

11. How important was each of the following as a reason you first signed-up for CRP?

I first signed-up for CRP in order to:	Not At All Important	Slightly Important	Important	Very Important
Create best conditions for pheasants and other wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create best conditions for hunting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have another source of income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help protect local water resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a safe source of income compared to risks of production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stop or reduce erosion of my land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help protect ground water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote conservation in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use land not needed for production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gain property tax advantages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. In what Wisconsin counties was your 2006 CRP land located? Please write the names.

13. Did you live on the same general property where your CRP land was located? If no, about how many miles did you live from the CRP land? If you had CRP acres in different locations consider the largest parcel to answer this question.

- No I lived about _____ (write a number) miles from the CRP land
- Yes lived on general property

Establishing CRP Vegetative Cover

CRP requires a vegetative cover on enrolled fields. These questions are about this requirement.

14. Did you or anybody you hired plant and establish any of the following on land you had in CRP during 2006?

Vegetative Cover	Yes	No	Don't Know
Prairie grasses such as big bluestem, Indian or switch grass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other grasses such as brome, timothy or orchard grass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prairie flowers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other covers (Please specify)			

15. Who did most of the work to plant and establish the vegetative covers? Check one.

- Yourself and/or a family member
- Yourself along with a contractor
- Only a contractor
- Don't know

16. To what extent were you dissatisfied or satisfied with the appearance of any vegetative cover when you made your decision in 2006 to continue in CRP?

- Very dissatisfied
- Dissatisfied
- Satisfied
- Very Satisfied

Maintaining CRP Vegetative Covers

Once established, vegetative covers may need regular maintenance. CRP pays some of the cost. These questions are about your experiences with maintaining vegetative covers on land you had in CRP during 2006.

17. While in CRP did you have any misunderstandings with CRP staff regarding maintenance? If yes, were you satisfied or not satisfied with how things were resolved?

- No misunderstandings
- Yes and satisfied with how things were resolved
- Yes, but not satisfied with how things were resolved

18. Have you or anybody you hired done any of the following practices to maintain the vegetative covers on CRP enrolled land?

	Yes	No	Don't Know
Controlling and removing brush	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Removing, thinning or pruning trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Controlling and removing other invasives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mowing vegetation cover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Burning vegetative cover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chemicals to control grasses or weeds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other practices (Please list)			

19. To what extent has it been difficult to maintain any of your CRP vegetative covers? If you don't know check here.

- Not at all
- Slightly difficult
- Difficult
- Very difficult

CRP Assistance and Advice

20. Since being in CRP about how often, if at all, have you sought advice and assistance from each of the following on anything related to CRP?

	Not At All	Once	A Few Times	Many Times
Farm Service Agency (FSA) staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural Resources Conservation Service (NRCS) staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
U.S. Fish and Wildlife Service staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
County conservation agency staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wisconsin Department of Natural Resources (WDNR) staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff of conservation membership organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landowner with CRP land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paid consultants or professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
UW Extension staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other university staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others used (Please list)				

21. The Farm Service Agency (FSA) manages CRP enrollment and extensions and made you the 2006 offer. Would you say your opinions about FSA are mostly positive, mostly negative or are they neutral?

- Mostly positive
- Mostly negative
- Neutral

22. The Natural Resources Conservation Service (NRCS) provides assistance to owners of CRP land during their contracts. Would you say your opinions about NRCS are mostly positive, mostly negative or are they neutral?

- Mostly positive
- Mostly negative
- Neutral

Reactions to CRP Program

23. Do you feel that you have benefited in any way from having your land in CRP? If yes, list one or two most significant benefits.

- No, not really
- Yes, please list one or two

24. To what extent do you disagree/agree with the following statements about CRP?

	Strongly Disagree	Disagree	Agree	Strongly Agree	No Opinion
Benefits of having land enrolled in CRP are worth the involved costs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Out of pocket costs for maintaining and managing CRP land are reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRP rules and requirements are consistent – they remain the same during the contract.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRP rules and requirements are easily understood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The number of CRP rules and requirements are reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compliance with rules and requirements is easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Amount of paperwork is reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. If possible, would you want any of your CRP contracts to be extended again when they end?

