

**Motivating Enrollment:  
Rice County Landowners in the  
Conservation Reserve Program**

Kelsea Dombrowski

Ellen Esch

Sydney Weydemeyer

Environmental Studies Department

Carleton College, Northfield, MN

March 8, 2011

## **ABSTRACT**

This paper explores and analyzes the motivations of Rice County landowners enrolled in the United States Department of Agriculture (USDA)'s Conservation Reserve Program (CRP). This study does not seek to examine the efficacy of the CRP, but rather the economic, ecological, personal value, and religious/spiritual motivations that encouraged landowners to enroll in the program. Drawing on a survey of Rice County landowners, this paper finds that ecological motivators most strongly encouraged Rice County farmers to enroll in the CRP, followed by personal values, economics, and religion/spirituality, respectively. However, the qualitative data in the form of free responses demonstrates that personal values and religious/spiritual motivators play a larger role in landowner motivations to enroll in the CRP than has previously been discussed in other studies.

## **INTRODUCTION**

The Conservation Reserve Program (CRP) is federally funded through the United States Department of Agriculture (USDA) with a goal of instituting conservation practices on environmentally sensitive farmland. The CRP currently has the ability to enroll 32 million acres of U.S. land in 10 to 15 year contract periods (Barbarika et al. 2009). When enrolled in the CRP, the specified land is converted from agricultural practices to conserved/restored land or buffer areas through the planting of grasses, trees, native prairie plants, or additional approaches as determined by the state of the land (Barbarika et al. 2009). The re-purposing of these lands provides benefits including the preservation of soil health, decreased damage due to erosion, increased wildlife habitat, improved ground water quality, improved air quality, and carbon sequestration, among others (Feather, Hellerstein, and Hansen 1999). The landowner enrolling in

the CRP has the potential to receive cost-sharing assistance associated with the initial re-purposing of the land in addition to annual rental payments from the federal government for the length of the contract (Barbarika et al. 2009).

The ecological implications of instituting farmland conservation practices have been the topic of many academic studies (Barbarika et al. 2009; Follett 2009; Rao and Yang 2010). There is compelling evidence demonstrating that the ecological benefits publicized by the CRP are real and significant. For example, in 2009, due to the establishment of vegetative cover and buffer strips that absorb stray nutrients, the CRP was able to prevent 612 million pounds of Nitrogen, 123 million pounds of Phosphorous, and 220 million tons of sediment from running off fields and into bodies of water (Barbarika et al. 2009). These types of environmental benefits have encouraged landowners to participate and enroll in the CRP (Waldschmidt 2011). While environmental benefits may encourage certain landowners to enroll, there have been many other studies giving strong evidence that the likelihood of participation in the CRP or other conservation programs is dependent on financial incentives (Konyar and Osborn 1990; Isik and Yang 2004; Boisvert and Chang 2005; Lambert et al. 2007). Some researchers even suggest that voluntary participation in conservation programs could be increased with greater economic incentives (Esseks and Kraft 1988; Parks and Schorr 1997; Wu and Guan 2009).

While there are a number of economically and ecologically grounded papers that address potential benefits of CRP participation and give guidance for determining landowner motivations for enrolling in the CRP, these papers do not offer a comprehensive look at why landowners enroll in conservation programs. Past research has concluded that economic and ecological reasons are not the only, or even the most important, reasons landowners decide to participate in the CRP (Lambert, Sullivan, and Claassen 2007; Ernst and Wallace 2008; Atari et al. 2009;

Yiridoe et al. 2010). The few studies recognizing other factors that motivate landowners to enroll in the CRP allude to a variety of personal values as being important motivating factors, but the current literature does not extensively expand upon personal value incentives for enrolling (Lambert, Sullivan, and Claassen 2007; Siebert et al. 2010)The studies that do investigate personal values have found that participating in conservation programs is often a result of feeling “responsibility towards your community” (Goltry 1996; Ernst and Wallace 2008). However, when describing motivations for participating in conservation programs, these studies treat personal value reasons as separate entities from ecological and economic reasons, not as additional motivators.

In addition to economic and ecological forces, our study aims to examine the under-investigated forces of personal values and religious/spiritual reasons as potential motivators for enrollment in the CRP. These topics were examined in conjunction with economic and ecological motivators to determine how these four variables compared against each other in motivating Rice County landowners to enroll. This research broadens the existing literature regarding CRP enrollment by taking the examination of potential personal value and religious/spiritual motivations beyond what currently exists. This study helps to more fully illuminate the motivations surrounding the voluntary participation of landowners in one of the country’s most successful conservation programs.

## **STUDY AREA**

Our study focuses exclusively on landowners within Rice County, Minnesota. Rice County is located approximately 50 miles south of the Minneapolis-St. Paul metro area between south-central and southeastern Minnesota. This county was originally selected as the study site

because of our limitations as researchers in the areas of proximity, budget, and time. However, upon further research, Rice County was found to be an ideal site to carry out the survey because of the high percentage of farms in the county (41.3%) that are enrolled in the CRP (Table 1).

Of Rice County’s total land, about 30.7%, or 253,094 acres, is involved in agricultural production on 1,494 farms (Table 1) (Rice County Planning and Zoning Department 1997).

Table 1 shows Rice County’s total farm and acre numbers, as well as the farms and acres enrolled in the CRP, Wetlands Reserve, Farmable Wetlands, or Conservation Reserve Enhancement Programs. The percentages of farms and acres enrolled in conservation practices found in Rice County are similar to those found throughout the state.

	Total Farms	Total Acres	Farms in CRP	Acres in CRP	% of Farms in CRP	% of Acres in CRP
United States	2,204,792	922,095,840	346,321	38,547,450	15.71%	4.18%
Minnesota	80,922	26,917,962	27,687	1,929,007	34.21%	7.17%
Rice County	1,494	253,094	617	21,112	41.30%	8.34%

Table 1. 2007 data on the United States, Minnesota, and Rice County total number of farms and acres as well as farms and acres participating in the CRP, Wetlands Reserve, Farmable Wetlands, or Conservation Reserve Enhancement Programs (United States Department of Agriculture 2009).

## METHODOLOGY

The empirical data used in our study was collected via mail questionnaire (Appendix 1). In the form of a survey, the questionnaire was divided into three sections. The first section asks respondents to evaluate to what degree fifteen factors contributed to their decision to enroll in the CRP. They had the option to select from “very much,” “quite a bit,” “somewhat,” “a little,” or “not at all”. The second section focuses on obtaining demographic information from the landowner including age, total acres of land owned, total acres in the CRP, number of years owned land in Rice County, number of years lived in the area, if they are the primary land manager, and their religious denomination/preference. The final section asks participants if they

would re-enroll in the CRP, giving the respondents the option of selecting from “definitely would,” “probably would,” “maybe not,” or “definitely not.” The final section also asks if participants had any additional comments regarding motivations to enroll or their experience with the program. The survey in its entirety can be found in Appendix 1.

When developing the survey questions, each was premised on evaluating a certain factor that we felt could have influenced a landowner’s decision to enroll in the CRP. These factors were based on ecological, economic, personal value, or religious/spiritual criteria. It should be noted that the religious/spiritual category is broadly conceived and intends to investigate both organized and unorganized conceptions of religious and spiritual beliefs. All questions associated with each category were devised from primary and secondary literature, and the relationships between responses to these questions were determined through statistical analysis. As personal value and religious/spiritual motivators have not had the same depth of academic attention as economic and ecological motivators, this paper seeks to give a more extensive evaluation of these two factors than to the ecological and economic factors. A justification of the inclusion of ecological and economic questions is not warranted because these subjects have been extensively studied by previous research. The next section is a thorough examination of the personal value and religious/spiritual questions and how they were developed for this study.

### **Personal Values as Motivators for CRP Enrollment**

This section examines ethics as a motivating factor. It should be noted that within the survey instrument, this ethical category was entitled “personal values” to avoid wording bias that may have been associated with the term “ethics” (Danielson 2010). In this study, the four

environmental ethics (personal values) of land stewardship, land aesthetics, obligation to future generations, and poorly planned growth were examined.

It is important to keep in mind that simple participation in the CRP can be a considerable indicator of a person's environmental values. Essentially, the goal of the CRP is to restore land to a more healthy state. This "healthy state" as defined on the USDA Farm Service Agency website is specifically described as a state that protects topsoil from erosion by reducing ground water runoff and sedimentation, which helps to improve the condition of lakes, rivers, ponds, and streams (United States Department of Agriculture and Farm Service Agency 2011). Additionally, this will in turn help to increase wildlife populations and general species diversity (United States Department of Agriculture and Farm Service Agency 2011). The USDA's definition of healthy land is consistent with environmentalist Aldo Leopold's definition, which states that land high in biodiversity, without exotic species and associated environmental damages, and generally free of anthropogenic pollutants is considered healthy land (Leopold 1949). This evidence demonstrates that a desire to restore land simply to see it returned to a more natural state is a desire motivated by an environmental ethic.

Taking participation in the CRP as an indication of possessing an environmental ethic gives even further evidence of the significant role personal values play in motivating landowners to enroll in the CRP. The following sections explain the four environmental ethics we investigated in the personal values section of our survey.

### *Land Stewardship*

The first survey question sought to explore the role of land stewardship as a motivating factor by asking to what degree "[fulfilling] a commitment to care for your land" contributed to

the respondent's decision to enroll in the CRP. The stewardship ethic is expressed through labor, either physical or otherwise, done to care for the land (Leopold 1949; Berry 1977; Scherer 1994). This ethic views land as a complex and interconnected biotic community on which humans depend and have a moral duty to protect and preserve (Leopold 1949; Berry 1977; Scherer 1994). For example, habitat restoration can be a means to fulfill this moral duty to the biotic community while also creating a sense of appreciation and a corresponding land ethic (Rolston 1975). Therefore, any type of sustainable land management, potentially including habitat restoration, is a practice of the stewardship ethic. The stewardship ethic also argues that proximity to wilderness alone cannot create an environmental ethic, but that there must be an active engagement with the land (Berry 1977). Wendell Berry, an environmental ethicist, argues that stewardship in the form of meaningful work done on the land gives humans a higher quality of life (Berry 1977). Leopold stresses that a conscientious farmer will care and cultivate the land with an attention to its future fertility (Leopold 1949). Caring for the land could imply taking it out of cultivation to ensure its future fertility, as is practiced in the CRP. Based on these ideas, this survey question sought to examine to what extent participants were motivated to enroll their land in the CRP as guided by the ethic of land stewardship.

### *Obligations to Future Generations*

The second question sought to explore the role of obligations to future generations as a motivating factor by asking if “[restoring] the health of the land to benefit future generations of farmers” contributed to the respondent's decision to enroll land in the CRP. Since 1864 when George Perkins Marsh urged men to “put the welfare of future generations before their own ‘moral and material interests,’” the obligation to future generations has been one of the most

ardent calls for action among American environmentalists (Parfit 1983; Bookchin and Foreman 1991; Varian 2006; Jarvis 2007; Miller 2007 quoting Marsh 1864). Protecting the environment for the benefit of children and grandchildren can give an individual great motivation for his or her environmental actions (Bookchin and Foreman 1991; Golding 2001; Ernst and Wallace 2008). When looking at an obligation to future generations, the moral community to which we feel obligations must first be defined (Golding 2001). The assumption that these future generations will have similar cultural values, desires, and expectations to those seen in today's society is important to recognize when defining this moral community. It is also important to note that as the moral community grows, the relationship between members becomes less personal and obligations towards these far-off figures diminish: "the more remote the members of this community are, the more problematic our obligations to them become" (Golding 2001). While these ideas underlie our academic inquiries, the survey question itself simply sought to explore if landowners felt that a responsibility to future generations was a motivator for enrolling in the CRP.

### *Land Aesthetic*

The third question in the personal values section of the survey explored the role of land aesthetics by asking to what extent "[improving] aesthetics" contributed to the respondent's decision to enroll land in the CRP. As environmental ethicist Baird Callicott states in his essay, "Leopold's Land Aesthetic," one of the main reasons for land conservation in the United States, both historically and currently, is to preserve lands considered beautiful (Callicott 2008). Beginning in the late 19th century, "beautiful" landscapes in the American eye were those that possessed grandeur and cathedral-like natural structures described by nature writers like John

Muir (Miller 2007). Today, however, ecological science has shifted the perception of what is considered aesthetically beautiful. Beautiful can also be defined as possessing characteristics that make for overall greater land health such as greater biodiversity with fewer alien species and less anthropogenic pollution (Leopold 1949; Callicott 2008). These aesthetic values shaped by Leopold have carried over to today's conservationists, and this question aims to determine if Rice County landowners participating in conservation programs were inspired by these aesthetic concerns.

### *Poorly Planned Growth*

The final question in the personal values section asked if “[protecting] land from poorly planned growth” contributed to the respondent’s decision to enroll land in the CRP. This question sought to determine how human infrastructural development affects aesthetics, how future generations will deal with the ramifications of a developed landscape, and whether respondents felt that controlling development was a component of being a good land steward. Ideas from the traditions concerned with stewardship, aesthetics, and obligations to future generations are all encompassed in poorly planned growth. Additionally, Ernst and Wallace investigated poorly planned growth and found that “motivations [to enroll land in the CRP] often referred to a desire to control, stop or direct development” (Ernst and Wallace 2008). Because our study examined many of the same factors, we felt examining this particular concern could more securely situate our study in the current literature, especially given Rice County’s proximity to the growing Twin Cities metro area. Our study placed this question in the “personal values” section instead of the “ecological” section because we sought to examine how a stewardship ethic, care for aesthetics, and obligations to future generations could be expressed in

response to this question. Placing it within the “personal values” category guided the respondent to answer the question from an ethical mindset.

### **Religious/Spiritual Values as CRP Enrollment Incentives**

Although both the personal value and the religious/spiritual sections are the focus of this paper, we do not analyze them in the same way. A larger volume of literature examining environmental ethics can be applied to this study, whereas literature focusing on the relationship between religion, agrarian movements, farming, and conservation is less extensive. In addition, the religion/spirituality examination includes examples of the role of religion in agriculture with regard to current farmers, and is not solely focused on theoretical material. Unlike the personal values section, therefore, the section of our survey examining religious/spiritual motivators did not investigate individual religious ethics or outlooks. Instead, the questions developed were designed to analyze broad religious/spiritual themes.

