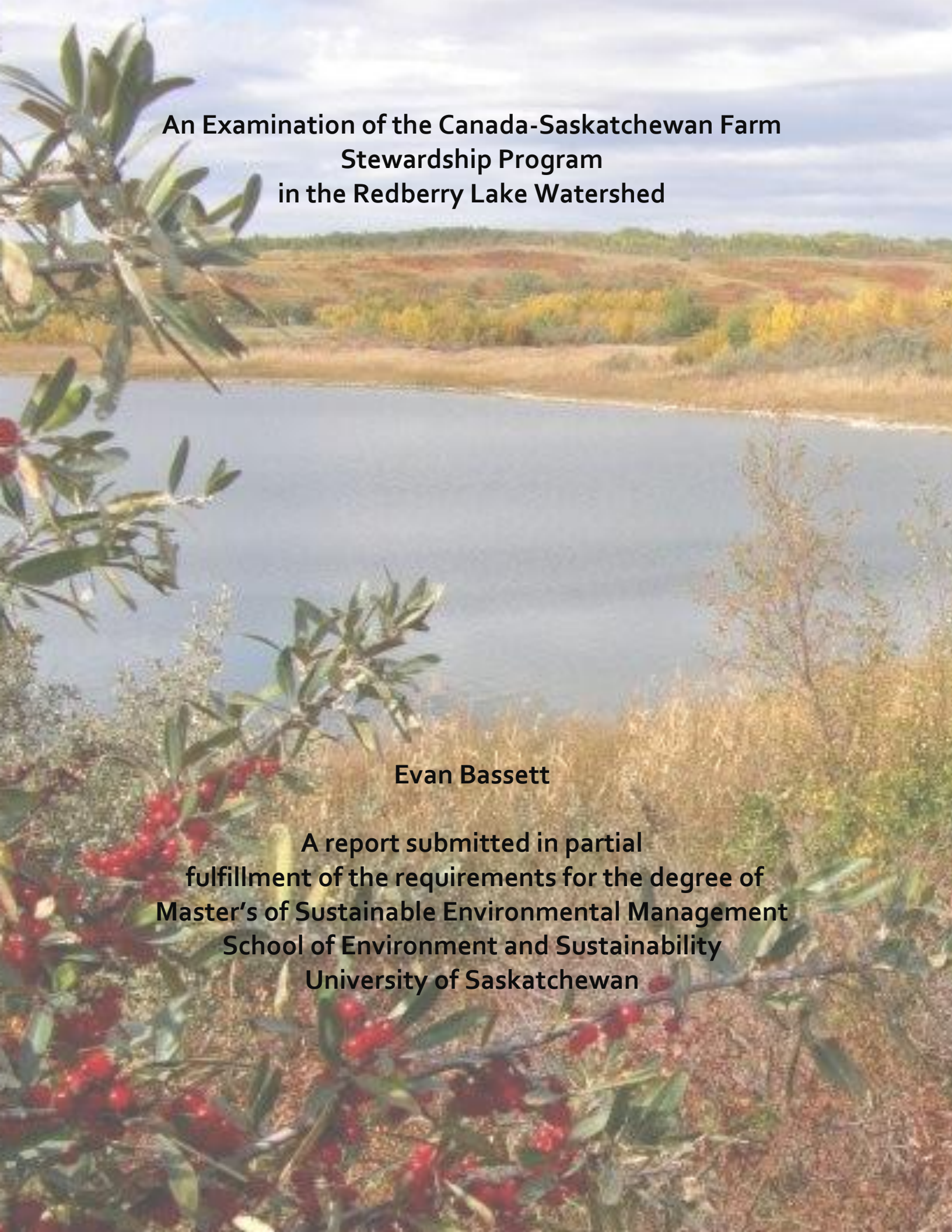

An Examination of the Canada-Saskatchewan Farm Stewardship Program in the Redberry Lake Watershed

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Executive Summary

This report examines a cost-sharing government program called the Canada-Saskatchewan Farm Stewardship Plan (CSFSP). The program is currently entering its third five year term (2013-2018), with previous terms extending from 2003-2008, and 2008-2013. The purpose of the program is to encourage the adoption of Beneficial Management Practices (BMPs) on farms, by offering financial compensation. This report aims to evaluate the CSFSP based on its initial directives, progress and development, and its results, with specific focus on participation in the Redberry Lake Watershed. Some important aspects that will be analyzed include how the program has (1) demonstrated value, (2) monitored quality, (3) met objectives, and (4) transformed program participants.

The Redberry Lake Watershed is a closed watershed containing seven rural municipalities within its boundaries. The southern portion is characterized by aspen groves scattered across fescue grasslands, cropland, and pasture. The northern portion is in the Boreal transition area, and is considered the northern limit of arable land in Saskatchewan. Situated in the middle of the watershed is Redberry Lake, a UNESCO designated Biosphere Reserve, Important Bird Area, and a Migratory Bird Sanctuary.

In June of 2013 a questionnaire was administered to the166 farms in the Redberry Lake Watershed that participated in the program since its inception in 2005.The goal of the survey was to gain feedback regarding the application process, the implementation of project(s), and resulting impacts, both socio-economic and environmental. Following descriptions of the program and related aspects, feedback from participants will be summarized, and recommendations for program improvement put forth for future consideration by applicable parties.

Introduction

In 2003, a Federal-Provincial-Territorial Framework Agreement on Agricultural and Agri-Food Policy (APF) was signed by Canada's Ministers of Agriculture. The framework highlighted five areas of Canada's agricultural sector that it would aim to address:(1)business risk management, (2) environment, (3) food safety and quality, (4) science and innovation, and (5) renewal (AAFC 2003). Primary environmental goals included minimizing agricultural risks to water, soils, and the atmosphere, and ensuring improved stewardship through the adoption of environmentally beneficial practises (Draper and Reed 2009). In order to effectively address such issues on a national scale, a number of programs were devised. With the recognition that improved stewardship would address the issues surrounding water, soil, and air quality, Agriculture and Agri-Food Canada (AAFC) put forth two interdependent initiatives to be implemented in partnership with each province and territory's Ministry of Agriculture: Environmental Farm Planning (EFP), and Farm Stewardship Programs. These decisions were a part of a trend of agri-environmental programs developed in support of sustainable agriculture, occurring in North America and Europe since the early 1980s (Smithers et al. 2003).

Provinces and territories have all worked with the AAFC to implement these initiatives in ways that best suit their particular situation and needs. Each ministry has taken different paths in the implementation of their program, with varying labour distribution and program start-up dates. However all can be defined as traditional top-down government initiatives seeking voluntary participation by farm owners and operators. John Smithers and Margret Furman (2003) articulate this approach as the following:

> These programs imply wisdom from above, where policies (and practises) are developed by experts in response to identified 'problems', and where program managers and agricultural extension personnel seek to affect desired changes in farmer attitudes and behaviour leading to the adoption of specific innovations. (Smithers et al 2003).

Based on the primary environmental goals outlined in the APF, and regionally specific issues identified by each Ministry of Agriculture, Beneficial Management Practises (BMPs) were selected and compiled. For an explanation of BMPs please see the Canada-Saskatchewan Farm Stewardship Program section. Compensation percentages and caps were allocated to each practise based on their respective contribution to the environmental goals mentioned, and the gravity or scope of each undertaking for a farm operator. These took the form of Farm Stewardship Programs.