- No
- Yes
- Not sure

26. Do you have any suggestions for how the CRP program could be improved? If yes, please list one or two below?

- No
- Yes, please list below

All Land You Own Now and In 2006

These following questions ask about all land you owned in 2006 and that you still may own.

27. How many total acres of land did you own in 2006 when you made your decision regarding CRP? _____ Please write a number.

28. How much of the land do you still own?

- All
- Some
- None

29. How important are each of the following as reasons why you own land now or have in the past?

	Not At All Important	Slightly Important	Important	Very Important
Source of income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Long-term investment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For hunting (deer, game birds, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreation other than hunting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide wildlife habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep land in the family while wanting to pass it on to other family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a personal connection with nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. Do you yourself farm any of the land you now own? To farm means to produce and sell products with the aim of making a profit. If you rent to somebody who farms all your land check "No".

- No (Go to Question 33)
- Yes
- I no longer own any land (Go to last section – Additional Comments)

31. How many total acres do you farm? _____ Please write a number.

32. Which one of these best describes your farm? Select one.

- Small family farm (Yearly gross sale of products less than \$100,000)
- Medium family farm (Yearly gross sale of products between \$100,000 and \$249,999)
- Large family farm (Yearly gross sale of products between \$250,000 and \$499,999)
- Very large family farm (Yearly gross sale of products of \$500,000 or more)
- Non-family corporation or cooperative
- None of the above. How would you describe the farm?

Interest in New Proposed Program

A Wisconsin Task force has proposed a state Energy Crop Reserve Program. Landowners would be paid to grow perennial grasses and energy crops on marginal land. Harvesting and sale of qualified energy crops would be allowed. There would be tax incentives for maintenance of the vegetative cover, as well as reduced property taxes. Contracts would be for 10 years.

33. To what extent would you be interested in enrolling land in the proposed Energy Crop Reserve Program?

- Not at all
- Slightly interested
- Interested
- Very interested

Additional Comments (Optional)

Thank you for providing this valuable information. Use the space below and the back page if you wish to make any additional comments about CRP and your involvement in the program.

Version 2 of Survey

Your Views on The Conservation Reserve Program (CRP)

Thank you for participating in this survey. The survey can be completed by any household adult involved in decisions regarding the land referred to in this survey. Unless otherwise instructed, please fill in the circle that best matches your response.

Background Information

1. What is your age as of your last birthday? _____ Please write a number.
2. What is your gender?
 Male Female

Your 2006 Decision Regarding CRP

In April 2006, the United States Department of Agriculture Farm Service Agency (FSA) wrote to you about applying for re-enrollment or a contract extension for land you already had in the Conservation Reserve Program (CRP). These questions ask about that time period.

3. In 2006 when FSA contacted you, were you fully retired, semi-retired or not retired?
 Fully retired Semi-retired Not retired
4. In 2006 when FSA contacted you, were you a full- or part-time farmer or not a farmer? To farm means to produce and sell products with the aim of making a profit.
 Full time farmer Part time farmer Not a farmer
5. How many total acres of land, within Wisconsin, did you have in CRP when the Farm Service Agency (FSA) contacted you in 2006 about re-enrollment or an extension?
_____ Please write a number.
6. In 2006, how many different CRP contracts involving Wisconsin land did you have?
_____ Please write a number.
7. Which of the following CRP re-enrollments or contract extensions was being offered to you in 2006? If you can not recall check here.
 15 year enrollment
 10 year enrollment
 5 year contract extension
 4 year contract extension
 3 year contract extension
 2 year contract extension
8. Did you apply for an enrollment or an extension after receiving the FSA letter? You also would have paid a fee for a required inspection of your CRP land.
 Can not recall
 No (Go to Question 12)
 Yes
9. Did the inspection of your CRP land take place?
 Can not recall
 No (Go to Question 11)
 Yes

10. If inspected, were there any cited problems or issues with your CRP land?

- No problems or issues
- Inspected and was out of compliance



If out of compliance, costs of fixing problems had to be paid in order to re-enroll or for an extension. Were these costs a reason why you did not accept a CRP offer?

