
Benefits of Federal Community Pastures on the Prairies

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Abstract

In the wake of widespread soil erosion, during the 1930s, the federal governments passed the Prairie Farm Rehabilitation Administration (PFRA) act, establishing the agency, and through it a system of community pastures in the three prairie provinces. At present, PFRA operates 87 such pastures. The major motivation for this program was to reduce soil erosion through some careful land management practices, thereby enabling them to be a source of summer pasture for cattle grazing. This was seen as fostering greater economic security, stability and diversification in the region. Over time, many other uses of community pastures have emerged. Although grazing and breeding function has remained prominent, many other uses have become important enough so as not to be totally ignored. Some of the notable uses include: wildlife and waterfowl habitats, recreational activity, preservation of biodiversity, preservation of fragile ecosystems, conservation of heritage sites, research activity, among others. In order to determine these uses, a survey of PFRA community pastures was undertaken during the summer of 2000. The results of this survey indicate that although grazing and breeding activities are still the major economic activities on these community pastures, the Canadian and the Prairie society benefits from these pastures in a significant manner. This study suggests that the PFRA community pastures are more than a place for farmers to leave their cattle for the summer period; they provide several benefits to local communities, and other members of the society through ecosystem functions, and other use and non-use related activities.

Introduction

The Prairie Farm Rehabilitation Administration (PFRA) owns and operates 87 community pastures in Alberta, Saskatchewan, and Manitoba. These pastures were initially developed to rehabilitate and conserve lands subjected to severe soil erosion during the 1930s. Through careful land management practices, they have provided a source of summer pasture for cattle grazing as a means of fostering greater economic security, stability, and diversification. In addition, livestock breeding activities were made available on the community pastures, along with permitting non-agricultural activities (related to forestry and mining). In 1935, the Prairie Farm Rehabilitation Administration Act was passed by Parliament authorizing the agency established (i.e., PFRA) under the Act to institute rehabilitation practices on abandoned and degraded land areas. The 87 community pastures in the three prairie provinces are organized under 82 community pasture reporting units, and under nine management districts. (Figure 1).