Religion and spirituality “seek to orient us to that which is of compelling importance beyond or within our day-to-day concerns” (Gottlieb 2004). Because of religion’s fundamental role in cultural perception, guidance, and values, we felt it was important to examine the role religion plays in the decision-making process of Rice County landowners. Additionally, the literature describing motivations for landowner enrollment in the CRP has not extensively examined religion’s unique relationship to conservation in the context of government-run programs. Scholars such as Roger Gottlieb, whose *This Sacred Earth* (2004) recognizes the breadth of religious responses to environmental issues, have engaged in passionate discourse about the relationship between religion and nature since Lynn White, Jr.’s publication of “The Historical Roots of Our Ecological Crisis” in 1967. Lynn White, Jr., the prominent scholar often

associated with assessing the relationship between religion and the environment, eloquently makes a case for our investigation of religious/spiritual motivations to enroll land in the CRP by stating, “human ecology is deeply conditioned by beliefs about our nature and destiny—that is, by religion” (White 1967). Furthermore, he believes that the human-environment relationship is determined and shaped by religion and religious teachings, and that the remedy for the earth’s ills can be as largely religious as their cause (White 1967). This study attempts to respond to the impulse connecting religion and the environment, which could create a religious/spiritual motivation to enroll in the CRP.

In this paper, the religious literature discussed is Christian-centric due to the largely Catholic and Protestant population of the state of Minnesota, although we do recognize that many other religions connect to nature and agriculture (Figure 1). Thus, more general questions were asked in this initial investigation to help determine the role religion plays in motivating CRP enrollment. A brief literature review relating the current evidence of the relationship between religion and farming practices follows.

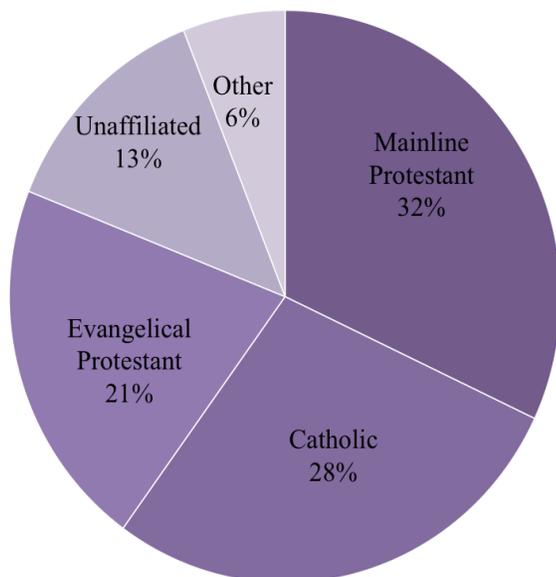


Figure 1. Religious composition of Minnesota (The Pew Forum 2008).

### *Religious/Spiritual Beliefs*

The first question in the religious/spiritual section asked if “the desire to fulfill religious/spiritual beliefs” contributed to the respondent’s decision to enroll land in the CRP. Examinations of theoretical literature as well as firsthand accounts of religious farmers inspired the asking of this question. For example, in Canada, the Christian Farmer Federations of Alberta and Ontario (CFFA and CFFO, respectively) are guided by Christian principles. Stewardship as a central Christian principle for agriculture is expressed by the CFFs, and helps to explain the way in which the groups utilize religious values in their “transformational political action” and maintain their positions “alongside mainstream institutions” when it comes to Canadian agricultural concerns (Paterson 2001). The actions of these groups demonstrate how religious concerns become adapted to present issues, creating an “environmental agenda...continually set and reset by [a religion’s] adherents” (Gottlieb 2004). To extrapolate on the successful political action of the CFFs in Canada, religious farming has the potential to broaden agricultural viewpoints to contain a more universal view of stewardship.

The influence of religious/spiritual beliefs in environmental decision-making has also been demonstrated as it pertains to the concept of community. Many Christian farmers and landowners expand the idea of a local community into a larger world community (Freudenberger 1991). Concern for issues such as sustainability, international farmers, and food security can promote a sense of broad stewardship, care, and environmentalism in believers (Freudenberger 1991; Zylstra 2007). These concerns could lead directly to enrollment in the CRP: with land set aside to rest, farms will naturally produce less, allow the land to revitalize, and will create more space in the market for other world community members. Another concern for the community is discussed by Swinton, who describes natural land as providing a cultural service in the form of

spiritual and inspirational benefits to all who encounter it (Swinton 2008). Community well being can certainly be an inspiration to participate in conservation through enrolling in the CRP, especially when adopting the view that abuse of the land will result in its retaliation and our eventual demise (Freudenberger 1991). The first question aimed at determining the relevance of these ideas on CRP enrollment.

### *Work of God/Higher Being*

The second question asked to what extent “doing the work of God or a higher being” contributed to the respondent’s decision to enroll in the CRP. While enrolling to do the work of God or a higher being can certainly be encompassed in religious/spiritual beliefs, based on our research we believed it important to ask about it specifically. The intersection of agriculture and religion found in the Christian Agrarian movement and the idea of doing God’s work in the field and on the farm is a very strong indication that religion, and specifically the influence of a higher power, does in fact play a role in the decision making of many farmers (Santmire 2003; Moll 2007). A number of farmers who identify as members of this movement cite direct encouragement from God to start “tending his creation” by planting or raising livestock (Moll 2007). The inspiration to begin agricultural operations has motivated an increasing number of Christian suburbanites to become farmers and relocate to rural towns in need of revitalization (Moll 2007). The literature demonstrates that relocations and career changes motivated by the desire to do the work of God/a higher power have aligned Christian farmers with larger social concerns regarding the environment, food, stewardship, future generations, and conservation. This question sought to examine this as related to landowner enrollment in the CRP.

### *Bible/Holy Book*

The final question in the religion/spiritual section examined to what extent “following the guidance of the Bible or another holy book” contributed to the respondent’s decision to enroll in the CRP. As explained by Pope John Paul II, the creation story found in the Bible book of Genesis recognizes the responsibility to care for the earth bestowed to humans by God: “God entrusted the whole of creation to the man and woman, and only then-as we read-could he rest from ‘all his work’” (Pope John Paul II 1990). Paul II goes on to state that through these biblical readings it can be understood that “when man turns his back on the Creator’s plan, he provokes a disorder which has inevitable repercussions on the rest of the created order” and describes the result of this abandonment with a quotation from the book of Hosea: “Therefore the land mourns and all who dwell in it languish, and also the beasts of the field and the birds of the air and even the fish of the sea are taken away” (Pope John Paul II 1990).

Many additional Bible passages recognize the damage that is done when the land, as part of God’s creation, is not cared for. Leviticus, chapter 25, verses three and four read, ““You may plant your seed in your field for six years, and you may trim your vineyards for six years and bring in their fruits. But during the seventh year, you must let the land rest. This will be a special time to honor the LORD. You must not plant seed in your field or trim your vineyards” (Lutheran School of Theology at Chicago). These verses specifically relate to the necessity of land rest, which is directly applicable to participation in the CRP. This question sought to examine to what extent these messages within the Bible, or similar messages in other holy books, could potentially motivate enrollment in the CRP in order to rest and care for God’s creation, the land.

### *Concluding Thoughts on Religion/Spirituality*

Demonstrating the interconnectedness of personal values and religion/spirituality as well as supporting a prescription of a religious remedy, it is postulated that:

Religion can formulate a new environmental ethic that relates us to the land and emphasizes our responsibilities for its preservation. A new ethic is needed that will transcend most of the traditional contemporary values concerning the land. Rather than exploiting, diminishing, and destroying the land, we must sustain it now and for future generations. This encompasses the whole system of the land—the rivers, soils, oceans, atmosphere, magnetosphere, and now outer space. This ethic incorporates the rich Judeo-Christian heritage of a land that does not belong exclusively to us. We are entrusted to care for the land—to till it and keep it. We are trustees but not owners (Freudenberger 1991).

This statement encompasses many of the motivations examined in this paper, emphasizing the connection between farming, personal values, and religious/spiritual beliefs. Evidence from literature such as this inspired us to formulate survey questions that more extensively examined the relationship between personal values and religion/spirituality in motivating landowner participation in the CRP.

## **RESULTS**

Surveys were sent to all 739 Rice County landowners enrolled in the CRP. We recognize that this number of participants is greater than that given by the 2007 Census of Agriculture, but the difference can be attributed to enrollment fluctuation between the year the Census was conducted and the more recent data provided to us by the Rice County Farm Service Agency. Two hundred and seventy-one (271) completed surveys were returned and 35 were unable to be delivered, giving us a response rate of 38.5%. The average respondent is 61.4 years old, has owned their land for 28.8 years, owns 168.4 acres of land in Rice County, and has 29.0 acres

enrolled in the CRP (Appendix 2). Of participants answering the question, “are you the primary land manager,” 91.4% answered “yes” (Appendix 2).

Data was coded to indicate that a statement contributing “very much” to the decision to enroll land in the CRP was given the value of 5. If the factor contributed “quite a bit,” it was assigned the value of 4, “somewhat” became a 3, “a little” a 2, and “not at all” was a 1. Within each category of statements (Ecological, Personal Value, Economic, and Religious/Spiritual) the composite average for each factor was computed. If a respondent only answered 3 of the 4 personal value questions asked, for example, the sum of his or her personal value responses was divided by only 3 and not 4 in order to capture the true average value of their response. Religious demographic information was coded into the following categories based on respondent’s responses: Lutheran, Catholic, Christian (non-Catholic, non-Lutheran), non-Christian other, and none. Responses to the question, “would you enroll land in the CRP again?” were coded so that the response “definitely would” corresponded to a 4, a 3 to “probably would,” a 2 to “maybe not,” and a 1 to “definitely not.” Comments written in the free response or “other values” areas are used as part of the qualitative data set and can be found in their entirety in Appendix 3.

## **General Findings**

The typical respondent had an average ecological score of 3.77 and an average personal value score of 3.62, indicating that ecological and personal value motivators influenced CRP enrollment between “somewhat” and “quite a bit”, but closer to “quite a bit” (Fig. 2). An average score of 3.31 was found for economic motivations, demonstrating that economic motivations lie closer to mattering “somewhat” than “quite a bit” (Fig. 2). Lastly, an average religious/spiritual

score of 1.80 was found, indicating that religious/spiritual motivations lie between mattering “not at all” and “a little bit”, but closer to “a little bit” (Fig. 2).

Within the ecological questions, creating a habitat for wildlife had the highest average score among respondents at 4.38, followed by the desire to participate in land conservation at 4.09. After the desire to participate in land conservation came the desire to preserve ecologically unique ecosystems at 3.69, then to create hunting areas at 3.37, and finally the desire to give the land a prolonged fallow time to replenish nutrients had an average score of 3.29.

Within the personal value questions, fulfilling a commitment to care for the land had the highest average value of 4.22. The desire to restore land health for future generations was second highest at 3.57. Third was improving aesthetics at 3.39 and finally protecting land from poorly planned growth had an average value of 3.24.

Within the economic questions, receiving cost sharing and/or rental payments was rated higher, having an average score of 3.57, than receiving economic return on low-producing or marginal lands, which had an average score of 3.02.

Within the religious/spiritual questions, fulfilling religious/spiritual beliefs was highest, having an average score of 1.85, followed by doing the work of God/higher being at a score of 1.83, and the desire to follow the teachings of the Bible/other book at a score of 1.66.

Please see Appendix 2 for additional information regarding the standard deviations and number of respondents answering each question.

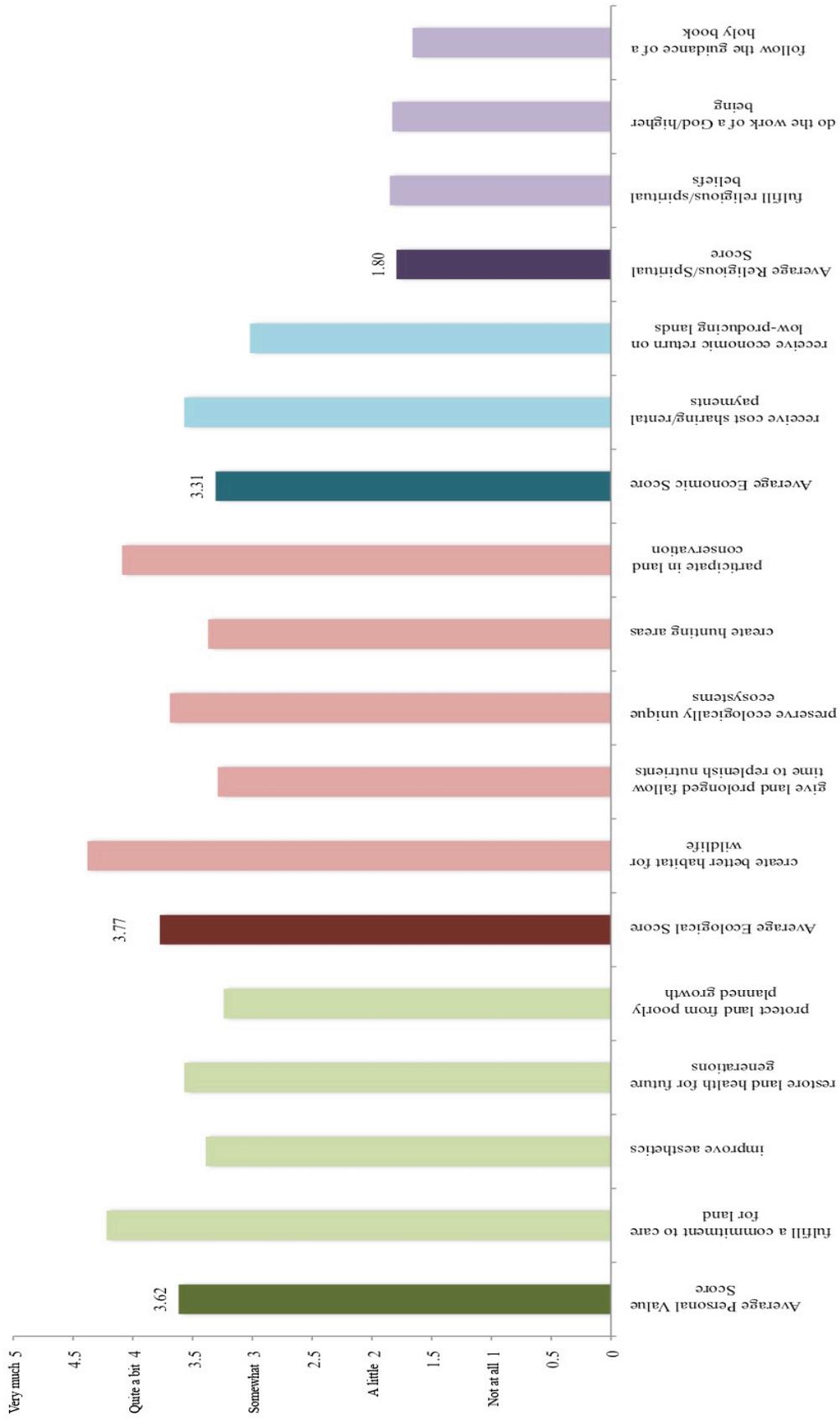


Figure 2. Average respondent's score for each question asked along with composite mean score for each category of response. Scores from each individual variable can be found in Appendix 2.

