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## Multiple use management on Canadian publicly managed rangeland

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**Key points :** Recently there has been increasing interest and use of public lands for activities other than grazing. There are also a number of values to society provided by these lands related to water quality, biodiversity and soil conservation, plus others. This has put increased pressure on these lands, and also increased the interest in understanding the value to society as a whole. The Canadian Community Pastures are public lands managed both for conservation and livestock production purposes. The costs covered by all users, and benefits afforded public and private interests were recently valued for these lands. It was determined that the 930,000 hectare community pasture program had an annual value of \$54.9 million to all users. Thus it is clear that direct beneficiaries should pay costs associated with the financial benefit they receive, but there are public benefits which are managed for and thus can rationally be supported with public sector funds.

**Key words :** multiple use, public lands, public benefits, private benefits, economics.

**Introduction** The multiple uses and benefits of the world's rangelands are now more recognized, as well as receiving increased pressure from a variety of users. Private rangeland managers are just now realizing the challenges and opportunities in dealing with the multiple users of rangelands. Most publicly managed rangeland has a mandate to consider all users of the rangelands. For the most part the benefits to society and value of these benefits have not been recognized or quantified. This paper will explore the management of the Canadian federally managed Community Pasture Program (CPP) for multiple uses, including approaches, benefits, challenges and value.

**Federal community pasture program description** The CPP encompasses 930,000 hectares on 85 pastures on the mixed grass prairie and parkland eco-zones in the Canadian provinces of Saskatchewan, Manitoba and Alberta. The landscapes are 85% native grasslands with 15% being seeded to tame forage species. The program provides grazing for over 200,000 head of livestock, predominantly beef cattle. There are a multitude of other users of these rangelands. The CPP's mission is to manage a productive, bio-diverse rangeland and to promote environmentally responsible land use and practices. The program does this by utilizing the valuable land resource to complement livestock production. In addition, this program provides stakeholders with expertise and services for the sustainable use of land and water by developing and communicating the best practices in agriculture (CPP Business Plan).

The patrons of the program pay a fee for the use of these lands which covers all costs associated with the management and care of the livestock. Full care is provided for the livestock throughout the grazing season of May through October each year. The Federal Government also provides core funding support towards the conservation objectives of the program.

**Users and benefits of the community pastures** There are a wide variety of users of the community pastures the most commonly recognized one is for grazing by livestock (Table 1), but there are many others. These users are not mutually exclusive and there are potential conflicts between users. The challenge for the managers of these lands is to minimize the conflict between users, while maximizing the benefit to Canadians.

**Table 1** Primary Users of the Community Pastures

Livestock grazers	Hikers
Oil and gas companies	Campers
Mineral extraction companies	Bird and wildlife watchers
Logging	Researchers
Wild crafting	Extensionists
Hunters & fishermen	Snowmobilers

The community pasture program has many benefits for society as well as individual users (Table 2). Many of these benefits can be valued at least as a reasonable estimation. The pastures are managed to maximize benefits to all Canadians while conserving these ecosystems.

**Table 2** *Benefits of the Community Pastures*

Grazing services	Recreation	Endangered species conservation
Breeding services	Community development	Fragile ecosystem conservation
Reduced program payments	Biodiversity	Protection of heritage sites
Soil conservation	Greenhouse gas sequestration	
Water quality improvement	Scientific research	

Management of the CPP is such that all of these benefits are achieved, but not all are managed for directly. There is both passive and active management. The program uses active management to accomplish specific objectives related predominantly to rangeland health and productivity. Many benefits are enhanced under the CPP management scheme even though they are not directly managed for, and this is considered passive management.

**Active management** The pastures have been managed for "good" range condition (Abouguendia, 1990) or more recently "healthy" status (Adams et al., 2005). By aiming for this goal the program has been able to accomplish the dual objectives of maintaining the health of the ecosystem, while optimizing livestock production. Healthy rangelands maintain all ecological, soil, and water functions, while resulting in high biomass production for livestock grazing. Healthy rangelands have been equated to high levels of plant diversity (Bai et al., 2001). High plant diversity by inference means high diversity of fauna.

There is an active monitoring and planning program to insure the health of these grassland systems. Range management professionals conduct biophysical and riparian inventories on a 10 year cycle for all pastures. The range management professional then takes this data and works with the pasture manager to adjust and update the range management plan for each pasture. The range management plans are formal guides which guide the stocking rates, rotations, and infrastructure planning. These plans also address riparian health, wildlife issues, as well as other management considerations for the specific pasture.