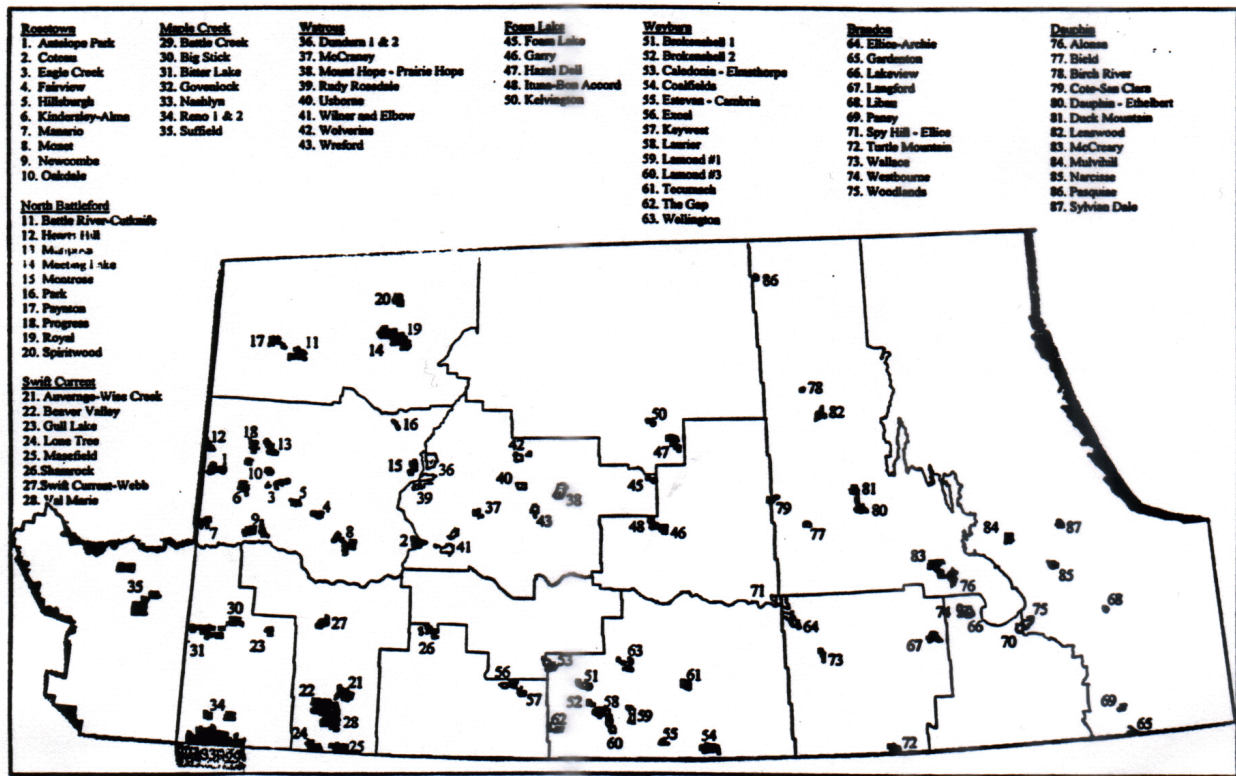


Figure 1. Location of P.F.R.A. Community Pastures in the Prairie Provinces

Poorer quality lands that had been cultivated and had proven to be extremely prone to drought and erosion were placed under alternative systems of land management. Therefore, efforts were made to end wind erosion through the establishment of permanent cover (grass) and by implementing a system of management practices. In addition, lands that were not cultivated, but identified as not suitable for cultivation, were included in this land base. Over the years, other lands were added to both systems under programs such as the Agriculture and Rural Development Act (ARDA).

Through adoption of a system of sustainable pasture management practices, lands once lost to productive use have been restored and today support the growth of cattle industry, diversification of prairie agriculture, and protection of valuable environmental resources. These outcomes are essential to sustained economic security in the drought-prone areas of the prairies. This was a part of the original PFRA mandate. While the PFRA community pastures continue to serve the purpose of supplying pastures for grazing, additional uses of the land resource have emerged over the years. Examples of these additional uses include: (1) Wildlife and waterfowl habitat; (2) Endangered and protected species conservation; (3) Recreation; (4) Commercial activities, and, (5) Forestry. Additional benefits from these areas relate to carbon sequestration, nutraceutical harvesting, preservation of soil quality, preservation of biodiversity, and other agricultural services.

Objectives of the Study

The primary objective of this study is to conceptually identify the nature of benefits that are derived from the existence of community pastures on the prairies, and to the extent possible

identify the nature of benefits derived by private individuals and those by the other members of the society. This study is confined to the PFRA community pastures in the three prairie provinces. Provincial or private pastures that may exist in these provinces are not included in the scope of this study.

Nature of Goods and Services Provided by PFRA Community Pastures

The major services provided by PFRA community pastures are grazing and breeding services to private individuals, who in return pay fees or charges for these uses. However, these are not the only activities that are generated by the community pastures. All the goods produced in a society for use by its members can be classified into two basic types: private goods and public goods. Public goods are identified to have no excludability (use of a given good can be made simultaneously by more than one individual), and, under normal circumstances, are non-rival (use of good by one user does not diminish its use by other users). Private goods possess the very same properties except in reverse – a user can be excluded from enjoying the good, and its use by one user reduces it for the rest of the users.

In the context of community pastures, four categories of goods can be identified: (1) Private commercial goods and services; (2) Land use related activities leading to enhanced ecosystem functions; (3) Development of social goods; and, (4) Regulated and unregulated commercial activities on such lands. These goods are enjoyed by four types of users (beneficiaries): (1) Direct users (patrons) of a given service; (2) Members of the society at large, located nearby (local residents); (3) Canadian society (excluding the local members of the society) and to a limited extent Global society; and (4) Governments at various levels.

The benefits received by the first type of users are called “direct private benefits”, whereas those received by the second and third type of users are called “societal benefits”. Benefits from the last type of users are called “fiscal benefits”. Linkages among these four types of goods and the four groups of beneficiaries are shown in Figure 2. Private goods produced by the community pastures include grazing services and breeding services. At this time, these services are provided on a fee-basis. Societal benefits are provided through generation of services from public goods and quasi-public goods. A quasi-public good is one where subtractability property of the good is limited to a certain range. For example, recreation is one such good. Recreational use of a lake provides benefits to all users until it has reached full capacity. After this point, adding further users to the given resource would lead to congestion costs, which would affect the utility derived by the current users.

Pure social goods include benefits from ecosystem functions, including preservation of biodiversity, preservation of endangered species, enhancement of carbon sequestration, and protection of fragile ecosystems. Besides the generation of various private and public (including quasi-public) goods, commercial activities are present on certain community pastures. These activities differ from the other two in at least three respects: (1) Governments collect fees for permitting these uses of community pasture lands; (2) These fees are not a reflection of the benefits that are received by society; and (3) These activities are a result of the resource endowment when special natural features of the land resources happen to exist within a community pasture.