## **Analyses of Variance and Regressions**

One-way analyses of variance (ANOVAs) were performed to compare the average ecological, personal value, economic, and religious/spiritual scores to the religion categories as well as to the respondent's answer regarding re-enrollment in the CRP. These comparisons were the logical ones to make as ANOVAs compare a continuous variable (average scores in our four areas) to categorical variables (in our study, religion and likelihood to re-enroll). ANOVAs, if significant results are found, are able to reject the null hypothesis that there is no variation between the average responses (of ecological, personal values, economic, and religious/spiritual motivators) between the groups (religious affiliation and response to re-enrollment). Tukey's HSD is a rigorous post-hoc test which is able to determine, if the null hypothesis is rejected, between what groups the variation lays.

Between the different religions, there was significant variance between average ecological score ( $p=0.003$ ) with those professing no religion having a statistically significant lower score than those who identified as Lutheran (Tukey's HSD,  $p=0.011$ ), Catholic (Tukey's HSD,  $p=0.001$ ), and Christian (non-Lutheran non-Catholic) (Tukey's HSD,  $p=0.035$ ) (Figure 3). That is to say that ecological factors mattered less when enrolling to respondents who stated that they had no religion than those that were Lutheran, Catholic, and Christian. Non-Christian others had statistically the same ecological score as all other categories of religion. Between the religions, there was also statistical significance in average economic score ( $p=0.005$ ) (Figure 3). Catholics had a significantly higher economic motivation score than Christians (non-Lutheran, non-Catholic) (Tukey's HSD,  $p=0.004$ ). All other religions had statistically similar economic values. There were no statistically significant differences of average personal value or religious/spiritual scores between the different religions.

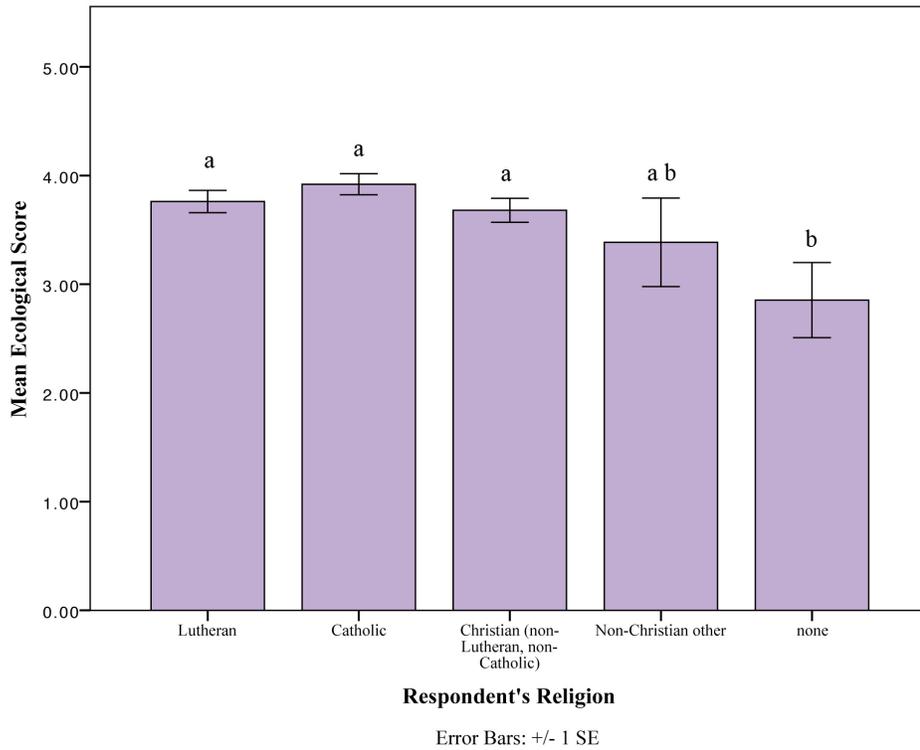
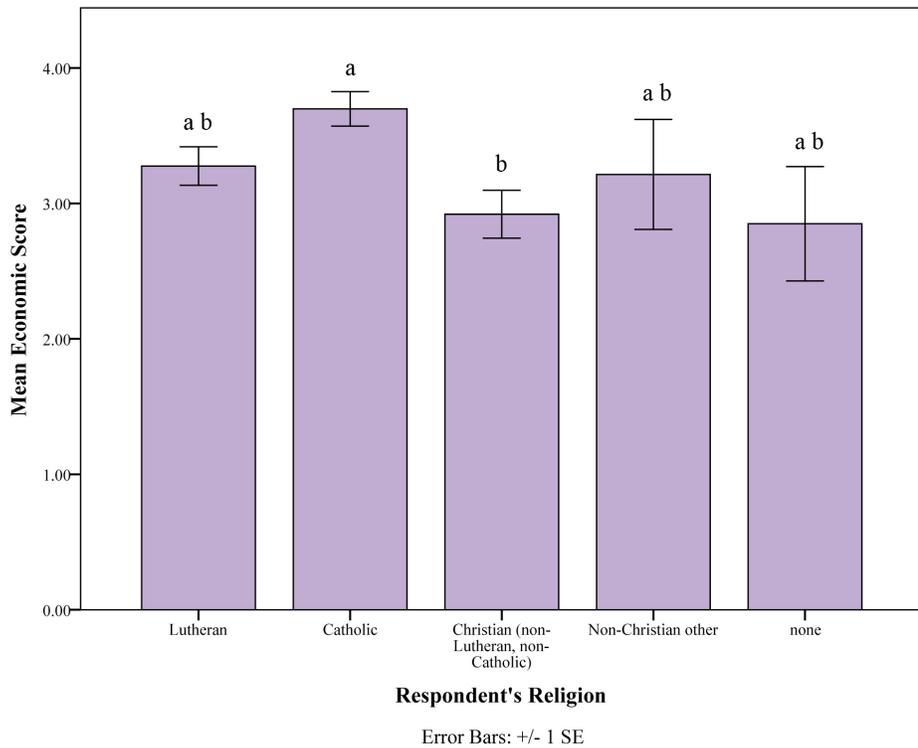


Figure 3. Differences in economic and ecological scores grouped by religion. Economic scores are statistically significant ( $p=0.005$ ) and Tukey's post-hoc test reveal Catholics have a significantly higher economic motivation score than do Christians (non-Lutheran, non-Catholic) ( $p=0.004$ ). Ecological scores are statistically significant ( $p=0.003$ ) and Tukey's post-hoc test reveal those professing no religion have a significantly lower ecological motivation score than Lutherans ( $p=0.011$ ), Catholics ( $p=0.001$ ), and Christians (non-Lutheran, non-Catholic) ( $p=0.035$ ).

Between participants grouped by the answer given for the question “would you enroll land in the CRP again,” there were statistically significant differences between scores for personal values ( $p=0.028$ ) (Figure 4). Respondents who said they “definitely would” re-enroll had a marginally statistically significant higher personal value score than those replying, “probably would” (Tukey’s HSD,  $p=0.064$ ) (Figure 4). There was no statistical difference between other personal value scores when compared by answer to would the respondent re-enroll land in the CRP. When grouped by answer to the question “would you enroll land in the CRP again,” there were also statistically significant differences between scores for ecological reasons ( $p=0.009$ ) (Figure 4). Respondents who said they “definitely would” re-enroll had a statistically significant higher ecological score than those replying, “probably would” (Tukey’s HSD,  $p=0.033$ ). There were no statistically significant differences of average economic or religious/spiritual scores between the different replies to re-enrollment.

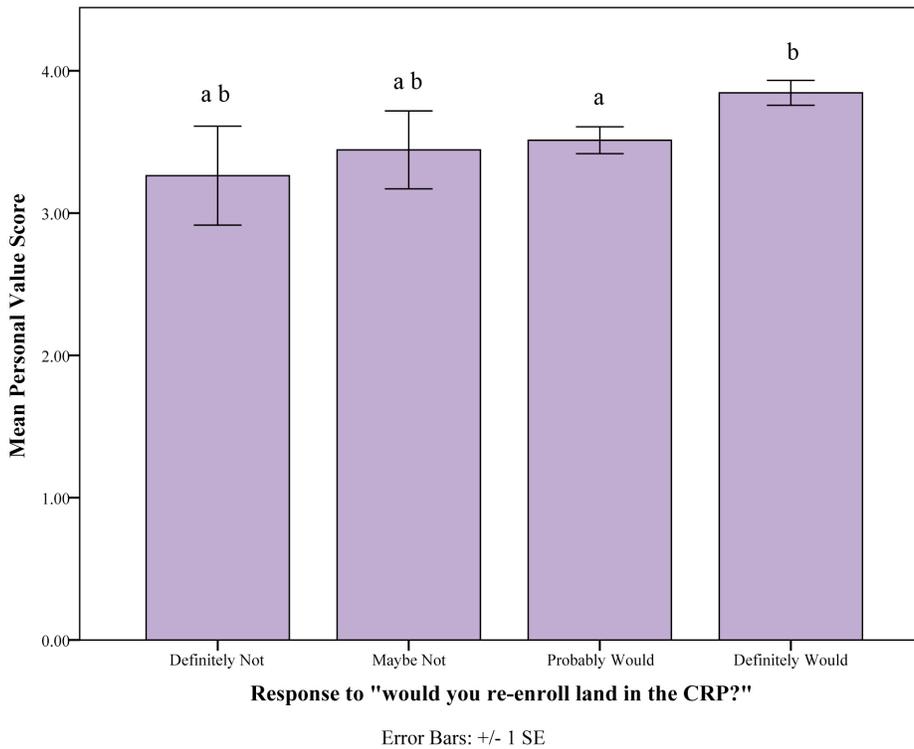
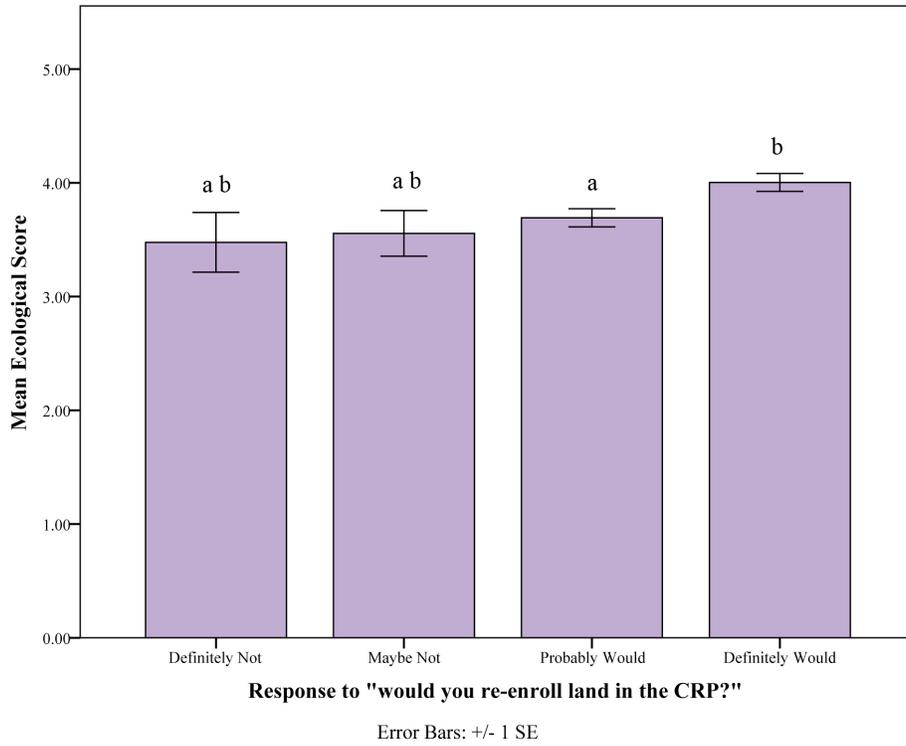


Figure 4. Differences in personal value and ecological scores grouped by response to “would you re-enroll land in the CRP?” Personal value scores are statistically significant ( $p=0.028$ ) and Tukey’s post-hoc test reveal that respondent’s replying “definitely would” have marginally statistically significantly higher scores than those replying “probably would” ( $p=0.064$ ). Ecological scores are statistically significant ( $p=0.009$ ) and Tukey’s post-hoc test reveal that respondent’s replying “definitely would” have statistically significantly higher scores than those replying “probably would” ( $p=0.033$ ).

Data were also compared against each other in an attempt to create a primitive model to see if certain attributes about a person could predict other variables. We recognize that our data are not without flaw, especially because the responses do not always have a normal distribution, but the residuals from these regressions do in fact have a normal distribution, meaning that a linear model is indeed appropriate. Given these limitations, we feel that these analyses are still valuable in that they offer a novel look at new relationships.