In order for farmers to gain the knowledge necessary to effectively select and implement these BMPs, this program was coupled with Environmental Farm Planning (EFP). In developing an EFP farmers gain an understanding of environmental issues pertaining to their farming operation, assess agri-environmental risks and benefits, and create a responsive action plan. This cooperatively formulated plan detailed which BMPs would be appropriate in mitigating the issues identified (AAFC 2006). In addition to the promotion of Environmental Farm Planning, the APF also encouraged producer involvement in Agri-Environmental Group Planning (AEGP). An AEGP is a group of farmers who identify and collectively address a single environmental issue in their respective geographic location. Since 2005, these have been the two ways producers have accessed funding to mitigate and minimize environmental impacts in Saskatchewan. By 2007, 6000 individual EFPs had been developed in the province alone (Harrison et al. 2007). In 2006, an AAFC study revealed that 90% of farms in Canada with an EFP reported having implemented at least one of the BMPs identified in their action plan

(AAFC 2006). Needless to say, this program is something that was been widely embraced and adopted. The two programs are currently undergoing adjustments, making it an opportune time to gain insight from Saskatchewan participants on their past experiences, so one can evaluate successes, weak points, and create recommendations for improvement.

Environmental Farm Planning in Saskatchewan

The most effective driver in Saskatchewan for identifying, isolating, remediating, and or preventing environmental impacts from farming has been Environmental Farm Plans (EFP). Since 2005, it has been the primary way producers have accessed funds from the Canada-Saskatchewan Farm Stewardship Program (CSFSP) for BMP implementation. Originally initiated as a pilot project in Ontario in 1993, EFPs were seen as a significant departure from agri-environmental management and planning initiatives that existed before (Smithers et al. 2003). Although technically characterized as a top-down approach, an EFP operates with a 'needs' focus rather than a 'solution' focus. This is achieved by systematically evaluating individual farming operations, and then devising measures and selecting management strategies that will most effectively address the issues identified.

Creating an EFP in Saskatchewan has been a 5 step process:

(1) Workshop 1 - Facilitators and technical assistants teach producers about assessing the soil and site characteristics on their farms. They are then introduced to the EFP workbook, which aids in the identification of strengths and weaknesses.
(2) Risk Assessment – Producers review all aspects of their operations in the workbook. They then identify potential risks, define possible solutions, and develop their action plan.
(3) Workshop 2 – With the help of a workshop facilitator, producers finalize their action plans to determine the steps required to manage identified risks, and prioritize courses of action.
(4) Peer Review – Action plans are submitted to a Peer Review Committee for confidential review.

(5) Implementation – Upon approval from the Peer Review Committee, producers will then be allowed to apply for financial incentives under the Canada-Saskatchewan Farm Stewardship Program to implement BMPs. (Saskatchewan Agriculture and Food 2005)

The EFP workshops, workbooks, and technical assistance have been offered free of charge. The agency tasked with the EFP workshops and program delivery in Saskatchewan has been a non-profit, producer organization called the Provincial Council of Agriculture Development and Diversification Boards of Saskatchewan (PCAB). In 2009, PCAB took over the role of processing applications for BMPs listed in the CSFSP from the Saskatchewan Ministry of Agriculture. Recent program changes have transferred the responsibility of processing back to the Ministry (Henley 2013).

In a 2005 Saskatchewan EFP brochure, some goals were outlined that doubled as incentives for producer participation.

Producers can:

(1) Minimize the environmental impacts of farming operations and show that environmental sustainability is a key component of agricultural practise in Saskatchewan.
(2) Make Saskatchewan-grown commodities more marketable to environmentally conscious consumers around the world.
(3) Potentially increase production efficiencies and profitability.
(4) Demonstrate 'due diligence' as part of business risk program. (Saskatchewan Agriculture and Food 2005).

The Canada-Saskatchewan Farm Stewardship Program

The CSFSP received a $40 million dollar budget in its opening year (Government of Saskatchewan 2005). It began with a list of 29 BMP categories, each with its own cost-share percentage and cap on reimbursement. For a detailed list of the BMP categories and their respective practises, please refer to Appendix 1. The Government of Saskatchewan defines a BMP as any Agricultural practise that (1) ensures the long-term health and

sustainability of land- related resources used for agricultural production; (2) positively impacts the long-term economic and environmental viability of the agricultural industry; and (3) minimizes negative impacts and risk to the environment (Government of Saskatchewan 2006).

Modern agricultural methods have been found to produce a wide range of negative environmental effects. A few most threatening to Saskatchewan are: (Canadian Institute of Public Health Inspectors 2002).

- Pesticides contaminating water harming wildlife and human health
- Nitrate and phosphate from fertilizers, livestock wastes, and silage effluents contaminating water, causing eutrophication
- Soil erosion disrupting water courses, and run-off from eroded land causing flooding

BMPs play an important role in managing non-point source pollution in a watershed. A watershed with heavy agricultural production can experience all of these harmful environmental effects listed above in a short period (Measham et al. 2006). The CSFSP is designed so that producers can work to prevent these effects as well as mitigate them. The most significant change the program has undergone in its 8 years is the increase in maximum compensation from $30,000 to $50,000, allowing farmers to implement more extensive management strategies. Minor changes to caps, percentages, and available BMPs would occur each operating year (April 1-March 31) of the program. However since activation this program has offered BMPs targeting the same problems, giving producers a consistent duration of opportunities.

Agri-Environmental Group Plans

As mentioned earlier, developing an EFP is not the only way one can access funding from the CSFSP. Agri-Environmental Group Plans (AEGP) are created by groups of farmers in a

particular region, usually defined by a watershed (Harrison et al. 2007). A group plan is developed by exposing the participants to an environmental scan of the watershed, and then having them make a decision on what aspect they would like to collectively target with BMP implementation. Based on the issue targeted, appropriate BMPs are selected from the CSFSP and made available to AEGP members, regardless of whether they have developed an EFP. Each AEGP has 1 or 2 technicians that provide members with expertise regarding the planning, implementation, and maintenance of their BMP projects, as well as helping with applications.

Table 1

Saskatchewan AEGP Participation Figures 2010-2013			
	2010-2011	2011-2012	2012-2013
No. of AEGP Groups	22	27	27
Workshops Available	59	76	27
Field Days	47	42	34
Project Applications	1617	2066	2065
No. of Members	935	1213	1147
Technical Assistance	966	1144	1147