- No
- Yes

11. Were you being considered for a 10 or 15 year re-enrollment? If yes, you would be required to do additional maintenance activities after year 4. Was this a reason why you did not accept a CRP offer?

- Not offered such enrollment
- No, not a reason
- Yes, a reason

12. In 2006, while making a decision about CRP did someone make an offer or talk to you about renting any of your CRP land? Did you rent the land?

- No offer or nobody talked with you about renting
- Yes but did not rent
- Yes and rented

13. How much did each of the following influence your 2006 decision not to continue in CRP?

	Not At All	A Little	Somewhat	A Lot
Potential to make more money from growing crops on CRP land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impression that CRP rules and regulations are burdensome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impression that CRP rules and regulations are inflexible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dissatisfaction with time and effort to maintain CRP land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potential of joining other federal or state conservation programs instead	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dissatisfaction with costs of being in CRP	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dissatisfaction with appearance of any required CRP vegetative covers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impression that could apply later when contracts actually ended	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. What was the one factor in 2006 that influenced you the most to not continue in CRP?

Land Once in CRP

15. How was 2006 CRP land used during the 2009 growing season? Check all that apply.

- Land still was under CRP contact
- Remained the same as it was under CRP
- Pasture or grazing
- Corn production
- Grain production
- Hay
- Organic related production
- Other (Please identify) _____

16. In what Wisconsin counties was your 2006 CRP land located? Please write the names.

17. Did you live on the same general property where your CRP land was located? If no, about how many miles did you live from the CRP acres? If you had CRP acres in different locations consider the largest parcel to answer this question.

- No, I lived about _____ (write a number) miles from the CRP land
- Yes, lived on general property

18. How important was each of the following as a reason you first signed-up for CRP?

I first signed-up for CRP in order to:	Not At All Important	Slightly Important	Important	Very Important
Create best conditions for pheasants and other wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create best conditions for hunting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have another source of income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help protect local water resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a safe source of income compared to risks of production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stop or reduce erosion of my land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help protect ground water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote conservation in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use land not needed for production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gain property tax advantages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Establishing CRP Vegetative Cover

CRP requires a vegetation cover on enrolled fields. These questions are about this requirement.

19. Did you or anybody you hired plant and establish any of the following on any land you had in CRP during 2006?

Vegetation Cover	Yes	No	Don't Know
Prairie grasses such as big bluestem, Indian or switch grass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other grasses such as brome, timothy or orchard grass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prairie flowers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other covers (Please specify)			

20. Who did most of the work to plant and establish your vegetative covers? Check one.

- Yourself and/or a family member
- Yourself along with a contractor
- Only a contractor
- Don't know

21. To what extent were you dissatisfied or satisfied with the appearance of any vegetative cover when you made your decision regarding CRP in 2006?

- Very dissatisfied
- Dissatisfied
- Satisfied
- Very satisfied

Maintaining CRP Vegetative Covers

Once established, vegetative covers may need regular maintenance. CRP pays some of the costs. These questions are about your experiences with maintaining the vegetative covers on land you had in CRP during 2006.

22. Did you or anybody you hired do any of the following practices to maintain any vegetative covers on land once enrolled in CRP?

Maintenance Practices	Yes	No	Don't Know
Controlling and removing brush	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Removing, thinning or pruning trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Controlling and removing other invasives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mowing vegetative cover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Burning vegetative cover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chemicals to control grasses or weeds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other practices (Please list)			

23. To what extent was it difficult to maintain any of your CRP vegetative covers? If you don't know check here.

- Not at all
- Slightly difficult
- Difficult
- Very difficult

24. While in CRP did you have any misunderstanding with CRP personnel regarding maintenance? If yes, were you satisfied or not satisfied with how things were resolved?