By performing a Multiple Linear Regression, it was found that a respondent's personal value and economic scores are significant predictors of average religious/spiritual score while ecological score was not a significant predictor of religious/spiritual score ( $p < 0.001$ ,  $p < 0.001$ ,  $p = 0.513$  respectively). The model incorporating these three variables is able to explain 28.9% of the variance seen in religious/spiritual scores. A respondent's ecological, economic, and religious/spiritual scores are all significant predictors of average personal value score ( $p < 0.001$ ,  $p = 0.020$ ,  $p < 0.001$  respectively). The model incorporating these three variables is able to explain 49.8% of the variance seen in personal value scores. A respondent's personal value, ecological, and religious/spiritual scores are all significant predictors of average economic score ( $p = 0.020$ ,  $p = 0.010$ ,  $p < 0.001$  respectively). The model incorporating these three variables is able to explain 10.4% of the variance seen in economic scores. A respondent's personal value and economic scores are significant predictors of average ecological score while religious/spiritual score is not ( $p < 0.001$ ,  $p = 0.010$ ,  $p = 0.513$  respectively). The model incorporating these three variables is able to explain 41.0% of the variance seen in ecological scores.

## **Qualitative Data**

One hundred and thirty-eight (138) surveys were returned with free response data. Responses were examined for category association, although it should be noted that at many times these responses were difficult to categorize. Seventy-four (74) responses dealt with ethical reasons for enrolling in the CRP, seventy-three (73) responses discussed ecological reasons, thirty-three (33) economic reasons, and eighteen (18) religious/spiritual reasons. It is important to recognize that simple category association lacks much of the resolution and clarity given by the actual free responses due to instances where it was impossible to separate various categories from each other. Results from the qualitative data set in the form of free responses are given in their entirety in Appendix 3.

## **DISCUSSION**

### **General Findings**

In an interview with Danielle Waldschmidt, a Farm Bill Technician for Rice County who handles recruiting for the CRP and other conservation programs, she stated that in discussions with landowners many stated that they had enrolled in the CRP for reasons other than economic (Waldschmidt 2011). This trend was validated by our data set. In the analysis of the collected data, we found that participants in the CRP are motivated most strongly by their ecological motives, second most by personal value reasons, third most by economic reasons, and least by religious/spiritual motivations.

These findings are important as they suggest that studies which attempt to determine an individual's likelihood to participate in a conservation program based solely upon economic models lack accuracy and precision if economic motivators are not the main, or even most

important, reasons that participants are enrolling in the CRP in Rice County. In addition, these data indicate that the recruitment materials for the CRP should emphasize ecological benefits most prominently but also include mention of personal value benefits - the personal value score of survey participants was close to that of the ecological score at 3.62 and 3.77 respectively. This specialized targeting with an increased emphasis on environmental ethics could potentially make recruitment materials even more successful.

Qualitative data obtained from the free response sections complemented the quantitative findings. Although the quantitative data paints a particular picture, the full findings of this study are not complete without an examination of the free responses. While only a selection of free responses are used here, the free responses can be found in their entirety in Appendix 3.

### **Discussion of Ecological and Economic Results**

As previously mentioned, ecological and economic questions were used primarily to situate personal value and religious/spiritual motivators. However, interesting results were still found in these two sections. Ecological reasons were the most important motivator in respondent's decisions to enroll in the CRP. Within the ecological motivation questions, creating a habitat for wildlife had the highest average score among respondents, followed by the desire to participate in land conservation, then by preserving ecologically unique landscapes, next by creating hunting areas, and finally by giving the land a prolonged fallow time to replenish nutrients. It appears that many respondents view ecological and personal value reasons for participation as interchangeable. For example, Respondent 93 said, "It simply amazes me how wildlife is returning to these areas. To see hundreds of varieties of birds, deer, turkeys, ducks, geese, pheasants, and squirrels returning to our area and flourishing is something nature lovers

look for. It amazes me everyday!” While the increased habitat area for wildlife is ecological, the importance to provide habitat could also be a personal value reason to enroll in the CRP. Another common theme among the responses was a desire to prevent erosion, which is one of the main reasons the CRP was founded. Like increased habitat, erosion prevention can also be tied up in personal values as participants may see it as a personal responsibility to maintain land for further generations and to ensure water quality for downstream communities.

Economics was seen as the third most important factor among motivations to enroll, and within the economic motivation questions, receiving cost sharing and/or rental payments were rated higher than receiving economic returns on low-producing or marginal lands. The importance of rental payments was seen in the free responses of respondents, most often in concordance with the idea that they could be receiving more money if they rented the land out for production. At the same time, many free responses expressed satisfaction with restored animal habitat and “natural beauty” that initial cost sharing allowed for. Respondent 74 said, “regarding the ‘economic’ section, we could not have afforded entering CRP without cost-share assistance but that was not primary factor for enrolling since we could have rented the land out for crop farming or hay land for more [money] per acre.” Respondent 43 had similar things to say and expressed both sentiments by saying that while enjoying the CRP, “I don't know how long my habitat will survive with \$6/bushel corn on the other side of the fence, but I am hopeful.” While enrollment in the CRP is completely voluntary, it is clear that economics impact the ability of some individuals to enroll in a conservation program, especially when their finances are impacted. It should be noted that land in the CRP does provide many economically valuable goods and services. However, most of these, such as cleaner air and water and carbon sequestration, are public goods which positively impact a large group of people, even though the

individual providing them by enrolling land in the CRP will not receive economic compensation equal to their social worth.

### **Discussion of Personal Value Results**

Within the personal value motivation questions, fulfilling a commitment to care for the land had the highest average value. These data show that the stewardship ethic is more influential than a concern for future generations, land aesthetics, and poorly planned growth. The free responses help to further illuminate personal value motivations for enrolling in the CRP. Although the quantitative data shows that ecological motivators were the primary motivators for participants enrolling in the CRP, personal value reasons were referenced to the same extent as ecological reasons throughout the free responses (74 to 73 references, respectively).

“Reconstructing natural areas” is a tangible solution to act upon one’s environmental ethic (Katz 2003; Ernst and Wallace 2008). Survey Respondent 256 replied that restoring the land through CRP was just “the right thing to do”—CRP became a way for this person to act upon his or her environmental ethic despite the fact that he or she may not have recognized it as such. Something may also be said for the desire to alter the monotony of cultivated land with different habitats to “let all creatures have a place to live” (Survey Respondent 31).

The free responses demonstrate that many Rice County landowners feel enrollment in the CRP is one way to take action so the future fertility of the land is not compromised. Survey Respondent 189 said “planting a prairie is our contribution to humans’ stewardship of the earth.” Another respondent even stated that the “economic considerations [were] minimal ...[and the] primary consideration [was] good stewardship of the land” (Survey Respondent 86). Landowners also replied with comments like “personal commitment to the wildlife,” “land is deserving of

care,” and “satisfaction of working on the land,” which all have strong implications of a practiced stewardship ethic (Survey Respondents 115, 103, and 94 respectively).

Other free responses demonstrated examples of a feeling of responsibility to future generations. Survey Respondent 34 replied that he or she joined the CRP in order to “leave this farm in good natural condition...for my daughter and grandchildren, who will keep it in the family.” Another respondent replied that they joined in order to “create forest and water sites for my grandchildren to enjoy” (Survey Respondent 69). Survey Respondent 16 gave a pessimistic response about the repercussions of current farming practices and identified future generations as the ones that will suffer: “future generations will have to pay for our short-sightedness and problems caused by our current farming practices of increasing yields with little regard for the end result.”

Some landowners made a point of stating that they did not participate in farmland restoration only to protect their land for future generations of farmers, but also for future generations of other creatures in nature. Survey Respondent 135 stated that he or she felt more land should be set aside specifically for nature. Respondents 98, 109, and 115 are a few examples of respondents who feel that wildlife has the right to live and reproduce. Comments like these have extended a landowner’s moral community to encompass not only the future people that will inhabit the land, but also future generations of other organisms that will inhabit the land. This is an extraordinary implication that Leopold would be proud to hear. These landowners have altered their idea of community to encompass their surrounding environment - showing that not only do they have a responsibility to be a land steward, but also a responsibility towards those in the future who will also be land stewards.

Free responses relating to land aesthetics focused largely on ecological health as representing land beauty. Although “aesthetically beautiful” now encompasses ecological diversity found in “the ordinary” like deserts, wetlands, and prairies, instead of just in magnificent landscapes like Yosemite and Glacier National Park, popular conception of aesthetically beautiful “wilderness” still incorporate ideas of pristine habitat and human-free environments (Nash 1982; Callicott 2008). Rice County respondents reflected these ideas. Survey Respondent 3 replied that he or she enrolled to “restore [the land] to native plantings and keep it forever wild.” Survey Respondent 141 said he or she enrolled for “the quiet and beauty of a forest.” Another respondent made a connection between ecological diversity, land aesthetics, and God. Respondent 150 stated that their land in CRP preserves “prairie grasses, wildlife, deer, pheasants, fox... [naming many other animals]... history and the overall aesthetics of the land—nature at its finest—God’s creation.” According to this respondent, God’s “naturally created” landscape is more beautiful and aesthetically pleasing than the previous human-created agricultural landscape. The landowners’ responses demonstrated that aesthetically beautiful farmland is defined not only by visual appeal, but also by biological diversity and overall land health.

In reviewing the free responses associated with poorly planned growth, the ethic was found to be less influential in this study than in the Ernst and Wallace study, and was also the least influential ethic we investigated (2008). This could be because Larimer County, CO (the location of the Ernst and Wallace study) is currently experiencing a high growth and development rate that is not necessarily being felt in Rice County (Ernst and Wallace 2008). Exposure to an increased rate of development in Larimer County makes the consequences of

development more saleable to its residents—and more of a motivating factor for joining conservation programs (Ernst and Wallace 2008).

As for our study, there were only a handful of free responses that directly addressed poorly planned growth. Survey Respondent 258 replied that filter strips planted through support of the CRP was one way to provide relief from vehicle air contaminants from the nearby highway, while Respondent 144 replied that he or she intended to use the land for future development without mentioning anything about poorly planned growth. Respondent 102 said that he or she joined to protect a local creek—implying protection from things like runoff from fields or development around the creek. These responses prove that some of the respondents do have an investment in caring for their land and protecting it from anthropogenic pollutants and developments. However, Respondent 19 replied that CRP was not the program to protect from poorly planned growth, saying he or she had to put their land in “permanent conservation programs” in order to truly protect it as the “CRP could not do that.” This is a valid argument as land in the CRP often goes back into cultivation, only protecting it for as long as it is enrolled (Waldschmidt 2011). Our study found that because poorly planned growth is encompassed in other personal values questioned in the survey, it is singularly not as strong of a motivating factor.

### **Discussion of Religious/Spiritual Results**

Within the religious/spiritual motivation questions, fulfilling religious/spiritual beliefs was rated higher than both doing the work of God/a higher being and following the guidance of the Bible/other holy book. This result could mean that participants intended to get more general religious/spiritual fulfillment out of participating in the CRP than the more specific fulfillment of

doing the work of God/a higher being or following the Bible/other holy book. Within the religious/spirituality section, it is possible that the questions asked of participants did not correctly assess the relationship between religion and the decision to enroll in the CRP, or that participants in this study do not in fact find themselves strongly influenced by religion. Despite the fact that our quantitative findings indicated that religion does not play a large part in enrollment motivations, the following is a selection of free responses that demonstrate strong opinions regarding religion and its relationship to enrollment.

### *God's Creation*

A drive to care for God's creation can result in enrollment in the CRP, and was a reason cited in the surveys we received. A number of beautiful sentiments were shared with us through these surveys, and illuminated the religious/spiritual drive some landowners feel. One respondent wrote, "I feel the fresh air and see the sunsets...I feel Jesus close to me here. This land is the best church I know and I am sure I walk here with him the Son of God my brother and Savior" and that he participates "to see the land as God created it" (Survey Respondent 83). Survey Respondent 150 listed a number of species of wildlife the family has seen return to the area and described it as "nature at its finest—God's Creation." Yet another respondent wrote simply that the farm participates in CRP to "take care of what God has given us" (Survey Respondent 134).

### *Religion Did Not Play a Role*

One individual was clear that religion did not play a part in his or her decision to participate: "I don't understand what my RELIGION has to do with CRP" (Survey Respondent 178). While Survey Respondent 257 stated his or her religious/spiritual affiliation but was clear

about its lack of impact on the decision to participate: “I am a devout Christian but this did not enter my mind at the time I enrolled.” The apparent frankness with which respondents commented was of great use, providing us with a better idea of the demographics of participating Rice County landowners, and aided in the analysis of the responses.

### *Concern for Others*

Worries regarding global food systems were also expressed in some of the returned surveys: “We will always have the third world starving” and “If we keep putting land in the CRP what are we going to feed the American people?” (Survey Respondents 51 and 110 respectively). Although these answers were not explicitly associated with religious or spiritual beliefs, they still indicate meaningful concern for fellow humans—a key characteristic expressed by CFFs and Christian Agrarians.

### *God's Will*

One respondent potentially counters the theory put forth by Freudenberger that working to right the wrongs of the world is the responsibility of believers (1991). He or she stated: “God made the land to use at my discretion” (Survey Respondent 144). This respondent may in fact agree that believers are responsible, but it is clear that he or she does not hold the belief that God has certain expectations about the use of the land. Naturally not all respondents, or landowners in general, hold the same beliefs, but one respondent demonstrated an alignment with the values of the CFFs and Christian Agrarians: “Nature is God's will—people need to live in harmony with the earth, working WITH it, not against it, not exploiting, raping, and destroying it” (Survey Respondent 189).

### *Indirect Religious/Spiritual Influences*

In addition to direct religious/spiritual influence to participate, some Survey respondents also cited indirect religious/spiritual benefits and experiences. Described in the literature as cultural services, these benefits were noted specifically by respondents, and provide a unique perspective on religion and spirituality's influence on enrollment in the CRP. "There is spiritual fulfillment in restoring the landscape" were the words of one respondent, bringing to light the idea that God or a higher being need not be involved in the experience or motivation (Survey Respondent 55). Respondent 94 noted "satisfaction of doing field trips for church groups" as a religious/spiritual factor for participating and enjoyed sharing his or her land.