Source: Henley 2013

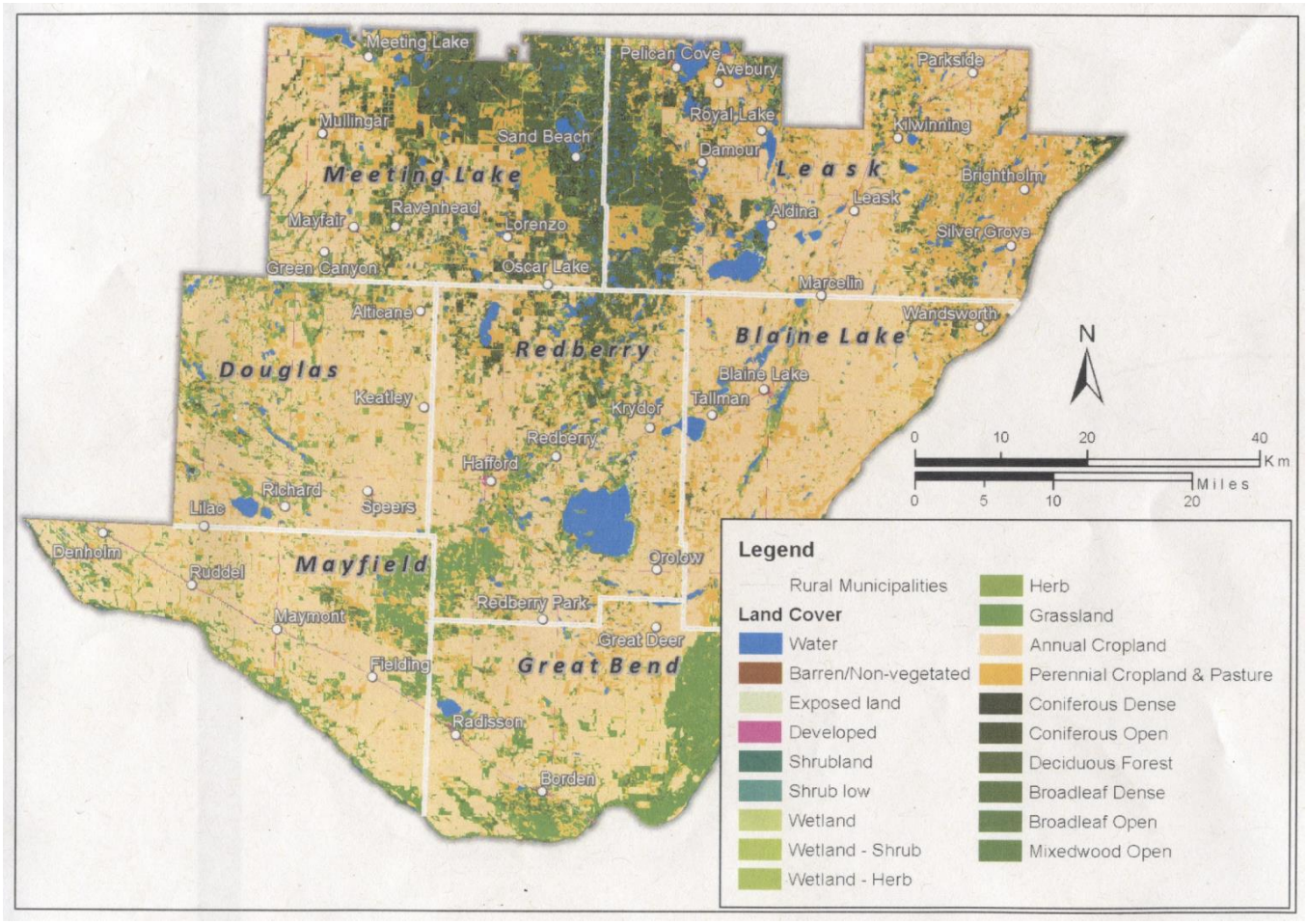
AEGPs work in partnership with Water Security Agency technicians and non-profit watershed groups under the umbrella of the Saskatchewan Association of Watersheds (SAW), in the development of scans and workshops (Henley 2013). See figure 4 in appendix 2 for 2012/13 AEGP boundaries.

The Redberry Lake Watershed

Redberry Lake Watershed is a unique area to explore producer participation in the CSFSP. It is a closed watershed, meaning it does not have an outflow, and therefore does not drain into other water bodies. Often referred to as endorheic watersheds, these areas often contain terminal or sink lakes within them, often saline (UNEP date unknown). Redberry Lake is located at the centre of this watershed, and has been experiencing increasing salinity concentrations since it was first measured in 1926 at a value of 12g/L. The lake was declared a Migratory Bird Sanctuary in 1925, and a Biosphere Reserve in 2000 (Encyclopaedia of

Figure 1

Redberry Lake Watershed AEGP Region (Land Cover)

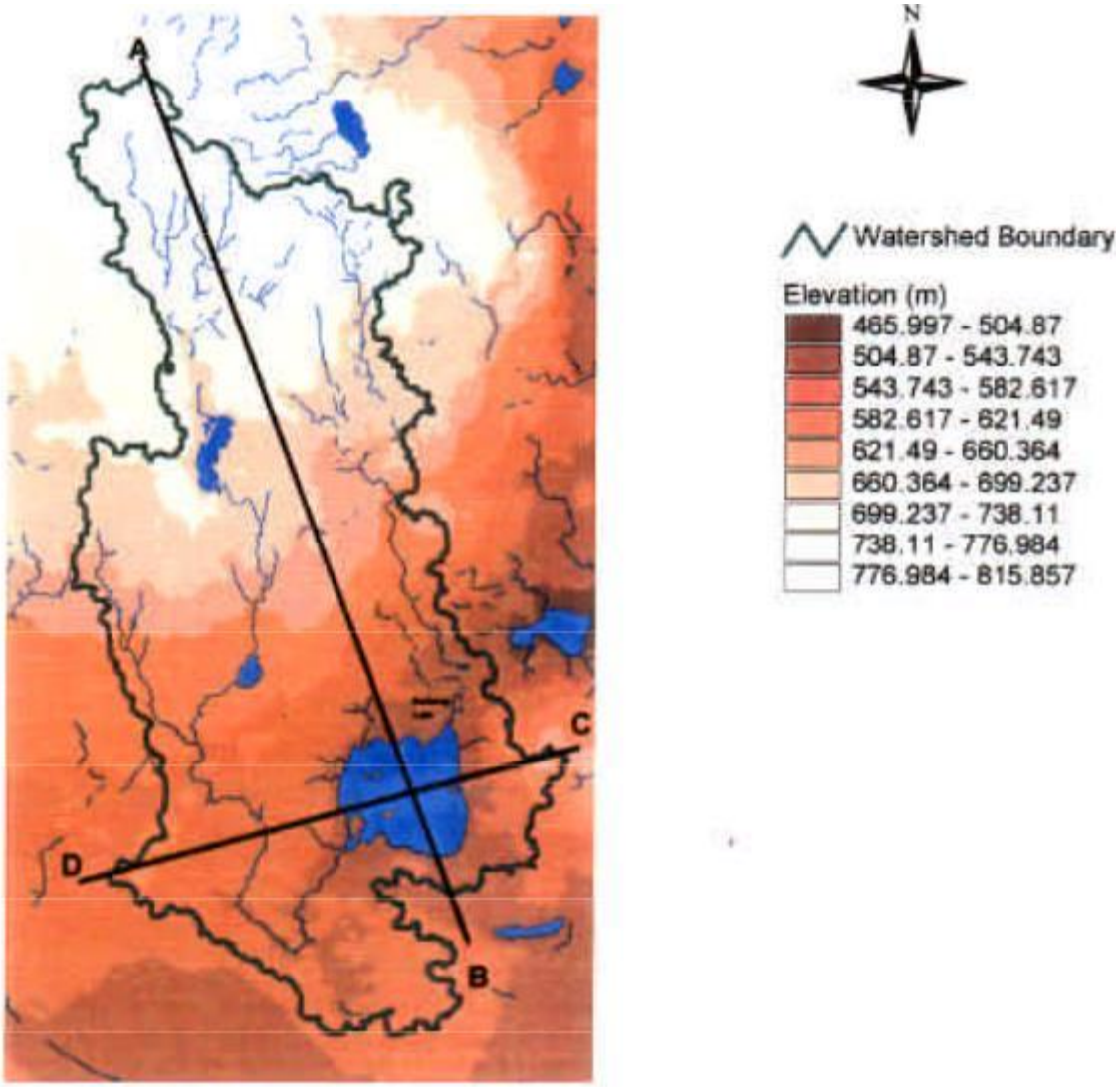


Courtesy of V. Kricsfalusy

Saskatchewan 1999). The watershed contains two subunits, tributaries Oscar and Marshy Creek (Schmutz 1999). Figure 1 illustrates the seven rural municipalities within the boundary of the Redberry Lake Watershed, and the area's various land uses and cover. The rural municipalities (RMs) include (1) Douglas (436), (2) Redberry (435),(3) Blaine Lake (434), (4) Greatbend (405), (5) Mayfield (406), (6) Meeting Lake (466), and (7) Leask (464).The watershed boundaries are much smaller than this area, totalling 1,150 km^2(284,000 acres) (Bonnel and Garrigou 2002).