There are specific conservation efforts on some pastures in collaboration with a number of partners:

- There is a community pasture on Canadian Forces Base Suffield, where livestock grazing occurs in the "ricochet" area around the perimeter of the base, which isolates military activity from the surrounding agricultural community. This area also happens to be a National Wildlife Area (NWA) due to the uniqueness of the sand dune ecosystem. Specific collaborative management practices are employed to conserve this unique ecosystem.
- Livestock from a neighbouring community pasture are managed and grazed on Last Mountain Lake NWA, as the Canadian Wildlife Service recognizes the need for grazing to maintain the health of the grasslands. Grazing and management plans are developed in collaboration with wildlife staff responsible for managing these lands.
- Ducks Unlimited Canada has many projects on the community pastures. Some enhancement of water bodies has been done, and rotations have been collaboratively developed in some areas to defer grazing on specific fields until after waterfowl nesting has been completed.
- There are a number of endangered species on the community pastures. It is recognized that these species are there because of the management of the pastures for rangeland health, thus there are limited specific practices in place to manage for these species. Most of the work with endangered species is related to studies and monitoring done by wildlife agencies and researchers. A significant number of wildlife, habitat and ecological studies have taken place on the community pastures because they are public lands, with controlled management. This has been a win-win aspect in that researchers have easy access to large contiguous grasslands, and the CPP gets additional information on how to manage these lands.
- Resource extraction, particularly oil and gas occurs on many of the pastures. Other jurisdictions have the authority to allocate oil and gas extraction on the pastures thus it is beyond the administrations control whether this occurs or not. The program works with the companies, as much as is practical, to locate sites and roads such that they minimize the impact on the landscape. Further each project is required to do an Environmental Impact Assessment. When the extraction is completed the sites must be returned to the same soil, vegetation and topography status as prior to development.

**Passive management** There are many benefits achieved that are reported on and recognized which are not specifically managed for. Rather they are achieved because of the active management towards rangeland health. Wildlife is abundant on the pastures because of the large contiguous blocks of land unbroken by roads or communities, and the fact that there is a diversity of habitat including riparian, grassland, bluffs, and forests. The CPP are a significant sink for greenhouse gasses (PFRA, 2000). Further, as per the 1935 *Prairie Farm Rehabilitation Act* the community pastures were originally established to conserve the soils on these landscapes. When the pastures were originated in the 1930s they were severely degraded, thus they were returned to the Government of Canada to recover the eroded lands. Water bodies and water quality are also maintained through the goal of conserving the natural ecosystems. While none of these are directly managed for there is significant enhancement due to the processes in place to maintain and enhance these landscapes for future generations.

**Professional staff** The CPP has nearly 300 employees . While traditionally these staff may have been viewed as cowboys looking after the cattle , they are now professional land and livestock managers . There is a rigorous interview process to select community pasture managers . They must have livestock , range management , inter-personal and administrative skills . All staff are provided with regular training in these fields . In the range management field particularly , there are formal winter courses , as well as summer range days to enhance the important skills required to care for the community pasture landscapes . It has advanced to the point where many pasture managers are presenters at extension events for the public , where they share their practical knowledge on managing rangelands . Most of the managers take a lot of pride in the health of the rangelands they are responsible for and are very aware of the ecology and wildlife on their pastures .

**Private and public benefits of the community pasture program** A study was recently completed to value the benefits of the CPP to both private and public beneficiaries (Kulshreshtha and Pearson , 2006) . The study found an abundant number of users and beneficiaries from the CPP (Tables 1 and 2) . Through interviews with pasture managers , review of data from the program , and literature review of studies done on comparable landscapes the authors were able to place values on these benefits (Figures 1 and 2) . It was found that the community pastures have a total annual value of almost \$55 million to Canadians (Table 3) . The main beneficiary was to the public in the amount of \$34 million , through soil conservation , carbon sequestration , biodiversity conservation , recreation , research , and community development . The other beneficiary was private users totalling \$21 million , associated with grazing and breeding services . The benefits of the program far exceeded the \$22 million cost borne by users of the pastures and the public . With a quasi benefit to cost ration of 2.5 to 1 , there is excellent value for money to Canadians .