### **Variance and Regressions**

Significant relationships were found in the ANOVAs showing that average scores for several of the four variables tested in our study (personal values, ecological, economic, religious/spiritual) were significantly different when grouped by religion and satisfaction with the CRP program. Significant relationships were also found in the regression analysis where multiple variables were used to predict another of the variables. These results are inherently interesting as they tell us information about our study population. We have an ability to predict their variable scores by knowing their responses to other questions. However, these responses are not predictive of who enrolls in the CRP in Rice County. Because our study only looked at landowners who have land in the CRP, our data and models cannot predict what religion or what variable scores will make an individual more or less likely than another to enroll land in the CRP.

## **Broad Implications**

While this research expands the current knowledge and literature on landowner's motivations for enrollment in the CRP, our paper is only a first step towards understanding the complex reasons behind enrollment in conservation programs, specifically the CRP. We note that landowners might participate in other conservation programs or practices without being enrolled in the CRP. We also recognize that our data are not without flaw, especially because the responses do not always have a normal distribution, but also because of a possible response bias in survey technique, possible wording bias, and the potential of respondents interpreting unintended meaning in the questions and answering them with different intentions.

Additionally, it is difficult to tease apart initial motivations to enroll in the CRP compared to motivations behind re-enrollment, which are affected by a person's previous experience in the program. For instance, Ernst and Wallace found in their study that participation in the CRP educated landowners about conservation practices which in turn created a shift from economic motivations to other community and land sustainability reasons (Ernst and Wallace 2008). In addition, it is known that while certain correlations were found between variables, this does not imply causation for why any individual ultimately might have chosen to initially enroll in the CRP, especially because most respondents did so long before this survey reached them.

Furthermore, we as researchers are not adequately equipped to make an advanced analysis of all the results. We were not able to synthesize the data into one complex model by which one could predict, with some accuracy, the likelihood of an individual to participate in the CRP based on their demographic characteristics and their responses about certain questions and issues. Future researchers better versed in the creation of decision-making models are invited to access our data, which can be found at

<http://apps.carleton.edu/curricular/ents/comps/projects2011/crpstudy>, if they are interested in doing additional and more comprehensive analyses. We hope our data may be used to construct a model that could more accurately predict what motivates Rice County CRP participation, and therefore improve recruitment in the area. Before such research is undertaken, though, a survey of landowners not participating in the CRP needs to be done so that potential differences can be revealed between the motivations of those that do and do not participate in the CRP. It is also recommended that future researchers investigate and expand upon the manner in which Rice County participants are targeted, looking specifically at the implications of race, experience, farm size, and socioeconomic profile as well as the information gap between landowners and the fashion in which the program functions (Kabii and Horwitz 2006).

While keeping the flaws of this study's data and analysis in mind, these results nevertheless aid in uncovering and illuminating motivations for landowner enrollment in the CRP that have not been previously extensively studied or understood.

## **CONCLUSION**

This study compares personal values, religion/spirituality, economic, and ecological factors as potential motivators influencing Rice County landowners to enroll in the CRP. Through the analysis of survey-generated quantitative data it was found that participants in the CRP are motivated most strongly by ecological motives, second most by personal values, third most by economic reasons, and least by religious/spiritual motivations.

The combination of the quantitative data and the free responses gives a more comprehensive picture of our results. The free response section of the data revealed that personal value incentives were still important enough to mention frequently. While this does not mean

that these personal value free responses necessarily referred to personal value motivators, it does show that personal values did play a role in landowners' thoughts about land conservation. These results are exciting because significant motives driving enrollment in the CRP in Rice County have been identified. This is especially noteworthy because it indicates that in addition to economic and ecological motivations, factors like personal values are legitimate motivators and should be further investigated. Although religion is often attributed as having a large influence on values and decision-making, the quantitative data of this study were not reflective of this. It is possible that the questions asked of participants did not correctly assess the relationship between religion and the decision to enroll in the CRP, or that participants in this study do not in fact find themselves strongly influenced by religion. However, these results are noteworthy simply because religion's role as a motivating factor was examined, which has not been done to any extent in the existing literature examined on the subject. This study provides the basis for additional research of personal values and religion/spirituality as CRP enrollment motivators.

## **ACKNOWLEDGEMENTS**

We thank all participants in our survey for their thoughtful and candid responses and to the Carleton College Post Office for collecting all of our surveys. Rice County employees Danielle Waldschmidt and Mark Brixen and state employee Wanda Garry were instrumental in helping us understand the current policy and administer our survey. Thank you to the Lawrence McKinley Gould Library at Carleton College for finding all of our obscure requested material, and to Benjamin Altshuler for aiding us in the editing process. Thanks also to the Environmental Studies Department, and all those who helped instruct us on survey methods, design, and analysis including Peter Brandon, Cherry Danielson, Paula Lackie, and Katie St. Clair. Lastly, we could not have done this project without the enthusiasm and constant support of our advisor George Vrits.

## BIBLIOGRAPHY

- Atari, D. O. A., E. K. Yiridoe, S. Smale, and P. N. Duinker. 2009. What motivates farmers to participate in the Nova Scotia environmental farm plan program? Evidence and environmental policy implications. *Journal of Environmental Management* 90 (2):1269-1279.
- Barbarika, Alex, Farm Service Agency, United States Department of Agriculture, Skip Hyberg, Rich Iovanna, and Catherine Feather. 2009. Conservation Reserve Program: Annual Summary and Enrollment Statistics-FY 2009. Washington, D.C.
- Baylis, K., S. Peplow, G. Rausser, and L. Simon. 2008. Agri-environmental policies in the EU and United States: A comparison. *Ecological Economics* 65 (4):753-764.
- Berry, Wendell. 1977. The Agricultural Crisis: A Crisis of Culture. In *The Unsettling of America: Culture and Agriculture*, edited by S. C. Books: Sierra Club Books.
- Boisvert, Richard N., and Hung-Hao Chang. 2005. Explaining participation in the Conservation Reserve Program and its effects on farm productivity and efficiency. In *2005 Annual meetings of the American agricultural economics association*. Providence, Rhode Island.
- Bookchin, Murray, and Dave Foreman. 1991. *Defending the Earth*. Montreal/ New York: Black Rose Books.
- Brimlow, Jacob N. 2008. Determinants of voluntary conservation: The USDA Conservation Reserve Program.
- Callicott, Baird J. 2008. Leopold's Land Aesthetic. *Nature, Aesthetics, & the Environment*:105-119.
- Camboni, Silvana M., Ted L. Napier, and Stephen B. Lovejoy. 1990. Factors affecting knowledge and participation in the Conservation Reserve Program in a microtargeted area of Ohio. In *Implementing the Conservation Title of the Food Security Act of 1985*, edited by T. L. Napier. Ankeny, IA: Soil & Water Conservation Society.
- Camill, Philip, M. J. McKone, S. T. Sturges, W. J. Severud, E. Ellis, J. Limmer, C. B. Martin, R. T. Navratil, A. J. Purdie, B. S. Sandel, S. Talukder, and A. Trout. 2004. Community and ecosystem level changes in a species rich tallgrass prairie restoration. *Ecological Applications* 14:1680-1694.
- Chang, Hung-Ho, and Richard N. Boisvert. 2009. Distinguishing between whole-farm vs. partial-farm participation in the Conservation Reserve Program. *Land Economics* 85 (1):144-161.
- City Council of Northfield. 2008. Comprehensive Plan for Northfield, edited by Panning Commission. Northfield, MN.
- Claassen, Roger, and Daniel Hellerstein. 2008. Conservation Reserve Program acreage to decline; will benefits also fall? *Amber Waves* 6 (5).
- Clearfield, Frank, and Barbara T. Osgood. 1986. Sociological aspects of the adoption of conservation practices. Washington, D.C.
- Cronon, William. 1983. *Changes in the Land: Indians, Colonists and the Ecology of New England*. New York, New York: Hill and Wang.
- Danielson, Cherry. 2010. Personal communication.
- Denevan, William M. 1992. The pristine myth: The landscape of the Americas in 1492. *Association of American Geographers* 82 (3):369-385.
- Easley, Gail. 1982. Saving agriculture or agricultural land: The need for problem definition. *State & Local Government Review* 14 (1):48-50.
- Elliot, Robert. 2003. Faking nature. *Environmental Ethics: Readings in Theory and Application*:381-388.
- Ernst, Tawnya, and George N. Wallace. 2008. Characteristics, motivations, and management actions of landowners

- engaged in private land conservation in Larimer County Colorado. *Natural Areas Journal* 28 (2):109-120.
- Esseks, J. Dixon, and Steven Kraft. 1990. Participation of eligible landowners in the Conservation Reserve Program: results and implications of survey research, 1986-1988. In *Implementing the Conservation Title of the Food Security Act of 1985*, edited by T. L. Napier. Ankeny, IA: Soil & Water Conservation Society.
- Esseks, J. Dixon, and Steven E. Kraft. 1988. Why eligible landowners did not participate in the first four sign-ups of the Conservation Reserve Program. *Journal of Soil and Water Conservation* 43 (3):251-256.
- Feather, Peter, Daniel Hellerstein, and LeRoy Hansen. 1999. Economic valuation of environmental benefits and the targeting of conservation programs: The case of the CRP. Washington, DC: Resource Economics Division, Economic Research Service, U.S. Department of Agriculture.
- Feng, Hongli, Catherine L. Kling, Lyubov A. Kurkalova, Silvia Secchi, and Philip W. Gassman. 2005. The Conservation Reserve Program in the presence of a working land alternative: implications for environmental quality, program participation, and income transfer. *American Journal of Agricultural Economics* 87 (5):1231-1238.
- Ferraro, Paul J. 2001. Global habitat protection: limitations of development interventions and a role for conservation performance payments. *Conservation Biology* 15 (4):990-1000.
- Follett, R. F. 2009. US agriculture's relationship to soil carbon. *Journal of Soil and Water Conservation* 64 (6):159A-165A.
- Freudenberger, C. Dean. 1991. Rural America in crisis: an unprecedented call for a Christian environmental ethic. *Word & World* 11 (2):171-179.
- Garcia-Llorente, Marina, Berta Martin-Lopez, and Carlos Montes. 2011. Exploring the motivations of protesters in contingent valuation: Insights for conservation policies. *Environmental Science & Policy* 14:76-88.
- Golding, Martin. 2001. Limited obligations to future generations. In *Environmental ethics: readings in theory and application*.
- Goldman, Rebecca L., B. H. Thompson, and G. C. Dally. 2007. Institutional incentives for managing the landscape: Inducing cooperation for the production of ecosystem services. *Ecological Economics* 64:333-343.
- Goltry, S. W. 1996. The motivations of landowners to donate conservation easements and their property to land trusts, Iowa State University, Ames.
- Gottlieb, Roger S., ed. 2004. *This Sacred Earth*. Second ed. New York: Routledge.
- Hampicke, Ulrich. 1994. Ethics and economics of conservation. *Biological Conservation* 67:219-231.
- Hellerstein, Daniel. 2010. Challenges facing USDA's Conservation Reserve Program. *Amber Waves*, June 2010, 28-33.
- Isik, M., and W. Yang. 2004. An analysis of the effects of uncertainty and irreversibility on farmer participation in the Conservation Reserve Program. *Journal of Agricultural and Resource Economics* 29 (2):242-259.
- Jarvis, Kimberly A. 2007. Gender and Wilderness in Conservation. In *American Wilderness: A New History*, edited by M. Lewis. New York, New York: Oxford University Press.
- Kabii, T., and P. Horwitz. 2006. A review of landholder motivations and determinants for participation in conservation covenanting programmes. *Environmental Conservation* 33 (1):11-20.
- Katz, Eric. 2003. The big lie: Human restoration of nature. *Environmental Ethics: Readings in Theory and Application*:390-397.
- Kirwan, Barrett, Ruben N. Lubowski, and Michael J. Roberts. 2005. How cost-effective are land retirement auctions? Estimating the difference between payments and willingness to accept in the Conservation Reserve Program.