Redberry Lake Watershed

Figure 2



Source: J. Schmutz 1999

Figure 2 illustrates the boundary of the watershed, and changes in elevation (metres above sea level). Notice how the watershed gradually declines in elevation as one travels from the northwest portion down towards Redberry Lake. The lake's water sources are primarily rain and snow melt runoff travelling down this decline, along with the inward flows from Oscar and Marshy Creek (Schmutz 1999). As one can see in figure 1, the area is dominated by annual and perennial crop production, and pasture land. In northern region considered the boreal transition zone, populated by conifers and shrubs. The southern RMs, once fescue grasslands, are now dominated by cropland and pasture. Most significant production occurs in the form of grain, flax, canola, and cattle (Bonnel and Garrigou 2002). Producers inhabiting much of these regions have experienced increasing difficulty in the past decade trying to remain profitable in the rapidly changing global agricultural market (Schmutz and Whitelaw 2011). It has forced many to increase the scale and intensity of their operations, exerting an increased strain on the local environment.

The Redberry Lake Watershed AEGP

When the APF called for the introduction of AEGPs, it did not specify how they would be geographically defined, or how they would function. Saskatchewan therefore ran a pilot AEGP in the Lower Souris River Watershed in 2005, in partnership with the Saskatchewan Watershed Authority and the Lower Souris River Watershed Advisory Committee. The pilot was a great success, producing a source water protection plan by March of 2006, and facilitating close to 2 million dollars in BMP projects through the CSFSP by June of 2007 (Saskatchewan Watershed Authority 2006; Harrison et al. 2007). The Lower Souris pilot went on to act as a model in the development of AEGP groups in nine other

watersheds in Saskatchewan in 2006, one being the Redberry Lake Watershed AEGP.[1]

The Redberry Lake Watershed AEGP was a product of the North Saskatchewan River Watershed planning process, which began in late 2004 (Government of Saskatchewan 2004). The plan called for an AEGP to be formed for six of the RMs surrounding Redberry Lake (Leask was incorporated in 2012) (RLW AEGP 2012). In March of 2006 a meeting for producers from these six RMs was held to identify a key agri-environmental issue they would target with BMP implementation. The issue they chose was surface water quality, and selected practises from the Winter Site Management and Riparian Area Management categories of the CSFSP that members would have access for mitigation (for details on specific practises within these categories please see appendix 1) (PCAB 2007).

In 2008, the APF five year term expired, and was replaced by a slightly readjusted framework called Growing Forward. One of the actions put forth by this new framework was the Watershed Awareness Initiative, an effort to fulfill the APF's goals to implement AEGPs across the watersheds of Saskatchewan. The position of the Watershed Awareness Initiative was that EFPs, although effective in raising awareness and improving management in localized areas, does not sufficiently address issues on a regional scale. The initiative's main objective was to communicate to producers how management decisions taken on the farm can create negative effects within the watershed, and teach them that by joining their local AEGP, and aligning their efforts in the form of harmonized BMP adoption, they can effectively mitigate regional issues (PCAB unknown date).With the successful AEGP model developed from the Lower Souris River Watershed, Redberry Lake Watershed, and others, the Saskatchewan

[1] There were nine AEGP groups established in Saskatchewan in 2006 following the Lower Souris pilot project: (1) Redberry Lake, (2) Lower Assiniboine, (3) Swift Current, (4) Gull Lake, (5) Yorkton Aquifer, (6) Moose Jaw, (7) Lanigan Manitou, (8) Cornerstone, and (9) Wood River. Some of these group's borders have since been realigned to suit source water protection boundaries (Kowalchuk 2013).

Watershed Authority would go on to develop an additional 17 groups in Saskatchewan over the next five years (Henley 2013).

Redberry Lake Watershed AEGP has been the most successful AEGP in terms of projects implemented and dollars invested in Saskatchewan (NSRBC 2012). From 2006-2012, 653 projects were successfully implemented in the seven RMs comprising the Redberry Lake Watershed AEGP, the most in the province. The following table illustrates the number of projects implemented in each RM under the facilitation of the Redberry Lake Watershed AEGP, and the subsequent chart illustrates the number of projects implemented by practise type.

Projects Implemented by the RLW AEGP by RM 2006-2012

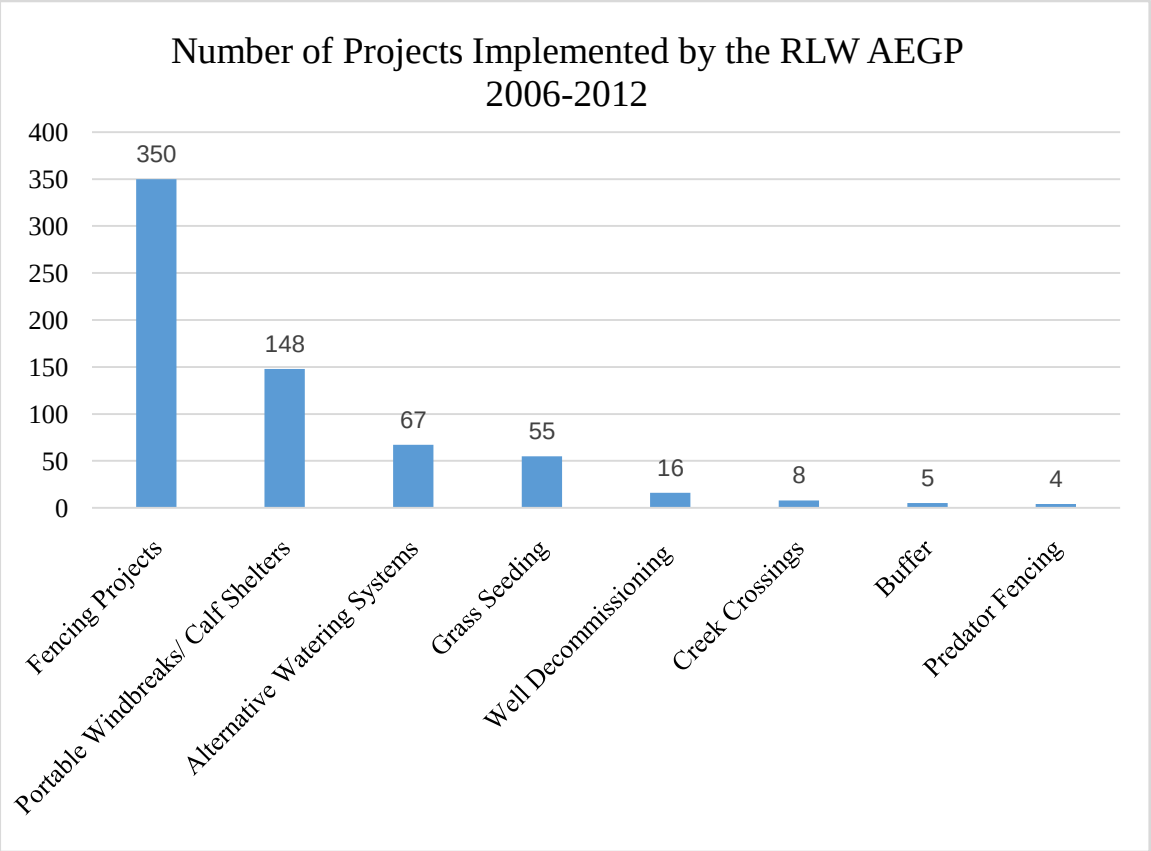
Table 1

Rural Municipality	Number of Projects
Douglas 436	97
Redberry 435	240
Blaine Lake 434	68
Meeting Lake 466	135
Mayfield 406	16
Great Bend 405	87
Leask 464 [2]	10

Source: Abe 2012

[2] Leask (RM 464) did not join the Redberry Lake Watershed AEGP until 2012. Leask was originally a part of the Parkland AEGP, where 24 BMPs were implemented, with a total producer investment of $158,374 (NSRBC 2012).