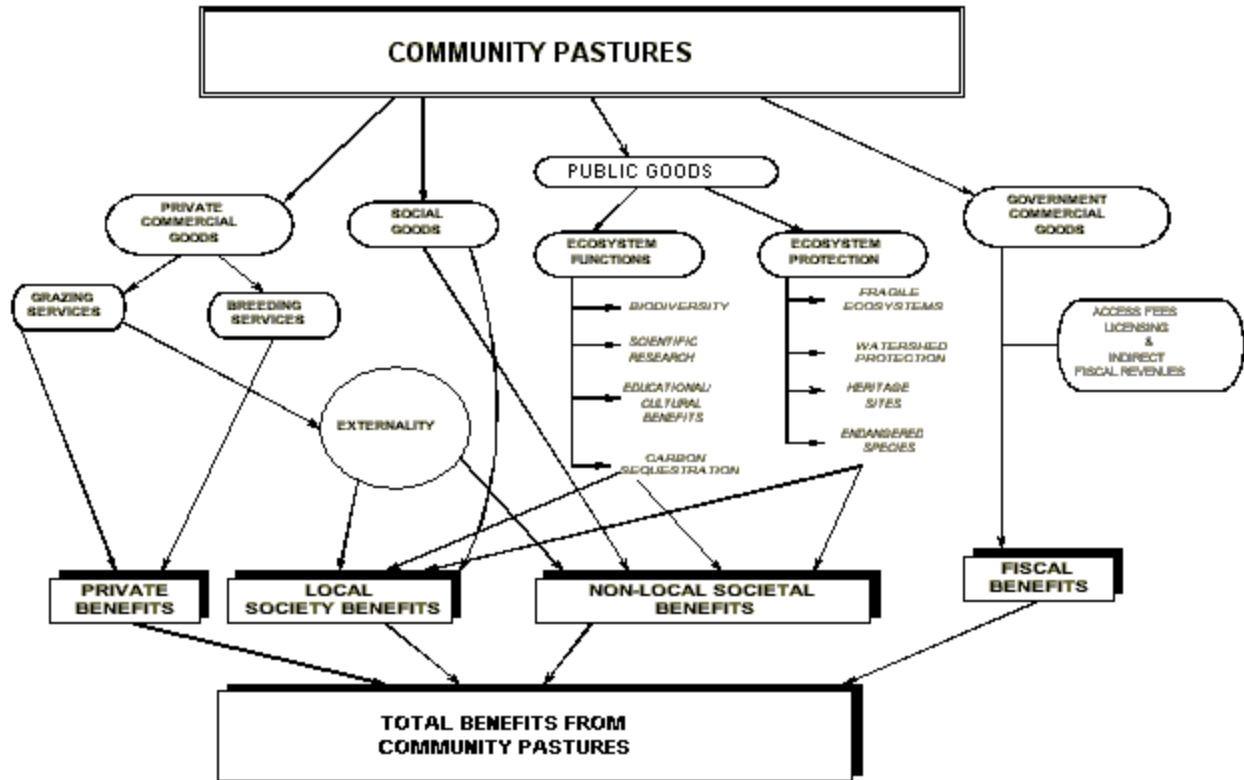


Figure 2. Conceptualization of Benefits from a Community Pasture

Distinction between the fiscal revenues (or benefits) to the government and the private and social benefits has important implications for the determination of a cost recovery criteria for private users of the community pastures, as will be discussed later in this report.

Concept of Benefits and their Measurement

The Webster Dictionary (1981) defines a benefit as “something that guards, aids, or promotes well-being”. An individual receives a benefit if it helps the level of his (or her) objective(s). Similarly for the society as a whole, an activity is considered beneficial if it improves the well-being of all the members of society. Economic well-being is concerned with those aspects of welfare that can be valued in monetary terms, and is generally measured through a gain in income or other economic objectives of the individual. Similarly, for society as a whole, an action is deemed beneficial if it leads to an increase in the aggregate income.

Economists typically measure the benefits in terms of a concept called Total Economic Value (TEV), which reflects the contribution a given resource makes to the welfare of society at large. Total economic value of a natural resource (e.g., the community pastures) is perceived in two parts: (1) Use Value, and (2) Non-Use Value. Use values are related to actual use of a community pasture. These uses may be made by a variety of people in the society. Two types of non-use related values are commonly recognized: (a) existence value, which is the value associated with knowing that a certain resource provides benefits and does exist. And (b) bequest value, which is derived from the satisfaction of leaving the benefits of the natural ecosystem to the next generation for their use. Like existence values, there is no use required by

the member of the society that is valuing the resource.