- American Journal of Agricultural Economics* 87 (5):1239-1247.
- Klapproth, Julia C., and James E. Johnson. 2001. Understanding the science behind riparian forest buffers: Factors influencing adoption: Virginia Polytechnic Institute and State University, Cooperative Extension Publication.
- Konyar, K., and C. T. Osborn. 1990. A national-level economic-analysis of Conservation Reserve Program participation - a discrete choice approach. *Journal of Agricultural Economics Research* 42 (2):5-12.
- Krakauer, Jon. 1996. *Into the Wild*. New York, New York: Anchor Books.
- Lambert, D. M., P. Sullivan, R. Claassen, and L. Foreman. 2007. Profiles of US farm households adopting conservation-compatible practices. *Land Use Policy* 24 (1):72-88.
- Lambert, Dayton M., Patrick Sullivan, and Roger Claassen. 2007. Working farm participation and acreage enrollment in the Conservation Reserve Program. *Journal of agricultural and applied economics* 39:151-169.
- Lambert, Dayton, Patrick Sullivan, Roger Claassen, and Linda Foreman. 2006. Conservation-compatible practices and programs: Who participates?, edited by United States Department of Agriculture: Economic Research Service.
- Leopold, Aldo. 1949. *A Sand County Almanac*: Oxford University Press.
- Lewis, Michael. 2007. Wilderness and Conservation Science. In *American Wilderness: A New History*, edited by M. Lewis. New York, New York: Oxford University Press.
- Lutheran School of Theology at Chicago. 2011. *Web of Creation* [cited February 24 2011]. Available from <http://www.webofcreation.org/bible-verses>.
- Merenlender, A. M., L. Huntsinger, G. Guthey, and S. K. Fairfax. 2004. Land trusts and conservation easements: who is conserving what for whom? *Conservation Biology* 18 (1):65-75.
- Miller, Char. 2007. *American Wilderness: A New History*. Edited by M. Lewis. New York, New York: Oxford University Press.
- Moll, Rob. 2007. The good shepherds. *Christianity Today*, October 2007, 64-67.
- Nash, Roderick. 1982. The International Perspective. In *The Great New Wilderness Debate*, edited by B. J. Callicott and M. P. Nelson. Athens, Georgia: The University of Georgia Press.
- Nickerson, Cynthia, and Michael Hand. 2009. Participation in Conservation Programs by Targeted Farmers, edited by United States Department of Agriculture: Economic Research Service.
- Parfit, Derek. 1983. Energy Policy and the Further Future: The Identity Problem. In *Energy and the Future*, edited by D. M. a. P. G. Brown. Totowa, New Jersey: Rowman & Littlefield.
- Parks, P. J., and J. P. Schorr. 1997. Sustaining open space benefits in the northeast: An evaluation of the Conservation Reserve Program. *Journal of Environmental Economics and Management* 32 (1):85-94.
- Paterson, John L. 2001. Institutional organization, stewardship, and religious resistance to modern agricultural trends: The Christian farmers' movement in the Netherlands and in Canada. *Agricultural History* 75 (3):308-328.
- Perreault, Melanie. 2007. American Wilderness and First Contact. In *American Wilderness: A New History*, edited by M. Lewis. New York, New York: Oxford University Press.
- Plumwood, Val. 1998. Wilderness Skepticism and Wilderness Dualism. In *The Great New Wilderness Debate*, edited by B. J. Callicott and M. P. Nelson. Athens, Georgia: The University of Georgia Press.
- Pope John Paul II. 1990. The Ecological Crisis: A Common Responsibility. In *This*

- Sacred Earth*, edited by R. S. Gottlieb. New York: Routledge.
- Randall, G. W., D. R. Huggins, M. P. Russelle, D. J. Fuchs, W. Nelson, and J. L. Anderson. 1997. Nitrate losses through subsurface tile drainage in Conservation Reserve Program, alfalfa, and row crop systems. *Journal of Environmental Quality* 26 (5):1240-1247.
- Rao, M. N., and Z. M. Yang. 2010. Groundwater impacts due to Conservation Reserve Program in Texas County, Oklahoma. *Applied Geography* 30 (3):317-328.
- Ribaudo, Marc O., D. L. Hoag, M. E. Smith, and R. Heimlich. 2001. Environmental indices and the politics of the Conservation Reserve Program. *Ecological Indicators* 1:11-20.
- Rice County Planning and Zoning Department. 1997. Fundamental inventory guide, part 4: Natural resources.
- Roberts, Michael J., and Ruben N. Lubowski. 2007. Enduring impacts of land retirement policies: evidence from the Conservation Reserve Program. *Land Economics* 83 (4):516-538.
- Rolston, Holmes. 1975. Is there an ecological ethic? *Ethics* 85 (2):93-109.
- Rolston, Holmes. 1987. Duties to ecosystems: a companion to A Sand County Almanac.
- Saito, Yuriko. 2008. Appreciating nature on its own terms. *Nature, Aesthetics, & the Environment*:151-168.
- Santmire, Paul H. 2003. A religion of the soil? Farming for God. *Christian Century*, December 27, 2003, 23-25.
- Scherer, Donald. 1994. Between Theory and Practice: Some Thoughts on Motivations Behind Restoration. In *Environmental Restoration: Ethics, Theory and Practice*, edited by W. Throop. Amherst, New York: Humanity Books.
- Siebert, Rosemarie, Gert Berger, Jana Lorenz, and Holger Pfeffer. 2010. Assessing German farmers' attitudes regarding nature conservation set-aside in regions dominated by arable farming. *Journal for Nature Conservation* 18:327-337.
- Sommerville, Matthew M., Julia P. G. Jones, and E. J. Milner-Gulland. 2009. A revised conceptual framework for payments for environmental services. *Ecology and Society* 14 (2).
- Song, Feng, Jinhua Zhao, and Scott M. Swinton. 2010. Alternative land use policies: Real options with cost reversibility.
- Stern, Nicholas. 2007. The economics of climate change: Cambridge University Press.
- Stoll, Mark. 2007. Farm Against Forest. In *American Wilderness: A New History*, edited by M. Lewis. New York, New York: Oxford University Press.
- Suter, Jordan F., Gregory L. Poe, and Nelson L. Bills. 2008. Do landowners respond to land retirement incentives? Evidence from the Conservation Reserve Enhancement Program. *Land Economics* 84 (1):17-30.
- Swinton, Scott M. 2008. Reimagining farms as managed ecosystems. *Choices*, 2nd Quarter 2008, 28-31.
- Taylor, Paul. 1986. *Respect for Nature: A Theory of Environmental Ethics*: Princeton University Press.
- The Pew Forum. 2011. *Pew Forum on Religion & Public Life* 2008 [cited February 24 2011]. Available from <http://pewforum.org/religion08/states/minnesota/>.
- Throop, William. 2000. Eradicating the Aliens: Restoration and Exotic Species. In *Environmental Restoration: Ethics, Theory, and Practice*, edited by W. Throop. Amherst, New York: Humanity Books.
- United States Department of Agriculture. 2009. 2007 Census of Agriculture: United States summary and state data: Washington, D.C.
- United States Department of Agriculture. 2010. *Conservation Reserve Program (CRP)* 2010 [cited October 28, 2010]. Available from <http://attra.ncat.org/guide/american/crp.html>.
- United States Department of Agriculture, and Farm Service Agency. *Conservation Reserve Program* 2011 [cited February 27, 2011]. Available from <http://fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>.

- Varian, Hal. 2006. Recalculating the costs of global climate change. *The New York Times*, December 14, 2006.
- Waldschmidt, Danielle. 2011. *Buffers: Ditch Workshop*. Northfield, Minnesota. Powerpoint Presentation.
- Waldschmidt, Danielle. 2011. Personal Communication.
- White, Lynn Jr. 1967. The historical roots of our ecologic crisis. *Science* 155 (3767):1203-1207.
- Wright, John B., and Anthony Anella. 2007. Saving the ranch: fresh eyes on taxes, development, and conservation easements. *Rangelands*:13-20.
- Wu, Feng, and Zhengfei Guan. 2009. Contract designs and participation in the Conservation Reserve Program in the era of biofuel production. In *27th International Conference of Agricultural Economists*. Beijing, China.
- Yang, Wanhong, Brett A. Bryan, Darla Hatton MacDonald, John R. Ward, Geoff Wells, Neville D. Crossman, and Jeffrey D. Connor. 2010. A conservation industry for sustaining natural capital and ecosystem services in agricultural landscapes. *Ecological Economics* 69:680-689.
- Yiridoe, E. K., D. O. A. Atari, R. Gordon, and S. Smale. 2010. Factors influencing participation in the Nova Scotia Environmental Farm Plan Program. *Land Use Policy* 27 (4):1097-1106.
- Zbinden, S., and D. R. Lee. 2005. Paying for environmental services: An analysis of participation in Costa Rica's PSA program. *World Development* 33 (2):255-272.
- Zylstra, Sarah Eekhoff. 2007. Crop of concerns. *Christianity Today*, August 2007.

# Appendix 1: Survey Instrument

Greetings—

We are seniors at Carleton College and are working on our senior thesis project researching motivations for participation in the USDA Conservation Reserve Program (CRP). You are invited to participate in this survey so that we get *your* reasons why you have enrolled land in the CRP. Your response is important to us because this survey could be used to help Rice County officials understand the reasons why people participate in conservation programs. This project is an integral part of our senior thesis for Carleton's graduation requirement, so we would really appreciate your candid and thoughtful responses.

This short survey will take about **5 minutes**. We would appreciate your responses by December 20<sup>th</sup>. We hope you will answer all questions to the best of your ability. Because your privacy is important to us, we will keep your responses strictly confidential. In addition, your name will never appear next to your responses as we do our analysis.

Please fold survey into thirds and securely tape the top before mailing, as indicated on the back. The mailing address and postage is provided for your convenience. If you have any questions or additional information, feel free to contact us at either [crpstudy@carleton.edu](mailto:crpstudy@carleton.edu), (715)441-3220 or (505)670-0167.

Thank you for your participation and quick response,  
Sincerely,



Kelsea Dombrowski



Ellen Esch



Sydney Weydemeyer

*Note: Your completion of this survey implies your consent for us to use your responses for our project. This research project has been approved by the Carleton College Institutional Review Board for its commitment to protect your privacy. If you have any questions or concerns regarding this study and would like to talk to someone other than the researchers, contact the Institutional Review Board for Research with Human Subjects at Carleton College, c/o Office of the Associate Dean of the College, Carleton College, One North College Street, Northfield MN, 55057; telephone (507) 222-4301.*

# Appendix 1: Survey Instrument

**Section 1:** Please indicate how much each factor contributed to your decision to enroll land in CRP. Check one box for each statement.

Very much    Quite a bit    Somewhat    A little    Not at all

## Personal Values:

...to fulfill a commitment to care for your land.

...to improve aesthetics.

...to restore the health of the land to benefit future generations of farmers.

...to protect land from poorly planned growth.

Other personal value reason: \_\_\_\_\_

## Land Sustainability:

...to create a better habitat for wildlife.

...to give the land a prolonged fallow time to replenish soil nutrients.

...to preserve ecologically unique ecosystems.

...to create hunting areas.

...to participate in land conservation

Other land sustainability reason: \_\_\_\_\_

## Economic:

...to receive cost sharing assistance and/or rental payments from government.

...to receive economic return on low producing marginal lands.

Other economic reason: \_\_\_\_\_

## Religious/Spiritual:

...to fulfill religious/spiritual beliefs.

...to do the work of a God/higher being.

...to follow the guidance of the Bible or other Holy Book

Other religious reason: \_\_\_\_\_

# Appendix 1: Survey Instrument

## Section 2: Please provide the following demographic information.

Your age:\_\_\_\_\_.

Total acres of land owned:\_\_\_\_\_.

Total acres of land in the CRP:\_\_\_\_\_.

Number of years owned land in Rice County:\_\_\_\_\_.

Number of years lived in the area:\_\_\_\_\_.

Are you the primary land manager (Y/N):\_\_\_\_\_.

What is your religious denomination/preference:\_\_\_\_\_.

## Section 3: Do you have any comments?

Would you enroll land in CRP again?

Definitely would

Probably would

Maybe not

Definitely not

Is there anything else you want us to know about your experience or motivations to enroll in the CRP?

# Appendix 1: Survey Instrument

---

---

---

Environmental Studies Department  
Attn: CRP Study  
300 North College Street  
Northfield, MN 55057



Please fold on dotted line, securely tape top, and mail before December 20<sup>th</sup>.



Please fold on dotted line, securely tape top, and mail before December 20<sup>th</sup>.

## Appendix 2: Survey Question Data

	N	Mean Score	Standard Deviation	Composite Mean Score
<b>Personal Values</b>	256		0.99267	3.6168
to fulfill a commitment to care for your land	255	4.22	1.002	
to improve aesthetics	245	3.39	1.349	
to restore the health of the land to benefit future generations of farmers	255	3.57	1.39	
to protect land from poorly planned growth	251	3.24	1.517	
<b>Land Sustainability</b>	256		0.87058	3.7742
to create a better habitat for wildlife	255	4.38	1.012	
to give the land a prolonged fallow time to replenish soil nutrients	251	3.29	1.351	
to preserve ecologically unique ecosystems	251	3.69	1.258	
to create hunting areas	252	3.37	1.481	
to participate in land conservation	255	4.09	1.075	
<b>Economic</b>	255		1.21277	3.3078
to receive cost sharing assistance and/or rental payments from government	251	3.57	1.258	
to receive economic return on low producing marginal lands	250	3.02	1.427	
<b>Religious/Spiritual</b>	241		1.17124	1.7953
to fulfill religious/spiritual beliefs	241	1.85	1.28	
to do the work of a God/higher being	241	1.83	1.277	
to follow the guidance of the Bible or other Holy Book	237	1.66	1.118	

Scored on 5 point Likard scale, 1=not at all, 2=a little, 3=somewhat, 4=quite a bit, 5=very much