Chart 1



Source: Abe 2012

The success of the Redberry Lake Watershed AEGP demonstrates that inhabitants of the seven RMs are environmentally conscientious, willing to learn, and ready to act through BMP adoption. The AEGP has developed a wealth of partnerships, including the Biosphere Reserve (RLBR), the North Saskatchewan River Basin Council (NSRBC), Ducks Unlimited Canada (DUC), and Prairie Wild Consulting, who collaborate in the development of workshops, scans, and producer action plans (RLW AEGP 2011).One can argue that the group has improved the aspects of social and cultural capital necessary for strong community capacity (Mendis-Millard and Reed 2007). Social and cultural capital in the context of environmental management are those aspects of social life – (1) norms, (2) networks and (3) trust -that facilitate citizen association and enable participants to act together more effectively to pursue shared objectives

(Cortner and Moot 1999; Mendis-Millard and Reed 2007). This evidence along with the area's unique topography, diverse land uses, and ecologically significant elements like Redberry Lake make it ideal for an examination of CSFSP participation.

Methods

In June of 2013, a survey was administered to all inhabitants of the seven RMs mentioned above that had participated in the CSFSP since its inception, either through the development and fulfillment of an EFP, or through membership to the Redberry Lake Watershed AEGP. The purpose of the survey was simple: to draw on the experiences of producers for the identification of perceived strengths and weaknesses, to assist in the development of program recommendations. Questions were devised based on the project's objectives, structure, and results.

The survey was reviewed by Dr. Maureen Reed, project advisor and assistant director of the School of Environment and Sustainability at the University of Saskatchewan, Biosphere Reserve and NSRBC director John Kindrachuk, and Water Security Agency technician Jeremy Brown prior to its submission to Behavioural Research Ethics Review for Saskatchewan. Jessica Wruck, EFP and Farm Stewardship coordinator for PCAB agreed to assist with the survey by providing the contacts (addresses remained confidential). The seven RMs contained 166 farms that had participated in the CSFSP. Survey packages containing a PCAB cover letter, a consent form, and a questionnaire were sent to the 166 addresses, with a four week deadline (see appendix 3 for survey materials).

Results

Survey Participation: 28 of 166 surveys were received (17%).

Table 2

Survey Participation (RM Distribution)	
Rural Municipality	**Number of Survey Participants**
Douglas 436	4
Redberry 435	3
BlaineLake 434	5
MeetingLake 466	5
Mayfield 406	4
Great Bend 405	2
Leask 464	5

Table 3

Respondent Averages/Sums/Medians		
		Median
Average Age	51	53
Average Land Holding	1,851.5 acres	1,370 acres
Total Area Surveyed	48,141 acres	N/A
Average Total Investment	$21,297	$15,000
Average Total Compensation	$8,140 (38.5% return)	$6,500 (43.3% return)

Table 4

Percentage of Income from Agriculture	**Number of Participants**
0-20%	3
20-50%	4
50-75%	8
75-100%	13

Table 5

Farming Operation	**Number of Participants**
Livestock	11
Crops	5
Both	12
Method of Participation	
EFP	15
AEGP	5
Both	7

It is important to acknowledge that people all have socio-culturally developed biases, perceptions, and ways of understanding. The survey participants came from a wide age range (32-74), inhabiting different topographical regions. Participants are engaged in agriculture at different levels (% income from production), managing different amounts of land (150-5000 acres), for a range of purposes. In addition, the way(s) in which each respondent has accessed the program (EFP, AEGP, or both) will have an influence on their experience and position.

Participants were asked what issues are most threatening in their local area. Risks most heavily identified with included: (1) fertilizer, pesticide, and chemical overuse, (2) erosion, (3)

salinity, (4) wetland health, (5) overgrazing, and (6) drainage. The types of BMPs participants have implemented however are quite diverse. The CSFSP offers a wide range of management options, allowing for multiple remedies to single problems in many instances. This may explain why there were few commonalities in management approach. Most frequently mentioned BMPs were (1) cross-fencing, (2) portable windbreaks, (3) remote watering, and (4) GPS technology, largely reflecting the figures illustrated in chart 1.

There were some general trends in response to some of the questions that provide useful insight for future adjustments:

- Following the EFP workshops, it was difficult to gain access to additional information or training. Some of the practises available in the CSFSP involve complicated procedures, requiring pre-approval and expert guidance.
- A strong majority of participants (79%) felt the economic viability of their farming operation had been improved as a result their CSFSP participation. Percentages were higher still (86%) regarding the program's impact on the environmental viability of farming operations. Recall that the Government of Saskatchewan defines a BMP as a management practise that positively impacts the long-term economic and environmental viability of agricultural production (Government of Saskatchewan 2006).
- Only 45% of EFP participants had reviewed their farm plan following its creation. PCAB recommends that producers review their EFPs every 5 years, to address uncompleted actions, and identify priority areas they would like to address in the future (PCAB 2010).
- Participants were "very satisfied" with the quality of assistance they received in the planning, implementation, and or maintenance of their project(s), with an average response of 4.32 out of 5.
- Similar figures were reported for the accuracy of cost estimates associated with the projects implemented, with an average response of 4.44 out of 5.
- 19 of the 28 participants (68%) did not provide an answer when asked if there are any additional BMPs that should be made available in the future.
- 50% of participants answered they would consider further BMP implementation if the

compensation cap for a 5 year term was raised from $50,000.

- Many EFP participants who were not involved in the Redberry Lake Watershed AEGP answered that they are not interested in joining the group. Similarly several participants who had accessed funding through the AEGP expressed they were not interested in developing EFPs.
- Generally only the participants involved in the AEGP receive notifications about workshops and field training events.

There are a number of limitations with the survey data that must be addressed, chief among which is the low response rate. There are 166 farming operations that participated in the CSFSP in the seven rural municipalities that comprise the Redberry Lake Watershed AEGP since 2005. Of those 166, a mere 28 returned the survey, producing a response rate of 17%. The area surveyed was 48,141 acres, 3% of the total area of the seven municipalities (Statistics Canada 2001). The survey was administered at the end of June, with a four week window to complete and return. A more ideal time would have been in the winter months, when farmers are less preoccupied with their various duties. Incentives for participation were rather low (a chance to win 1 of 3 $100.00 Home depot gift certificates), which also could have deterred respondents. One can argue that many of the survey participants are people who have an interest sustainable environmental management, and are dedicated to the aims of the CSFSP, thus explaining the largely positive nature of the responses.

Recommendations

The CSFSP has recently undergone a number of changes, as the 5 year term for Growing Forward has expired (March 31, 2013). The follow up program Growing Forward 2's budget has been allocated and program adjustments have been formalized, however there is room for further reiterations for the April 2014 – March 2015 term. Several BMPs have been either eliminated or

relocated to other cost-sharing programs under the new version of the CSFSP. For example, the successful BMP well decommissioning has been relocated to the Farm and Ranch Water Infrastructure Program (Henley 2013). As a result, the list of available BMPs for 2013-2014 has been significantly reduced from 30 to 13 (Saskatchewan Ministry of Agriculture 2013). AEGP boundaries have been revised to suit respective watershed boundaries, to help better facilitate the Water Security Agency's 25 year source water protection plan (Water Security Agency 2013). The Ministry of Agriculture is assuming the responsibility of application processing from PCAB, who will remain in command of EFPs.

