

Is Win-Win-Win Possible With Grazing Livestock and Riparian Areas?

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Introduction

It's important to begin by defining a "win-win-win" outcome. We seek land-use adaptations that will provide measurable benefits to landowners, to the environment and to rural communities when compared to the *status quo*. This is not the pursuit of utopia: think of it as trying to dress the concept of sustainable development in working clothes.

This paper focuses on the experiences of The Manitoba Habitat Heritage Corporation (MHHC) in delivering a riparian habitat enhancement program over the last eight years. The *Green Banks Program* (GBP) is a voluntary, stewardship-based initiative that has focused on cattle grazing systems. The initial program objective was to use riparian fencing to exclude cattle from riparian areas, but the program quickly evolved into helping producers adopt new grazing and watering management systems on their entire pasture.

More recently, MHHC and partners have directed resources into evaluating:

- Cooperator attitudes to their GBP systems,
- Economic analysis of one demonstration project
- Cattle producers' experiences with managed grazing and watering across the prairies.

Those results will be summarized here and the logical next steps will be discussed.

Riparian Area Ecological Functions

Simply put, riparian areas are places where land meets water, including stream banks, lakeshores and wetland fringes. Through the seasons, they vary from wet to dry and communities evolve from the interaction of water, soil and vegetation (Adams and Fitch, 1995). Riparian functions in the prairie landscape include: sediment-filtering, dissipation of stream energy, water storage, aquifer recharge and fish and wildlife habitat (Hansen et. al., 1995).

While riparian areas represent 5% of the prairie landscape, they are reservoirs for a majority of wildlife species and important sources of biological diversity (PFRA, 2000). Over 130 species of birds, 30 species of mammals and 12 species of reptiles and amphibians call riparian areas home for at least some of their life cycle (K. Mazur, Partners in Flight Coordinator, Manitoba Conservation, unpublished).

Riparian areas have been identified as major contributors to clean surface waters and grazing livestock are an issue, respecting the ability of riparian areas to fulfill this function (Manitoba Conservation, 2000). For producers they can be a forage source (PFRA, 2000) and can also contribute valuable hardwood products (S. Tornblom, Manitoba Agro Woodlot Program, personal communication). Healthy riparian areas can also sequester carbon in the prairie landscape.

Clearly, riparian areas contribute to the rural landscape from biological, farm and rural resource standpoints.

MHHC Green Banks Program Overview

In 1994 MHHC began to deliver a riparian habitat enhancement initiative targeting grazing livestock operations in Agro Manitoba. This decision came from a strategic analysis of habitat issues by MHHC and the conclusion that, from a habitat conservation perspective, riparian areas were a crucial but neglected element of the landscape.

While the program began simply as a riparian fence/livestock exclusion initiative, it quickly evolved to one in which landowners were provided assistance to establish multi-paddock grazing and livestock watering systems for their entire pasture.

The program has operated on a cost-shared basis. Currently MHHC provides up to \$2,500 per project to support fencing and livestock watering facilities. Producer contributions may be cash, in-kind or both, and often match or exceed MHHC contributions. Projects must include a riparian fence that allows for controlled access to the riparian zone and typically include additional cross-fencing of upland pastures. Many producers proceed with additional off-site watering facilities. Figure 1 illustrates the manner in which projects are often executed.



Figure 1. Green Banks Program Options

The target riparian buffer zone width is 30 meters but there is flexibility to allow for efficient construction and maintenance of fences. Landowners may also retain the option to continue to graze the riparian area, but at times when livestock damage to stream banks and vegetation is minimized (PFRA, 2000). To date most landowners have chosen the exclusion option and many

who have kept grazing option have subsequently decided not to graze the riparian area (MHHC field staff, personal communication.).

To date over 100 grazing management projects have been completed or are in progress. Results are summarized in Table 1.

Table 1. Summary of Green Banks Program Accomplishments (to Jan. 31/01)

Projects Status	Number	Miles of Shoreline	Riparian Acres	Pasture Acres
Completed	42	53	1,771	10,720
In Progress	65	95	1,961	12,522
TOTAL	107 Projects	148 miles	3,732 acres	23,242 acres

Evaluation results

1. Results from cooperator surveys

MHHC sends questionnaires to all cooperators after they have had at least one year of operation with their new systems. Questions focused on their perceptions of the impact of the new system on their operations. Results to date:

- 100% rated projects from “satisfactory to “excellent”
- 82% reported that project would have a positive financial impact
- 75% rated the incentive payment as “adequate”
- 95% rated their impressions from “satisfied” to “very pleased”
- 96% would recommend their approach to friends and neighbours

(N=28)

It is interesting to note that while 82% reported, or expected, a positive financial impact from their new systems, only 14% reported improving income as their reason to become involved in the program.

2. Davison enterprise analysis

In 1998, MHHC received assistance from Brenda Chorney, a graduate student, and Dr. Michael Popp of the Department of Agricultural Economics and Farm Management, University of Manitoba to conduct an economic assessment of grazing and watering changes on the Laurie Davison farm along the Bird-Tail River in western Manitoba.