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
1	(Personal Values) My father started land in CRP and planted trees (5); (Additional Comments) I think that the restrictions put on CRP land are a bit too excessive.
3	(Personal Values) To restore to its native plantings and keep it forever wild; (Additional Comments) Our land was already enrolled when we purchased the land, then we renewed it when it was time to do so.
5	(Additional Comments) Volunteer trees are sometimes a disaster.
8	(Personal Values) water quality/wildlife (4)
11	(Personal Values) economic (4)
15	(Additional Comments) I think CRP is a worthy program, but, after being in it, I don't like having another reporting or financial relationship with the government.
16	(Ecological) take marginal land out of production, highly erodible etc (5); (Economic) low lying pasture converted to trees is "none" producing lands. Note: CRP pays less than rent for tillable land (3); (Additional Comments) All 16.8 acres were planted with trees with the intent that it never be put back into crops. If I could afford to, I would put all 114.1 acres back to its natural state of oak savannah or prairie grasses etc. Future generations will have to pay for our short-sightedness and problem caused by our current farming practices of increasing yields with little regard for the end result. For example, why should our government pay for (subsidize) the tiling of cropland (hill sides and other high ground) so it might grow another bushel of corn? Makes zero sense to me! I think the CRP is a good program overall, that is, what I know about it, but the funding will continue to be cut and a lot of marginal land will be put back into production. It makes one wonder where we'd be if the government had not caused the farmer to clear the land, plant crops where they should not have been planted and then pay them to idle it. This is probably the third time around, the 1930's, 1956 SOIL BANK program, and 1985 CRP. Thank you for allowing me to vent. I was born in a farming community in N.E. Iowa, but am not a farmer per se. Good luck to you all and you CAN MAKE A DIFFERENCE!! (name)
19	(Personal Values) didn't need crops anymore and CRP became available (5); (Religious/Spiritual) Good stewardship in general (3); (Additional Comments) Our original CRP (and plus all the non-tillable land (including a pond) around it (totaling 32 of our 40 acres) is now in permanent conservation. The CRP is now planted to prairie. "To protect land from poorly planned growth" is why we put the land into permanent conservation programs. CRP could not do that.
21	(Ecological) Water filtration and stop erosion (5); (Economic) Keep all my 6-12% slope land from erosion lost (4); (Additional Comments) This farm is mainly wooded (43acres) and CRP (49.5acres). There is a 2 acre of pond (I built) and 5 acres of wetland/marsh (love those marsh marigolds). It has become a bird/mammal (large and small)/amphibian growth area. I love the quiet and serenity. CRP payment makes that possible.
23	(Additional Comments) We had heavy rains this crop year. The filter strips, protected ground on each side of our creek. This ground (CRP) improves water quality by limiting runoff, and also aids flash flood control. It is a good addition to the farm. (name).
24	(Personal Values) high erodible; (Additional Comments) control the coyotes raccoons, not Muslim religion of heat
25	(Religious/Spiritual) The earth is our Mother :); (Additional Comments) I'm a 5th generation. Great-great Grampa started his farm (next door) in 1868. My grandfathers planted trees here. My mother and father planted trees here. All of my brothers and sisters, my husband, our children and nieces and nephews have planted trees here. I think by the 1930's, my grandfathers had realized the grave error of deforesting land and how damaging erosion was. The people of Louisiana saw the effects of encroaching on/removing natural barriers with the loss of a buffering effect when hurricane Katrina swept across former mangrove swamps and wetlands and decimated their homes. To be sustainable, we need to see our place IN the landscape, not as separate beings pillaging its resources, or pumping it full of poison.
26	(Personal Values) wildlife (5).
27	(Personal Values) protect watershed (5); (Ecological) stop runoff; (Additional Comments) I enrolled the marginal land and area alongside the drainage ditch to protect from erosion and help improve water quality. I probably would not enroll again because of the red tape. Annual registration sucks. Good luck with your thesis. You picked a good one.
28	(Additional Comments) 1.Filter strips yes. 2.Field CRP no. (assume in enrolling again question). 3.Land value have risen along with rental rates in the last 5 years which the CRP has stayed the same--we are only getting 1/2 of what we could rent it out for.
30	(Personal Values) Cover for wildlife (5)
31	(Additional Comments) Let all creatures have a place to live.

Note: Only surveys with responses are included, thus there are gaps in the survey numbers

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
33	(Personal Values) To enhance wildlife (5); (Additional Comments) The paperwork required by the govt. is a (serious) issue. Also the initial (5yr) program is significant: mow, plow, disc, disc again, harrow, plat. Later, mow several times and spot spray. In addition to our CRP we, on our own expense, planted and maintain 10 acres of restored prairie grass and forbs. Also we put in 6 (yearly) acres of corn (??) which we have all winter for wildlife cover and food. Also have 3 acres of "cool weather" grasses for early season use by wildlife. Also with govt. cost sharing, put in a 1-acre pond to halt erosion and enhance wildlife and beauty of the farm. The results, all told, are satisfying: we have lots of deer, pheasants, turkeys, coyotes, ducks, geese, and songbirds. Feel free to come and visit us! We're just 5min of the CC campus. (name, phone number, email address).
34	(Additional Comments) To leave this farm in good, natural condition for wildlife, clean water, no erosion etc. for my daughter and grandchildren, who will keep it in the family.
36	(Personal Values) To have a say in its destiny (5); (Additional Comments) Just knowing the government is willing to help preserve our land is a plus. My land has a creek which flows into a nearby lake which I'd like to see cleaner.
40	(Personal Values) high erosion (5); (Ecological) keep insects and rodents away from house (3); (Additional Comments) It is difficult to get a prairie to grow. It would be helpful if there was an organization to help with specific problems like thistle control. It is interesting how competitive and aggressive plants can be.
43	(Personal Values) I have had the best hunting opportunities of most people I know, mostly on public land, and I really feel I owe the wildlife something in return; (Ecological) I created this little piece of habitat, for ducks and pheasants, but fortunately while they benefit greatly, I can see the spring birds, shore birds, butterflies, salamanders, snakes, etc benefited exponentially. I don't know how long my habitat will survive with \$6/bushel corn on the other side of the fence, but I am hopeful; (Economic) without cost/share assistance, I couldn't have created this wonderful habitat; (Religious/Spiritual) I am a very spiritual person, but they (CRP and God) don't overlap in this case; (Additional Comments) Having been exposed to all sorts of recreation properties, I can definitely say the RIM program has, I believe, the greatest future potential for creating these habitats. If the government wastes to invest taxpayer money into these programs, I wish there were no "expiration" date on the CRP contract. I am scared of plowing this little parcel under in 10 years. I wish it wouldn't have been option 5 years ago when I signed the contract. I hope your thesis goes well, good luck.
45	(Additional Comments) When I bought the land it was already enrolled.
46	(Personal Values) too hilly to farm (5); (Religious/Spiritual) none at all; (Additional Comments) At first it was a good thing. Now and am sick and tired of the US Government telling you how to run your farm, run your life, run your health care. Every move you make you need a permit for this and for that. We are losing our freedom. We will be a socialistic government in a few years. Thank you. (name)
47	(Religious/Spiritual) fiction, all made up, no, that what is written is not true.
48	(Personal Values) a place to hunt (5).
49	(Personal Values) wind break; (Additional Comments) 0.2 acres windbreak around the building site.
51	(Additional Comments) CRP is a way for government to intrude and control the production of the nation's farmers. These programs come with many strings attached. Back in the 50's and 60's the government paid for tiling and dowsing out woodland etc. to feed a starving world of around one billion and a half people. People. Now; with the modern machinery and technology one man can easily run 1,000 acres alone, producing 3 times more grain on 1/3 the acres. There is currently 6 billion people in the world now. In ten to twenty years the world will have 15 to 20 billion or more and the government will be paying to put CRP and all the other production stops back to feed a starving (civilized) world. We will always have the third world starving.
52	(Personal Values) training hunting dogs (5).
53	(Personal Values) improve water quality (5)
55	(Personal Values) reconstruct native prairie (5); (Religious) There is spiritual fulfillment in restoring the landscape. (5); (Additional Comments) The CRP provided the initiative to plant native grasses and wildflowers and I took the ball and ran with it creating a high quality reconstructed native prairie on 17 acres with over 70 species of wildflowers and 8 species of grasses.
56	(Economic) part of farm in CRP when I purchased it (5)
57	(Additional Comments) Watching trees growing (2-3000) and observing forbs in bloom while spraying thistles has been a marvelous payback
58	(Ecological) Buffer zone along drainage ditch.
59	(Additional Comments) To restore hardwood trees back on the land.
61	(Additional Comments) The land enrolled is lowland next to permanent wetland that frequently flooded or the crop was decimated by wildlife. When the CRP/WP was first available I signed up right away and have been very happy with the outcome. Hunting is great there and the land has completely reverted to original vegetation. We are all winners in this situation. Family members have owned this land since 1857.
65	(Personal Values) water quality (5); (Additional Comments) I have used MN Land Trust for a permanent conservation easement on all 181 acres in Rice County.

Note: Only surveys with responses are included, thus there are gaps in the survey numbers

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
66	(Additional Comments) I sold my Rice county land about 8 years ago. I currently own about 265 acres in Mower county--50 of which is in a conservation program. my reasoning has been economic although I would characterize my philosophy as Greek. I will answer the questionnaire as if I still owned Rice County land.
69	(Personal Values) Restore habitat for wildlife (5); (Additional Comments) I am trying to create a forest and water sites for my grandchildren to enjoy. I have planted 17 acres in hardwood trees (I used to seeding method) so there will be plenty of areas for wildlife. I do not hunt, but I have allowed friends and family to hunt on my land. The CRP program is helping financially to achieve this goal for without it, I would not be able to do this. (name)
70	(Additional Comments) I filled this out based on my motivations at the time I initially enrolled in CRP. Now, more than a decade later, my primary motivation would be to preserve/restore or reconstruct native ecosystems.
73	(Ecological) concern with runoff going into waterways/lake (4)
74	(Additional Comments) This farm was my father's. My sister and I inherited it in late 2007. We asked our father to install CRP a few years before that. Regarding the "economic" section, we could not have afforded entering CRP without cost-share assistance but that was not primary factor for enrolling since we could have rented the land out for crop farming or hay land for more \$ per acres. Improving and maintaining CRP since we enrolled, such as trying to get rid of thistle without use of RoundUp or other herbicides has been a costly challenge as has prairie burning and reseeding, all done without cost-share assistance.
75	(Ecological) Reduce water runoff and help keep streams clean (5); (Additional Comments) We have left the CRP program only because our bit in CRP is too small for the program. We took a few acres out to create pasture for our horses but it is still in a perennial crop.
76	(Ecological) Improve water quality (4); (Additional Comments)To create grassland (that is slowly disappearing) CRP helps water quality and helps reduce flooding from runoff.
78	(Personal Values) Guaranteed money (4)
79	(Additional Comments) Keep it coming. Thank you.
81	(Additional Comments) I dedicated 50 acres to fish and wild life in the year 2000 all for hunting or other entertainment never can be developed or farmed again.
82	(Additional Comments) Main reason is conservation
83	(Personal Values) To see the land as God created it; (Economic) to plant trees; (Religious) because I love the land; (Additional Comments) It is a way to be part of the land as God created it. I feel the fresh air and see the sunsets. I love the land as the Indians did before they were driven onto Res . I feel Jesus close to me here. This land is the best church I know and I am sure I walk here with him the son of God my brother and Savior. May He walk always with the 3 of you.
85	(Economic) To prevent flooding (5)
86	(Ecological) Prevent erosion; (Additional Comments) Economic considerations are minimal. Primary consideration is good stewardship of the land.
87	(Personal Values) Help restore wildlife (5)
89	(Personal Values) wildlife (5); (Ecological) buffer on ditch/wetland restorations (5)
90	(Personal Values) plant trees; (Ecological) create wetlands; (Additional Comments) My parents purchased this farm to plant trees (tree farm) and create a wetland. They are now deceased and another family member has purchased the land from us.
93	(Additional Comments) It simply amazes me how wildlife is returning to these areas. To see hundreds of varieties of birds, deer, turkeys, ducks, geese, pheasants, and squirrels returning to our area and flourishing is something nature lovers look for. It amazes me everyday!
94	(Personal Values) Satisfaction of working on land (4); (Ecological) carbon sequestration (4); (Economic) Holding land as wealth as part of our net worth (3); (Religious) Satisfaction of doing field trips for church groups (3); (Additional Comments) I wanted to point out that there are multiple types of CRP constraints, including continuous sign up as buffer strips, CRP 17 I think. Furthermore, CRP on our farm is part of a package of decisions and management plans we signed up for. Included is the sale of a conservation easement on about 80 acres of our land in Minnesota. That easement, prepared by DNR Forestry, and paid for through funds from the Federal Forest Legacy Program. Forty acres of forested land we own in Wisconsin is not enrolled in CRP, but rather management decisions on that land guided by enrollment in Wisconsin's Managed Forest Land (MFL).
95	(Additional Comments) Did it mainly to improve soil, air, and water quality, and wildlife habitat. Restore to what it was pre-settlement.
97	(Personal Values) Ideal for retired farmer (5)
98	(Personal Values) wildlife retreats (5); (Ecological) prevent erosion (5)
99	(Additional Comments) We bought our property as young adults and our land had just previously been enrolled in the CRP program. We took over the remaining nine years of the contract and recently renewed for an additional 15 years. Our property isn't overly large, but it's natural flowing creek, woods and CRP acreage is a great habitat for all sorts of animals. We are only one mile from town and we commonly have turkeys, pheasant, deer, and even bald eagles in the area! It's a great program.

Note: Only surveys with responses are included, thus there are gaps in the survey numbers

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
100	(Additional Comments) This was a slough and was wet most of the time which kept the production down. (we say Merry Christmas)
102	(Personal Values) To help protect Heath Creek (5); (Additional Comments) Most of the CRP is for a riparian buffer
103	(Ecological) Land is deserving of care; (Economic) Best deal for labor and capital input.
105	(Religious/Spiritual) not a factor; (Additional Comments) I love my land, hated the way my farmer cared for it, he's out, my soil and water quality is better. The way USDA administers the paper work and payments sucks. The foresters are super.
109	(Personal Values) wildlife
110	(Additional Comments) If we keep putting land in CRP what are we going to feed the American people?
112	(Economic) pay taxes (3); (Additional Comments) The 10 year CRP contract expired in Sept 2008. My sisters-in-law and I split the 33 acres into 2 parcels. The parcel that I took has a very small portion of the original 7 acres of CRP land and would probably not qualify for CRP as is.
115	(Personal Values) Personal commitment to wildlife (5)
118	(Personal Values) Property tax assistance (2)
119	(Personal Values) wildlife habitat; (Ecological) Reduce erosion, improve aquifers; (Economic) Offset high property taxes (5); (Religious/Spiritual) To provide a great outdoor experience for my family and other citizens and to be a good steward; (Additional Comments) CRP is a wonderful program (intention) but it also needs to be economically feasible. State, county, and federal government's are not in sync with each other on CRP: 1) we sign a 10 year lease with a fixed rental rate 2) the property taxes skyrocket several times during the 10 year holding period to make the lease a poor economic decision - not very fair!
123	(Personal Values) Eliminate constant spraying (5); (Ecological) Tree program aimed at birds and enjoyment by next generations (5); (Additional Comments) I have signed up for another 5 years after the initial 10 year program-when the 15 years is up is where I say maybe not. When we rented our farm on a 50/50 share basis the cost for chemicals went up and up every year. The company doing the spraying would spray in spite of winds as high as 20 mph! Who knows where the spray drifted to? This was the SINGLE MOST REASON we put the farm in CRP as it eliminated spraying all together. Our program called for the planting of 3000 trees. We feel very strongly this is our contribution to leaving the land in better shape than when we bought it. I have put in hundreds of hours mowing around the trees when they were young keeping them free of weeds. Every year I cut volunteer trees as requested so the main part of the CRP project looks good. Anyone participating in the CRP program should take PRIDE in the project. We have tried to do this.
124	(Ecological) create a buffer zone (5); (Additional Comments) The CRP borders a lake and I felt removing the land from crop rotation and planting native grasses would help filter run-off into the lake especially with the continued shore land development in this area.
125	(Additional Comments) I believe that it's a waste of taxpayer money but I would probably re-up for the program because it's there.
129	(Personal Values) plant trees (5)
130	(Personal Values) cash, rent money (5)
131	(Additional Comments) To make the world a bit better, because I was here.
132	(Ecological) wetlands (5)
134	(Personal Values) Woods and wetlands are important to the ecosystem (5); (Ecological) preserve wetlands; (Religious/Spiritual) Take care of what God has given us.
135	(Additional Comments) In my area, farmers have cleared all available cover for wildlife for their personal needs, but without giving anything back to nature. CRP at least helps a little. We need more of these programs or the government to acquire more land to be set aside for nature.
138	(Ecological) eliminate erosion (5)
140	(Personal Values) financial money (5); (Ecological) money (5); (Additional Comments) It is very difficult to enroll when the estate changes in ownership, hard to enroll if land value is high, hard to choose to enroll if corn/bean prices are high. Very tempting to rent for better money.
141	(Personal Values) The quiet and beauty of a forest (5)
142	(Personal Values) access to
143	(Personal Values) Establish some native prairie while at the same time conserving soil (5); (Ecological) Conserve soil on erodible land (5)
144	(Personal Values) future investment (5); (Economic) future development (5); (Religious/Spiritual) God made the land to use at my discretion (1); (Additional Comments) Land should be for the use of anything the landowner wants to do with it. Financial reasons are the only reasons to have my land in CRP. If I wasn't paid to do it I would not do it.
147	(Ecological) restoring to original (5); (Economic) Consistent \$ no worries didn't have \$ to get started; (Additional Comments) The paperwork part is annoying, people you deal with are never available, staff follow up of practices seems to be non-existent, it's government - yuck!