Some recommendations for future program adjustment include:

- Streamline the application process where possible. Ensure there are enough application reviewers to reduce processing times. Forcing producers to wait 20 weeks for compensation has frustrated many participants, possibly deterring them from future participation. The Ministry of Agriculture should stress the importance of filling out the application with the proper information. Calling applicants to inform them their application is not adequately filled out wastes time on both sides.

- Provide past participants with information regarding program changes and updates. The relocation and elimination of certain BMPs should be effectively communicated so as to avoid confusion and ineligible applications.

- When asked if there are any new BMPs that producers would like to see incorporated into future CSFSP versions, several provided practises that were already available under the existing program (i.e. invasive plant control, portable shelters, and integrated pest management). A more detailed explanation of each BMP, addressing what sort of issues the practises are capable of mitigating could minimize this problem.

- In the reduction of available BMPs through the CSFSP under Growing Forward 2, compensation for GPS guidance systems has been eliminated. Several survey participants reported having upgraded their combines by installing GPS guidance systems, to facilitate

zero till farming and precision nutrient application. Many farmers however are not familiar with new farming technologies and management practises, and still operate old machines using traditional till and nutrient application methods. The new BMP list offers funding for variable rate application, which requires GPS guidance systems. It is recommended that for the 2014-2015 term that GPS compensation be re-introduced, so that more farmers employing traditional methods have more incentive to adopt zero till and variable rate nutrient application. Successful adoption and utilization of GPS in combines is an intricate and costly process, demanding considerable technological understanding and capital. The Ministry of Agriculture should offer workshops on the details and benefits of transitioning to GPS guided machinery, so as to increase participation and further popularize this important management practise.

- I) As previously mentioned, a number of participants who had accessed funding by way of an EFP were not interested in joining the Redberry Lake Watershed AEGP, and vice-versa. It is recommended that the Ministry of Agriculture distribute information detailing the benefits of dual involvement to those who have participated via one of the two avenues.

  II) AEGP members appear to be the only CSFSP participants receiving notifications about workshops and field training sessions. The solution to both issues would be to formulate a comprehensive electronic mailing list, to inform both types of participants about the benefits of the other, as well as upcoming events.

- It is important to encourage past EFP participants to re-evaluate their farm action plans. It is recommended that material reminding participants of the value of farm plan re-evaluation be distributed by mail; to maintain responsible land management and address newly surfaced or overlooked environmental issues, with the aim of increasing participation.

Conclusion

The Canada-Saskatchewan Farm Stewardship Program has experienced tremendous success during its first eight years, facilitating the implementation of countless BMPs throughout the province. Each successive annual term has been updated and improved upon from the last, resulting in a holistic and effective program. The positive environmental impact of the CSFSP is unquantifiable, however it can be certain the program has played a major role in ushering the minds and attitudes of producers towards agricultural management that is environmentally conscientious, efficient, and more sustainable. The significant reduction in budget allocation and available BMPs however will likely reduce participation figures. This will seemingly alleviate some of the pressure surrounding application processing; allowing the Ministry of Agriculture to focus more resources on issues like those described in this report, so as to ensure this successful program continues facilitating environmental remediation and responsible management.

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Susanne Abe works as the communications officer at the Reberry Lake Biosphere Reserve Research Centre in Hafford, Saskatchewan. She performs a wide range of tasks for RLBR, and has provided information and guidance throughout the course of this study.

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Appendix 1

(Taken from the CSFSP guide for April 1, 2011 – March 31, 2012)

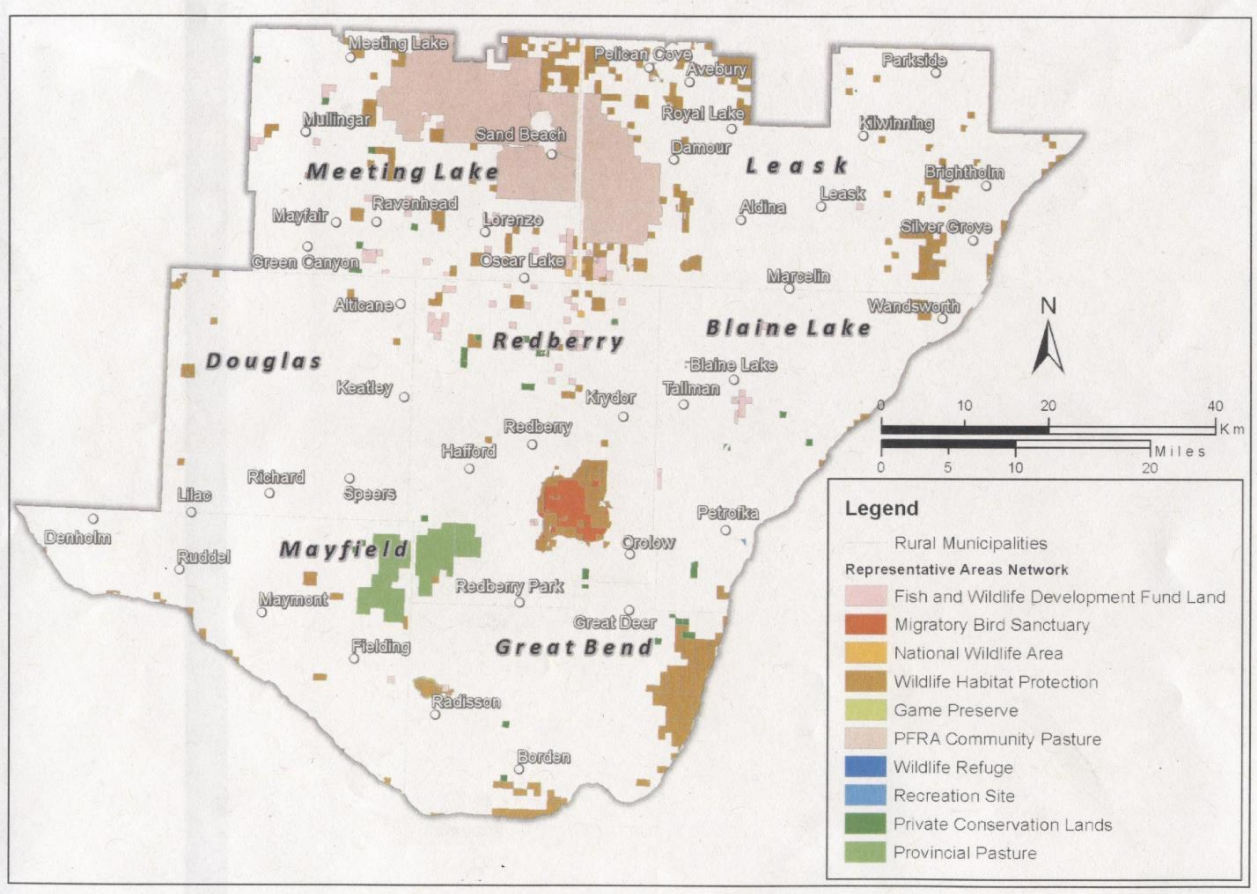
BMP Category	Cost-Share	Caps
101 Relocation of Livestock Confinement Facilities	60%	$50,000
201 Fencing to Protect the Environment	50%	$30,000
202 Fencing to Prevent damage by Wildlife	50%	$10,000
301 Portable Windbreaks & Shelters	50%	$15,000
302 Remote Water Systems	50%	$15,000
401 Farmyard Run-off Control	50%	$10,000
501 Manure Storage Improvements	30%	$30,000
601 Manure Storage Increases	30%	$30,000
701 Manure Application Equipment and Technologies	30%	$10,000
702 Manure Nutrient Planning	50%	$4,000
801 Modifying and Re-vegetating Waterways	75%	$20,000
901 Planting Vegetation to Protect Riparian Areas	50%	$20,000
902 Improved Stream and Creek Crossings	50%	$20,000
101 Protecting Marginal High Risk Soils	50%	$5,000
1601 Shelterbelt Establishment	$600/mile	$5,000
1001 Decommissioning Abandoned Wells	75%	$6,000
1002 Protecting Existing Wells	50%	$6,000
1201 Agricultural Product's Safe Storage and Handling	30%	$10,000