- No misunderstandings
- Yes and satisfied with how things were resolved
- Yes but not satisfied with how things were resolved

CRP Assistance and Advice

25. While in CRP about how often, if at all, did you seek advice and assistance from each of the following on anything related to CRP?

	Not At All	Once	A Few Times	Many Times
Farm Service Agency (FSA) staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural Resources Conservation Service (NRCS) staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
U.S. Fish and Wildlife Service staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
County conservation agency staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wis. Department of Natural Resources (WDNR) staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff of conservation membership organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landowner with CRP land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paid consultants or professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
UW Extension staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other university staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others used (Please list)				

26. The Farm Service Agency (FSA) manages CRP enrollments and extensions and makes offers. Would you say your opinions about FSA are mostly positive, mostly negative or are they neutral?

- Mostly positive
- Mostly negative
- Neutral

27. The Natural Resources Conservation Service (NRCS) provides assistance to owners of CRP land during their contracts. Would you say your opinions about NRCS are mostly positive, mostly negative or are they neutral?

- Mostly positive
- Mostly negative
- Neutral

Reactions to CRP Program

28. Do you have any land now in CRP? If yes and if possible would you want to extend any contract when it ends?

- No land in CRP
- Yes in CRP



Would you want to extend?

- No
- Yes

29. Do you feel that you have benefited in any way from having land once in CRP? If yes, list one or two most significant benefits.

- No, not really
- Yes, please list one or two

30. To what extent do you disagree/agree with the following statements about CRP?

	Strongly Disagree	Disagree	Agree	Strongly Agree	No Opinion
Benefits from having land enrolled in CRP are worth the involved costs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Out of pocket costs for maintaining and managing CRP land are reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRP rules and requirements are consistent – they remain the same during the contract.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRP rules and requirements are easily understood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The number of CRP rules and requirements are reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compliance with rules and requirements is easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The amount of paperwork is reasonable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. Do you have any suggestions for how the CRP program could be improved? If yes, please list one or two below?

- No, not really
- Yes, please list one or two

All Land You Own Now and In 2006

The following questions ask about all land you owned in 2006 and that you still may own.

32. How many, total acres of land did you own when you made your decision regarding CRP in 2006? _____ Please write a number.

33. How much of the land do you still own?

- All
- Some
- None

34. How important are each of the following as reasons why you own land now or have in the past?

	Not At All Important	Slightly Important	Important	Very Important
Source of income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Long-term investment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For hunting (deer, game birds, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreation other than hunting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide wildlife habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep land in the family while wanting to pass it on to other family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a personal connection with nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. Do you yourself farm any of the land you now own? To farm means to produce and sell products with the aim of making a profit. If you rent to somebody who farms all your land check "No".

- No (Go to Question 38)
- Yes
- I no longer own any land (Go to last section—Additional Comments)

36. How many total acres are in your farm? _____ Please write a number.

37. Which one of these best describes your farm? Select one.

- Small family farm (Yearly gross sale of products less than \$100,000)
- Medium family farm (Yearly gross sale of products between \$100,000 and \$249,999)
- Large family farm (Yearly gross sale of products between \$250,000 and \$499,999)
- Very large family farm (Yearly gross sale of products of \$500,000 or more)
- Non-family corporation or cooperative
- None of the above. How would you describe the farm?

Interest in Proposed New Program

A Wisconsin Task force has proposed a state Energy Crop Reserve Program. Landowners would be paid to grow perennial grasses and energy crops on marginal land. Harvesting and sale of qualified crops would be allowed. There would be tax incentives for maintenance of the vegetative cover, as well as reduced property taxes. Contracts would be for 10 years.

38. To what extent would you be interested in enrolling land in the proposed Energy Crop Reserve Program?

- Not at all
- Slightly interested
- Interested
- Very interested

Additional Comments (Optional)

Thank you for providing this valuable information. Use the space below if you wish to make any additional comments about CRP and your involvement in the program.

Notes