With GBP assistance, Davison cross-fenced an existing pasture to establish three upland and one riparian paddock as well as restricted access, “hardened” watering sites on the River. He maintained the option to graze the riparian paddock (though he has not yet done so) and adopted a twice-over grazing management system (Manske, 1994) on his native pasture.

The analysis compared results from two years (1996 and 1997) with the new grazing to the last year (1995) of his old system, which consisted of season-long grazing and free access to the River.

Some results:

Net weight gain, per acre	53.8 pounds
Net economic gain, per cow (70 cow herd)	\$50.50/year (\$3,535/year for the herd)
Net present value of \$1,800 investment (10 years, 7% interest rate)	\$23,029
Payback period	0.6 years

(Chorney, 1998)

The above results were based on sale weights, but measurements on pasture in 1999 and 2000 found an average calf gain of 3.3 lbs per day from June 1 to late September on Davison's native range (R. Bullion, MHHC personal communication). Total pounds of calf produced on pasture rose from 13,466 pounds in 1995 to 20,625 pounds in 2000 (ibid). Many factors may have influenced this outcome, but it is also reasonable to conclude that the system-change provided a net benefit to the landowner.

3. Prairie-wide evaluation

A third evaluation activity was funded by a partnership of agriculture, conservation and livestock industry organizations across Prairie Canada (Chorney and Josephson, 2000).

Study partners identified a survey population consisting of producers known to have undertaken grazing and riparian area management practices that are deemed to be beneficial for the environment (riparian vegetation, surface water quality, wildlife habitat improvements) when compared to more traditional approaches. GBP cooperators were included in the survey.

The primary objective of the study was to assess these producers' perceptions of the impact of grazing and watering practices on herd management and income factors. Considerable data was collected to help develop a profile of their operations.

The response rate to the mail-in questionnaire was 41%. The 346 respondents tend to be experienced cow-calf operators that depend heavily on livestock for their farm income. Operations range from less than 500-acres of pasture to well over 1,000-acres. A wide range of grazing systems and stocking rates were reported. Reported capital costs to establish their new systems ranges from less than \$7.00 to more than \$30.00 per acre.

The survey questionnaire asked respondents to rate their new production systems against the last year of operation with their old systems, which, in most cases, were season-long grazing and free access to water sources. Results are summarized below:

Changes with the new grazing and watering systems that were reported:

- Greater average weight gain (reported by 80%)
- Greater pasture forage quantity (91%)
- Greater pasture forage quality (88%)
- Herd health costs lower (30%) or no different (60%)
- Labour and management requirements increased (85%)
- Costs per animal decreased (52%) or stayed the same (24%)

- Increased overall net returns/animal (84%)
- Increased overall net returns for operation (88%)

Respondents' rating of the factors contributing to improvements in livestock weight gains:

- Improved forage quantity (88% felt this was important)
- Improved forage quality (88%)
- Improved forage use (85%)
- Cleaner drinking water (64%)
- Changes to breeding stock (57%)
- Herd health program (43%)

Other observed changes that were reported:

- Improved herd health and condition (72%)
- Better cover for wildlife (70%)
- Quality of water bodies improved (68%)

Barriers to adopting managed grazing and watering that were reported:

- Financial (73%)
- Labour requirements (63%)
- Management requirements (59%)
- Lack of water supply (59%)
- Lack of information on economic benefits (29%)
- Lack of management information (26%)

Discussion

Results presented here indicate that when cattle producers take a comprehensive approach to modifying grazing, watering and riparian management strategies, positive outcomes can be realized. While the aggregate results are positive, long-term, quantitative investigations are still required to provide more definitive information.

In Manitoba, the cumulative results have helped to influence the thinking and direction of agricultural industry and conservation agencies and organizations. The proposed *Riparian Health* initiative of the Manitoba Cattle Producers Association and other partners is an emerging multi-agency partnership to ensure increasing coordination and effectiveness of riparian-focused stewardship and extension initiatives for producers across Agro Manitoba. The objective is land-use adaptation that can provide benefits to landowners, rural communities and the environment. Given the range of potential benefits to society and the risks that producers may assume when proceeding with such adjustments alone, partners view the task as a shared responsibility.

The scale and scope of riparian area and surface water issues in the agricultural landscape needs to be better understood. Benchmark data for land and water resources needs to be collated and/or collected and made available in formats that support program planning and delivery for riparian and associated lands. This will assist the process of targeting future initiatives, with the most appropriate land use adjustments, to the areas of greatest need. Whatever the targets, options and initiatives must be tailored to the needs of individual producers.

“Win-win-win” is possible with grazing livestock and riparian and associated lands. A cooperative approach that focuses on producer needs and multiple landscape benefits offers the best opportunity for such outcomes. Given the prospect for an expanding grazing livestock industry in Manitoba, and the environmental scrutiny that it will face, the need to ensure such outcomes is greater than ever.

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