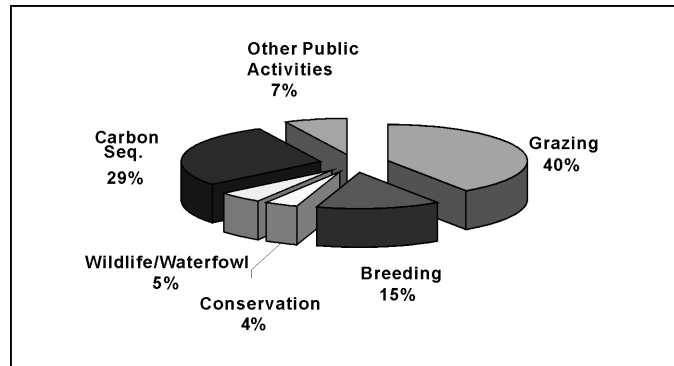


Figure 1 Estimated Community Pasture Annual Costs , 2004 (Kulshreshtha and Pearson , 2006)

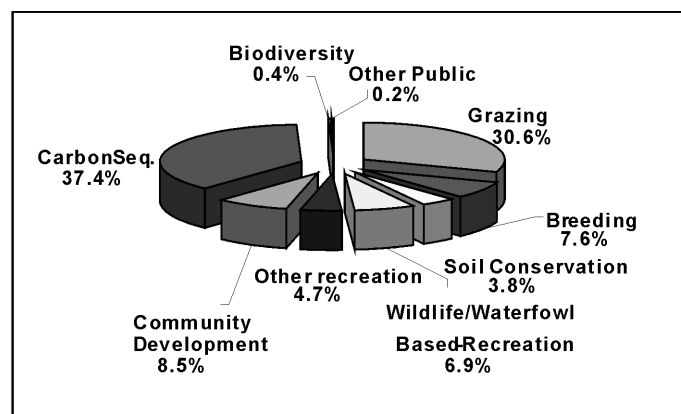


Figure 2 Distribution of benefits per annum , 2004 (Kulshreshtha and Pearson , 2006)

**Table 3** *Estimated Value of Annual Benefits and Allocation of Adjusted Costs by Benefits Category, 2004 (Kulshreshtha and Pearson 2006)*

Category of Benefits	Estimated Value of Benefits in Can. \$'000			Allocation of Adjusted Costs in Can. \$'000		
	Private	Public	Total	Private	Public Uses	Total Uses
Grazing	16,801		16,801	8,532		8,532
Breeding (less bull sales)	4,160		4,160	3,059		3,059
Uncompensated crop damage and water access	6		6	6		6
Soil conservation		2,095	2,095		793	793
Wildlife and waterfowl recreation (hunting)		3,805	3,805		1,119	1,119
Other recreation		2,571	2,571		760	760
Community development		4,649	4,649		1,365	1,365
Carbon sequestration		20,545	20,545		6,033	6,033
Biodiversity		204	204		60	60
Scientific research, heritage sites, endangered species and watershed protection		92	92		230	230
Fragile ecosystems protection		0	0		1	1
Non-pasture revenue from commercial uses		14	14		4	4
Program total benefits and adjusted costs	20,967	33,976	54,943	11,598	10,368	21,967
Program ratio of benefits to costs (Annual)				2.50		
Distribution of benefits and costs (%)	38.2	61.8	100.0	52.8	47.2	100.0

**Conclusion** While these values are specific to the Canadian federal Community Pasture Program, they should be sound proxies for other well managed grassland landscapes. Thus there is a real economic incentive and value to all citizens to conserve our valuable rangeland resources. Thus it is clear that direct beneficiaries should pay costs associated with the financial benefit they receive, but there are public benefits which are managed for and thus can rationally be supported with public sector funds.

**References**

Adams B, Ellert G, Stone C, Lawrence D, Alexander M, Willoughby M, Hincz C, Moisy D, Burkinshaw A, and Carlson J. 2005. Rangeland health assessment for grassland, forest and tame pasture. *Alberta Sustainable Resource Development*. 117pp.

Bai Y, Abouguendia Z, and Redmann R E. 2001. Relationship between plant species diversity and grassland condition. *Journal of Range Management* 54 :177-183.

Kulshreshtha, S. and Pearson, R. 2006. Determination of a Cost Recovery Framework and Fee Schedule Formula for the Community Pasture Program.

Prairie Farm Rehabilitation Administration. 2007. Community Pasture Program Business Plan. Agriculture and Agri-Food Canada-PFRA. 53pp.

Prairie Farm Rehabilitation Administration. 2000. Prairie Agricultural Landscapes-A Land Resource Review. Agriculture and Agri-Food Canada-PFRA. 179 pp.

Zoheir M. Abouguendia. 1990. Range Plan Development, Saskatchewan Agriculture and Food.