1202 Agricultural Waste's Safe Storage and Handling	30%	$10,000
1301 Pesticide Application Systems (Drift Application Technology)	30%	$5,000
1302 Information Collection and Monitoring	30%	$5,000
1303 Integrated Pest Management for Insect, Vertebrates and Non-vertebrate Pests	30%	$5,000
1304 Integrated Pest Management for Invasive Plants	50%	$5,000
1305 Native Plant Re-establishment	50%	$5,000
1306 Integrated Pest Management Planning	50%	$2,000
1401 Irrigation Equipment Modification	30%	$10,000
1402 Irrigation Management Planning	50%	$2,000
1501 Low Disturbance Placement of Seed and Fertilizer	30%	$5,000
1502 Chaff Collectors and Chaff Spreaders	30%	$10,000
1503 Precision Farming Applications - GPS	30%	$15,000

Appendix 2

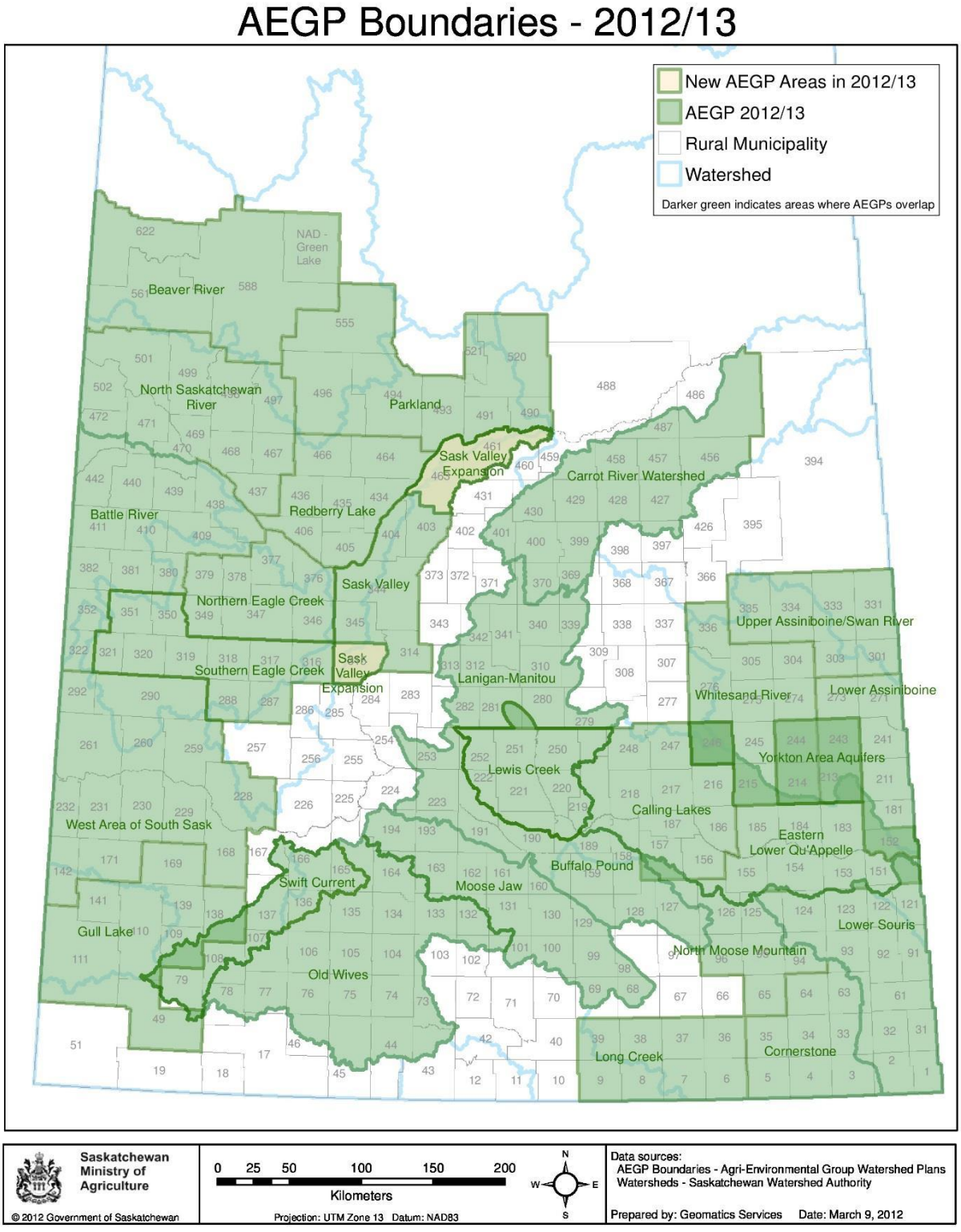
Figure 3

Redberry Lake Watershed AEGP Region (Environmental & Wildlife Zones)



Courtesy of V. Kricsfalusy

Figure 4


AEGP Boundaries - 2012/13
New AEGP Areas in 2012/13
AEGP 2012/13
Rural Municipality
Watershed
Darker green indicates areas where AEGPs overlap
Beaver River
North Saskatchewan River
Parkland
Sask Valley Expansion
Carrot River Watershed
Battle River
Redberry Lake
Sask Valley
Northern Eagle Creek
Upper Assiniboine/Swan River
Southern Eagle Creek
Sask Valley Expansion
Lanigan-Manitou
Whitesand River
Lower Assiniboine
Yorkton Area Aquifers
Lewis Creek
Calling Lakes
West Area of South Sask
Eastern Lower Qu'Appelle
Buffalo Pound
Swift Current
Moose Jaw
Gull Lake
Lower Souris
North Moose Mountain
Old Wives
Long Creek
Cornerstone
Saskatchewan Ministry of Agriculture
© 2012 Government of Saskatchewan
0 25 50 100 150 200
Kilometers
Projection: UTM Zone 13 Datum: NAD83
N W E S
Data sources:
AEGP Boundaries - Agri-Environmental Group Watershed Plans
Watersheds - Saskatchewan Watershed Authority
Prepared by: Geomatics Services Date: March 9, 2012

Appendix 3

PCAB

The Provincial Council of Agriculture Development and Diversification ADD Boards for Saskatchewan Inc.

Dear CSFSP Applicant,

PCAB is working in partnership with Evan Bassett, Graduate Student at the School of Environment and Sustainability, University of Saskatchewan to assist him in completing a survey for his master's project. Enclosed is a survey for you to complete and submit back to Evan using the pre-paid envelope.

If you have any questions or concerns regarding this survey, please contact Evan at edb786@mail.usask.ca or (306) 612-0210. All results from the survey will remain anonymous and your identity confidential.