The “Incidence” Survey

In order to collect information for various economic and ecosystem-related activities present on community pastures, a survey of 82 community pasture reporting unit (CPRU) managers was undertaken during the summer of 2000. A questionnaire was designed for this purpose. A total of 79 questionnaires were returned. Recorded responses were interpreted to reflect the situation that existed in the year 1999.

Results of Economic Activities and Services on Community Pastures

Four types of goods and services provided by PFRA community pastures were identified: (1) patron-used grazing and breeding services; (2) public Goods, including quasi-public or social goods; (3) pure public goods – environmental protection, and (4) regulated commercial activities.

Patron-Use of Grazing and Breeding Services

All community pastures provide grazing services to farmers. Details are shown in Table 1. In total, during 1999, PFRA handled 216,760 head of cattle, including calves. In addition, a total of 3,344 horses (including stallions, colts, and yearlings) were also on 13 CPRUs, mostly in Manitoba. Only one CPRU in the Weyburn district of Saskatchewan permitted grazing of horses. The 82 CPRUs served a total of 3,452 patrons, each with an average of 64 head of cattle and horses on pasture.

Table 1. Details on Grazing Services on PFRA Community Pasture Reporting Units, 1999

Community Pasture District	No. of CPRU	No. of Patrons	Total Deliveries of		Average Delivery per Patron	Bulls	
			Cattle / Calves	Horses / Foals		Total No.	Av. No. of Cattle/Bull
Rosetown	10	329	20,748	0	63.1	345	60.1
North Battleford	10	460	28,722	0	62.4	420	68.4
Swift Current	8	373	24,435	0	65.5	417	58.6
Maple Creek	7	313	22,635	0	72.3	411	55.1
Watrous	8	406	20,430	0	50.3	304	67.2
Foam Lake	5	284	17,272	0	60.8	265	65.2
Weyburn	13	480	29,654	7	61.8	438	67.7
Brandon	11	475	26,340	2,427	60.6	377	69.9
Dauphin	10	332	26,524	910	82.6	399	66.5
All CPRUs inc. Bull Stations	82	3452	216,760	3,344	63.8	3492	64.2

Similar to grazing, all PFRA community pastures provide breeding services. A proxy for the level of this service is the number of bulls on pasture, as shown in Table 1. Bulls are rented as well as owned by PFRA. Owned bulls are raised on various PFRA bull stations. During 1999, there were a total of 3,492 bulls on various CPRUs, 116 of which were on the three bull stations

(or for research purposes). On average, there is one bull per 64 head of cattle (excluding the bulls on bull stations). This ratio varied from a low of 55 head of cattle in Maple Creek district to a high of 70 head of cattle in the Brandon district. There was an apparent relationship between this ratio and the size of operations or location of the CPRUs.

Generation of Social Goods and Services – Recreational Activities

Various types of recreational activities are present on PFRA community pastures. Based on the survey results, the list of such activities may include up to 20 activities on any given community pasture. Results are shown in Table 2. The other activities included: research functions, wildlife management, bird watching, school tours, bird dog training, and skating on lakes.

Table 2. Summary of Incidence of Social Goods on PFRA Community Pasture Reporting Units, 1999

Benefits/ Activity	Total No. of CPRU* Reporting Activity	Prop. Of Total with Activity	No. of CPRU* Reporting Level	Average Level per CPRU** per Year	Unit
Wildlife--Uplands/Hunting	49	0.62	26	31	Visitors
Wildlife-Big Game/Hunting	65	0.823	31	123	Visitors
Waterfowl	32	0.405	10	30	Visitors
Fishing	12	0.152	7	23	Visitors
Nature Walks	18	0.228	11	65	Visitors
Cross-country Skiing	9	0.114	4	32	Visitors
Snowmobile	56	0.709	23	163	Visitors
Camping	12	0.152	5	33	Visitors
Trail Rides	33	0.418	18	62	Visitors
Berry Picking	31	0.392	14	33	Visitors
Other Benefits	15	0.189	0	0	

* Community Pasture Reporting Unit

** Based on the responses of community pastures reporting level of activity

Among the activities that were included in the survey questionnaire, wildlife (big game) hunting is the most frequently found on these pastures. Some 82.3% of the CPRUs indicated this activity, with an average level of 123 visitors per year. It should be noted that these estimates are based on visitors who registered with the community pasture managers, but there might be some unregistered visitors to the sites as well. For all community pastures, cross-country skiing, fishing, and camping were on the lower end of the use level, with 15% or less of community pastures reporting such activities. In total, the 82 CPRU indicated almost 90,000 person-days of recreational activities.