Note: Only surveys with responses are included, thus there are gaps in the survey numbers

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
150	(Additional Comments) Great project! We'll look forward to reading your results, we were glad to help out (name). Our understanding is that at one time, FarmHill (CRP land) was an Indian encampment. The road that went from Fort Snelling to Fort Ripley in Mankato, is right in from of our property-it's called Union Lake Trail. In talking with the DNR, we have Kentucky Coffee trees which were planted by the local Indians (mud-dwellers) who lived in this area by Union Lake. The original dwelling/farm house--was built in 1863, added onto in 1911, along with the farm buildings. From the financial side, the original payment in 1996 covered the property taxes and other expenses, for the farm. Today, 2010, the payment from CRP barely covers the property taxes. As you can see, the CRP program helps preserve the prairie grasses, wildlife, deer, pheasants, fox, wood ducks, geese, eagles, coyotes, great-horned owls, bluebirds, humming birds and all other varieties of birds..., history and the overall aesthetics of the land-nature at its finest-God's creation. (name)
153	(Additional Comments) The main reason at first was to have some cost sharing to control water into a long drainage ditch on both sides of a field that the ditch ran through. It was really good, productive farm ground along this ditch and I did not want to take this soil out of production. Now that I've seen all the benefits of the grass along both sides of the ditch and the way it controls erosion, I will never take this land out of CRP.
157	(Personal Values) Purchased land already enrolled in CRP (5)
160	(Additional Comments) It was a way to earn income when farm cash crop prices were low
163	(Personal Values) hunt (5); (Additional Comments) Trees help wildlife
164	(Additional Comments) Because it is government run--it is full of red tape, lots of paperwork, confusion on who runs what etc. When getting involved in the beginning and when looking up answers to questions. Makes it less likely for people to become involved or to continue the process unless you have someone who has gone through it to mentor through the process.
165	(Ecological) highly erodible (5)
166	(Personal Values) I do not want any chemicals; (Ecological) I love to see the wild animals and birds; they need a place of peace; (Religious/Spiritual) I'm not that religious; (Additional Comments) I do not want any chemicals on my land-I like the wild life coming there-they have very few places to be in peace--we also feed the wildlife--also, farmers have a hard time paying their rent-I have my payments on time-I have 30acres of trees, I wish I would have put the rest into trees. Yes! I will sign up again for CRP.
167	(Personal Values) recreation--hiking, etc (4)
168	(Additional Comments) The land has been in my family since the 1800s I believe. My sisters and I own the farmland--recently inherited when my father & mother passed. They were very conscientiousness of being good stewards of the land.
170	(Personal Values) reduce erosion (5); (Additional Comments) I think the biggest thing is to protect against land erosion and to create more wildlife habitat. The program has been very successful in these areas.
172	(Personal Values) part is quite steep (5); (Additional Comments) We have a very unique ecosystem here, in that the creek supports a native population of brook trout. We need a big enough area of the surrounding land free of buildings and tar parking lots to allow the rainfall to percolate down to replenish the springs that feed the cold water to the stream. I put a few acres in the CRP and a forestry plating also in 2/3 of it. I also believe that the CRP program should include a provision for extra money to put really steep ground in a permanent reserve to encourage more participation. Erosion, is why in the spring time before anything starts growing you see lighter colored soils on every know and hill in every field. This is from generations of antiquated tillage practices. Thanks (name, number).
174	(Additional Comments) I have had many challenges with the measurements systems over the years. i.e. paid to have CRP person come out 3 times in 2 yrs and the acreage changed every time. Like it was my fault--Their guy--their measure. Still believe in the program.
175	(Additional Comments) Sold farm several years ago
178	(Additional Comments) I don't understand what my RELIGION has to do with CRP
179	(Personal Values) Limit pesticides and herbicides (5); (Additional Comments) Create a windbreak for our property
181	(Additional Comments) We sold our farm. We no longer live there. Moved to town.
182	(Personal Values) economics (5); (Additional Comments) Restore woodlands, plant trees, build ponds. CRP payments help offset the tax expense and enables me to retain ownership.
184	(Personal Values) someday timber; (Ecological) to grow trees (4); (Economic) something for next generation
185	(Additional Comments) Parcel already was enrolled in CRP--CRP payments are way too low--will no renewal--instead I will conservation farm
187	(Personal Values) windbreak for home site (5); (Ecological) trees (3); (Economic) professional planning help (4); (Additional Comments) Most applicable for land with unique circumstances or limited or marginal agricultural production value.
188	(Personal Values) wild life (4)

Note: Only surveys with responses are included, thus there are gaps in the survey numbers

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
189	(Ecological) To restore a piece of the ecosystem that is native to this area (5); (Religious/Spiritual) Nature is God's will--people need to live in harmony with the earth, working WITH it, not against it, not exploiting, raping, and destroying it (5); (Additional Comments) When we bought the land, there were 59 acres in a RIM perpetual conservation easement, with 13 being rented for cropping. We took 3 for house, yard and outbuildings and planted the 10 in native prairie species. The land had been abused and was badly eroded, so we intended to plant prairie even before we knew about CRP. Putting the land in the CRP program made it easier to do this financially. My only complaint about CRP is that the management practices are rigidly prescribed, and there is no flexibility to do something that might be more effective. For instance, one CANNOT mow between May 15th and August 15th (primary nesting season) even though it would be beneficial in year 1 and 2 to give the native grasses an advantage over the weeds/aliens. Burns MUST be done in years 5, 10, 15--no shifting of the schedule or adding burns to discourage brush/woody species. Planting a prairie is our contribution to humans' stewardship of the earth. The CRP program was a fortuitous assistance for us. We are protecting one of the sources of Prairie Creek. ADDITIONAL: "fulfill commitment to care for land: sort of but we didn't think of it that way. "to restore health of land": not just farmers--people, animals, plants, insects, etc; "preserve eco unique eco": yes, except that we had nothing to preserve and the ecosystem is not unique.
191	(Personal Values) wildlife (5)
192	(Personal Values) investment return (3); (Ecological) natural restoration (4); (Additional Comments) I rented the land to farmer at \$80 CRP pays about \$95. Farmer rent now at \$200 plus, not good.
193	(Additional Comments) Good program if you don't want to do anything else with it. They make it very hard if you want to plant some food on a small percentage of the land for the wildlife. If you want to get to other areas on your property they make a strong point that there shall be no paths on any of the land in CRP. Year after year you have to sign papers, time consuming and extra \$\$ from work. And seems they move the lines from year to year by using area photographs.
195	(Personal Values) My family has owned land for 3 generations
196	(Additional Comments) After enrolling I subsequently bought out of the program b/c of the "red tape" and small acreage enrolled.
197	(Personal Values) restore health of land (5); (Ecological) provide habitat for species (5)
201	(Personal Values) wildlife (4)
204	(Personal Values) wildlife (5)
207	(Personal Values) wildlife sanctuary (5); (Additional Comments) I had stopped crop farming, the CRP program was great for returning the land to a more natural state. The land is hills...the cost of tilling made farming uneconomical.
210	(Additional Comments) Cover crop is trees. Crop land was literally part of the big woods. This an effort to return cleared land to woodland the total 83 acres is registered with "forest legacy" program.
211	(Personal Values) highly erodible (5)
213	(Additional Comments) I had 1 acre of CRP. It wasn't worth the things I had to do for 1 acre. If I had more acres in CRP I would do it again. since I removed my acre from CRP I have left as is.
216	(Personal Values) Enjoyment of wildlife diversity (5); (Ecological) Limited chemical use protects our water (5); (Economic) Planted wildflowers and water source necessary for our bees (honey producers) (5); (Additional Comments) The land was already in CRP when we purchased it. The choice for this particular property was a good one, because of a low marshy area. We do not like the governments enforcement of similar land management restrictions for other properties we may own, however. We feel that each parcel should be considered for it's own best use and managed as such by the owner, not the State.
217	(Additional Comments) Took land out 2yrs ago b/c they wanted us to cut down all trees. We did that put it back into farming so land could make money for us. The government started changing the rules-screwed it up- we got out.
220	(Personal Values) to see native grass (5); (Ecological) erosion (5); (Additional Comments) Just to see the benefits of a tall grass prairie.
221	(Additional Comments) Our experience with the bureaucracy was not good. We always felt treated as though we were interrupting them and trying to cheat the system.
224	(Additional Comments) My farm has been in Continuous agriculture operation since 1978 in the (name). I lived here all my life except for my US Navy Service in World War II. I think the Conservation Reserve Program is one of the best programs developed by our government. To rebuild the soil, stop soil erosion, restore wild life. Some fields (on my farm) probably should never have been plowed. Top soil was washing into the lake bordering the farm. Before CRP my farm was staked into contour strips with sod waterways, preventing erosion. I now have planned terracing, preventing erosion. Also ponds build to benefit wild life. One pond is 7 acres. (number, map of property included).
229	(Additional Comments) I am the wife of the land owner, which we shared. He passed away Aug 28th, 2010 he lived here all his life 85 yrs.
234	(Personal Values) to keep land in good shape (5)

Note: Only surveys with responses are included, thus there are gaps in the survey numbers

## Appendix 3: Free Response Data

Survey	Formatted as: (section containing response), response, (value, if given)
235	(Additional Comments) We planted 2000 hardwood trees--they now go halfway to heaven. Along with 2 neighbors we, with help, have a fine wetland. Our stream keeps it filled--the DNR built the dike. The place is heavy with wildlife and it is a sweet place of peace. ***Also included are notes about their process and acceptance of applying to the program from 1997.***
236	(Ecological) eroding (4)
239	(Personal Values) connivance (4)
243	(Ecological) reforestation; (Additional Comments) This was sent to my husband who died in 2003, but the CRP land is now in my name. We have trees planted in the CRP land and also have a wildlife plot and pond.
248	(Additional Comments) First signing up and comment for 10 years in between the 10yrs CRP changes programs within. And land owner signed can't do nothing about it. Program should stay the same as when signed & dated!!
252	(Personal Values) wildlife preservation (5); (Economics) help pay taxes (2); (Additional Comments) We did not renew our contract because: It is not a true conservation effort put forth by this program. We were in trouble for maintaining our trees (we bought all trees ourselves and did not take government funding for it)--the CRP program will not allow mowing around trees. You are not to walk on the property from spring to late summer, if you want to remove weeds from the site--you have to go into the office and draft a site plan on your proposed actions. We were allowed only 0.6 acre for planting food plots-that is only a fraction of land (food plot) that is needed for the local wildlife. We had signed up for the next 15 year program but received notice that we needed to pay over \$400 to get out of it. WE GOT OUT!
255	(Personal Values) wildlife habitat (5); (Additional Comments) In intensively farmed areas the only way to give wildlife (flora and fauna) a chance is to set aside the marginal acres. Just the return to row crops of a 40 acre and 20 acre parcel adjacent to our land has visibly reduced the number of deer and fox we see (not the coyotes however!). Having potential crop acres in reserve in case of an unforeseen catastrophe is important. It's fun to hike, ski, snowshoe, and ride horses thru prairie type land. I may have a wider variety of birds to watch. I don't mind trapping the gophers that tunnel into my yard because I've given them acres and acres to live in! Though I think with them it's give an inch-take a mile!
256	(Personal Values) it's the right thing to do; (Ecological) personal enjoyment
257	(Personal Values) nice to look at (5); (Religious/Spiritual) I am a devout Christian but this did not enter my mind at the time I enrolled
258	(Personal Values) my family, future generation (5); (Ecological) prevent further soil erosion=filter strips (5); (Religious/Spiritual) wildlife-eagles pollution/trash. Reduce--help with vehicle air contaminants=planting more trees and filter strips/plants--live next to Hwy. 3 (more cars) & river floods more each yr (Cannon River) (5); (Additional Comments) I researched plat maps and studied the "river & hwy. 3," and it is getting so much worse, we stopped planting corn and soybeans--did CRP=planting trees & doing a filter strip, more needs to be done. Need more help/research \$\$\$ on Forests/woods. Contact us if we can be of more help. (name, address, phone). Do not share info. No telemarketing.
259	(Religious/Spiritual) Same as below, be a good steward of the land; (Additional Comments) When we purchased the property, it was already in CRP. My answers are to why we kept it in CRP. On why I would put land in CRP.

Note: Only surveys with responses are included, thus there are gaps in the survey numbers