Sincerely,

Jessica Wruck, P. Ag
PCAB Program Coordinator

220-333 25th Street East, Saskatoon, SK S7K 0L4
phone: (306) 955-5477 • toll-free 1-866-298-7222 • fax: 306-955-5473

UNIVERSITY OF SASKATCHEWAN

School of Environment and Sustainability

An Examination of BMP adoption through the Canada-Saskatchewan Farm Stewardship Program in the Redberry Lake Watershed

Thousands of farmers have participated in the Canada-Saskatchewan Farm Stewardship Program(CSFSP) since its inception in 2005. The CSFSP was created as part of the environmental chapter of the Agricultural Policy Framework to help producers develop and implement Environmental Farm Plans(EFP).The program is based on the Federal Government sharing the costs to implement Beneficial Management Practises (BMPs) with producers. Redberry Lake Watershed was one of the first areas in Saskatchewan to form an Agri-Environmental Group Plan (AEGP), which allows members to access funding through the program without the need for an Environmental Farm Plan. Over a 1000 producers participated in the Farm Stewardship Program through their local AEGP last year, providing advice and assistance for those implementing Beneficial Management Practises.

I wish to evaluate the CSFSP by focusing on its initial directives, its developments, and its results. I aim to gain insight from the producers that inhabit the rural municipalities surrounding of the Redberry Lake Watershed regarding their experiences with the CSFSP, to assist me in the identification of strengths and weaknesses, and help form recommendations for program improvement. The resulting report will be shared with the Redberry Lake Watershed AEGP, North Saskatchewan River Basin Council, PCAB, and the Saskatchewan Ministry of Agriculture. Your information will be synthesized with the other responses, and will not be disclosed to anyone.

The following questionnaire will take you approximately 10 minutes to complete. This package contains 2 copies of the consent forms: keep one for your records, and please include the other signed and dated with the questionnaire when you mail it back in the prepaid envelope. **Participants who have submitted their survey by July 18th, 2013 will be entered to a draw to win one of three $100.00 Home Depot gift certificates. Thank you!**

Return: University of Saskatchewan, Room 323, Kirk Hall, 117 Science Place, Saskatoon, SK, S7N5C8, Canada

Survey Participant Consent Form

Project Title: The Canada-Saskatchewan Farm Stewardship Plan and BMP adoption in the Redberry Lake Watershed

Researcher: Evan Bassett, Masters of Sustainable Environmental Management candidate, School of Environment and Sustainability, University of Saskatchewan, (306)612-0210, edb786@mail.usask.ca

Supervisor: Dr. Maureen Reed, School of Environment and Sustainability, (306)966-5630, maureen.reed@usask.ca

Purpose of Questionnaire: To gain an understanding of producer's experiences with the Canada-Saskatchewan Farm Stewardship Program, to assist in the formation of recommendations for the program's improvement.

Potential Risks: There are no known or anticipated risks to you by participating in this questionnaire.

Potential Benefits: The information you provide can aid in the improvement of a program that helps Saskatchewan farmers adopt environmentally conscience management strategies. You will also be helping the Redberry Lake Watershed AEGP and the North Saskatchewan River Basin Council improve the coordination and development of their project efforts in your area.

Compensation: Provide your name and phone number on the completed survey to be entered into a draw for3 Home Depot $100.00 gift certificates. You will not be contacted for any other reason, and your information will not be shared with anyone.

Confidentiality: You have the right to refuse to answer any of the question(s)in this survey. The information you provide will be explicitly used to evaluate the effectiveness of the Farm Stewardship Program. Your identity and information will remain anonymous, and will not be disclosed to anyone in any way. Following the conclusion of the study, the surveys and all producer information will be destroyed.

Acronym List

CSFSP–Canada-Saskatchewan Farm Stewardship Plan **EFP**–Environmental Farm Plan

AEGP–Agri-Environmental group Plan **PCAB** – Provincial Council of Agricultural Development and Diversification Boards

BMP–Beneficial Management Practise

_____	_____	_____
Name of Participant	*Signature*	*Date*

_____	_____	
Researcher's Signature	*Date*	_____
		Phone Number

Canada-Saskatchewan Farm Stewardship Program Participant Survey

1) What issues do you perceive to be of the greatest concern in your local area:

(Check all that apply)

☐ Fertilizer/chemical overuse ☐ Overgrazing

☐ Erosion ☐ Drainage

☐ Salinity ☐ Fuel spills/contamination

☐ Wetland Health ☐ Intensive Livestock Operations

Other _____

2) How did you access funding from the Canada-Saskatchewan Farm Stewardship Program (CSFSP)?

(Check all that apply)

☐ Environmental Farm Plan (EFP) ☐ Agri-Environmental Group Plan (AEGP)

3) Please indicate in the following space the BMPs you have adopted through the CSFSP in last 5 years. Please provide dates if possible.

_____

_____

_____

_____

4) Approximate total amount invested in BMP projects (dollars): _____

5) Total compensation you have obtained from the CSFSP (dollars):_____

6) Did any of your projects require pre-approval?

☐ No ☐ Yes

7) Are there any new BMPs you would like to see incorporated into the program in the future?

_____

_____

8) Did you receive any assistance from either the PCAB office or an AEGP technician during:

	PCAB		AEGP		Other
Planning of the project	☐ No	☐ Yes	☐ No	☐ Yes	☐
Implementation of the project	☐ No	☐ Yes	☐ No	☐ Yes	☐
Maintenance of the project	☐ No	☐ Yes	☐ No	☐ Yes	☐

9) Evaluate on a scale of 1 to 5 the quality of the assistance you received.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Not at all satisfied Somewhat satisfied Very satisfied

10) Were the costs of implementing your project(s) similar to the estimates?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Not at all Somewhat Yes

11) **Applicable only to those who have developed an Environmental Farm Plan (EFP)**

a) Do you feel as though the quality of the training you received to develop your EFP was sufficient to properly implement your chosen project(s)?

☐ No ☐ I could have used more ☐ Yes, the quality was sufficient

b) If you selected "No" or "I could have used more", could you explain how the training could have been better?

_____

_____

12) Have you reviewed your Environmental Farm Plan since its creation?

☐ No ☐ Yes

13) Were you aware of your local AEGP group, and the environmental risks they have identified in your area?

☐ No ☐ Yes

14) Would you consider becoming a member of your local AEGP group?

☐ No ☐ Yes

15) **Applicable only to those who are a member of their local Agri-Environmental Group Plan (AEGP)**

Were you satisfied with the BMP's made available to you through your AEGP?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Not at all satisfied Somewhat satisfied Very satisfied

16) Rate the overall quality of assistance you received from your AEGP technician during the adoption of your BMP(s)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Not at all satisfied Somewhat satisfied Very satisfied

17) Would you consider developing an Environmental Farm Plan in the near future?

☐ No ☐ Yes

18a) Do you think the BMP(s) you have adopted through the CSFSP has positively impacted your economic viability?

☐ No ☐ Neutral ☐ Yes

b) Do you think the BMP(s) you have adopted through the CSFSP has positively impacted your land's environmental viability?

☐ No ☐ Neutral ☐ Yes

19) If the maximum funding in a 5 year period was raised from 50,000, would you have considered implementing other BMP projects?

☐ No ☐ Unsure ☐ Yes

20) Do you receive notifications about sustainable management practise workshops in your area?

☐ No ☐ Yes

Personal Information

Age: Rural Municipality:_____

Sex: ☐ M ☐ F Approx. Property Size:_____

i) Percentage of gross household income from farming:

☐ 0-20% ☐ 20-50% ☐ 50-75% ☐ 75-100%

ii) Are you the sole owner-operator of this farm?

☐ No ☐ Yes

If no, what is your relationship with the other owner-operator(s)?

_____

iii) Level of education:

☐ Some High School ☐ University Degree

☐ High School ☐ Graduate Degree

☐ College Diploma

iv) Farming Operation: ☐ Livestock ☐ Crops ☐ Both

Additional Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for completing the survey! If you would like to view the final report, it will be made available for download from the Redberry Lake Biosphere Reserve website in September, 2013.