There were significant regional variations in the nature of recreational activities on community pastures. Seven of the 79 CPRUs reported no such activities, one in the Rosetown district, one in the Brandon district, two pastures were in the North Battleford district, and three pastures were in the Maple Creek district.

Generation of Pure Public Goods – Environmental Protection and/or Conservation

Almost a quarter to a third of all CPRUs are involved in activities related to endangered species preservation, ecosystem rehabilitation, or heritage site preservation projects. Twenty seven CPRUs reported a project related to some type of endangered species preservation.

Saskatchewan (including Alberta) community pasture districts located in the western part of the province had a higher incidence of these projects. Ecosystem projects were next in terms of frequency, with some 23 CPRUs participating. The Rosetown and Watrous districts had a relatively high proportion of community pastures with such projects. The average number of ecosystem projects was lower than the previous category of projects. Benefits from these projects to society may accrue to other community pastures even though no such projects exist on them. Heritage preservation sites were reported by 19 CPRUs, mostly located in the Watrous and Rosetown districts. The Swift Current and Weyburn districts did not report any such sites. The average number of these projects was 11.8 per CPRU.

In all community pastures grazing activities are regulated to prevent any harmful effects on the soil and fragile ecosystems. For the society as a whole, this benefit is very important.

Incidence of Regulated and Unregulated Commercial Activities on Community Pastures

In addition to production of private and public goods, a number of activities are permitted on community pastures for the sole purpose of economic development – to create more wealth and employment for the people and more value-added activities for the region. For some of these activities PFRA has instituted a system of licenses (permits), resulting in some revenues to the federal government. These activities include oil and gas drilling, gravel and mineral extraction, and logging (except for fuelwood). Other commercial activities are unregulated and create benefits to the society.

The distribution of various unregulated commercial services on community pastures is shown in Table 3. Major unregulated commercial activities include trapping and antler collection which exist on more than a third of the PFRA community pastures. A number of commercial activities were suggested by pasture managers. Water wells for the provision of water to farmers, presence of pipelines traversing through the community pastures, production of honey, and use of community pasture for school and other tours were the activities indicated. A perusal of data by districts indicated some sharp variations. As an example, five community pastures in the Swift Current district reported no such activities, while those in Maple Creek, Foam Lake and Dauphin had a smaller number of such activities. There was no specific pattern related to these activities, except that trapping was more frequent in the northern areas. Similarly, for oil and gas site activity was noticed in Saskatchewan (including Alberta) only, and mostly in southern and western parts of the province. Nutraceutical harvesting and wild crafting were reported by one community pasture located in the North Battleford district. Similarly, outfitting was reported in the Dauphin district, but only on six CPRUs.

Table 3. Summary of Incidence of Unregulated Commercial Activities on PFRA Community Pasture Reporting Units, 1999

Benefits/ Activity	Total No. of CPRU* Reporting	Prop. Of Total with	No. of CPRU* Reporting	Average Level per Reporting CPRU	Unit
Outfitting	6	0.076	0	0	
Fuelwood Logging	25	0.316	12	50	Acres
Water Access	12	0.152	0	0	
Wild Crafting	1	0.013	0	0	
Trapping	32	0.405	9	4.5	No.
Nutraceutical Harvest	1	0.013	0	0	
Antler Collectors	30	0.379	12	50	Visitors
Other Commercial	6	0.076	0	0	

Implications of Results

Results of this study indicate that federal community pastures, by virtue of the fact they are managed, are more than a just a place for farmers to leave their cattle for the summer time. Although benefits to the individual patrons are significant, the rest of the society also benefits significantly from them. However, a precise estimation of the relative level of benefits to various members of the society requires detailed data that is not currently available. However, these results have a major implications for the financing of community pasture expenditures. If a portion of the total benefits accrue to society at large, that very society should also be responsible for that portion of the expenses. The private users should only be charged a legitimate and fair share of the cost based on some notion of the benefits received. Procedure for determination of this level of cost recovery must be based on sound principles of economics and social justice. Further discussion on this issue is provided by Kulshreshtha and Pearson (2000).

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