



**AGRICULTURAL ACTIVITY
IN THE MILK RIVER WATERSHED**

**Discussion Paper for the
Milk River Integrated Watershed Management Plan**

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November 18, 2012

Note to Reader:

This is a working document. You will note that there are areas highlighted in red, some areas where question marks remain etc. or thoughts are not well developed. Your comments and feedback will be considered in the final version of this document.

- Please add in your comments!

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1.0 INTRODUCTION

The Milk River watershed provides a number of commercial and industrial opportunities to residents and landowners in the form of agriculture and resource extraction. The economy in the Milk River watershed is largely driven by the agricultural sector, with 59% of all employment in this sector and some employment in the oil and gas sector. Almost all the remaining employment is in the agricultural service (tertiary) sector including retail businesses, transportation and utilities, health, education and social services (SOW 2008).

The Milk River watershed largely centres around agriculture and population and economic trends are largely associated with agricultural opportunities. Population decreased in the Milk River watershed from 2403 people to 2142 people (-10.9%). Reasons for the population decline include –

1. An aging community that is selling their land to larger agricultural operations and moving to Towns and Cities
2. The small-scale farming community is selling their land to large-scale farmers for economic reasons and moving to Towns and Cities in search of jobs (County of Warner)
3. Young producers who prefer to live in Towns/Cities but still own their land but either rent it out or commute between the farm and Town/City because it's easy to get to work or it is more convenient for their families.
4. The lack of work opportunities for younger people (County of Warner)
5. Error in GIS compilation and census inaccuracies (Cypress County).

Other local services are also declining:

- School in Coutts closed 2010.
- Lack of medical care in the Town of Milk River. Hospital no longer has 23 care beds and only has 2 emergency beds remaining for up to 48 hr care. Difficult to keep Doctors.

This short paper provides an overview of the agricultural industry in the Milk River watershed, and provides a draft set of recommendations to consider when discussing watershed management objectives.

1.1 Objectives

The agricultural industry is highly valued for its contribution to the local economy. Within the Milk River Integrated Watershed Management Plan planning area, agricultural activity falls within the land use objectives described in the Terms of Reference and below.

Objective 3. Recommend water conservation strategies that promote the efficient use of water for all sectors (i.e., municipal, industrial, irrigation)

Objective 7. Recommend land use and development practices which are congruent with the objectives and resource management strategies for the Milk River watershed and its unique semi-arid environment.

Outcome/Policy Statements

Specific: The Milk River watershed provides agricultural opportunities while:

- 1) **preserving the existing rights of landowners and leaseholders with respect to production value and commercial value of their land, and**
- 2) **protecting the ecological, scenic and historic values of this unique landscape.**

General: Innovative and sustainable land use and development practices take place in the watershed.

General: A healthy, vibrant economy that will attract people and investment to the watershed.

2.0 BACKGROUND

2.1 Public Land

There are approximately 988,000 acres of public land in the Milk River Watershed. These public lands may be under an agricultural disposition (as identified in the *Public Lands Act*) including the following: grazing lease, grazing permit, cultivation permit, farm development lease, head tax permit, and hay permit. Public lands under an agricultural disposition are managed by SRD.

Key goals of range management on public lands are to maintain:

- A diversity of native plant species, especially deep-rooted and productive forms,
- Vigorous healthy plants with well-developed root systems, and
- Adequate vegetative cover to protect soils from erosion and to conserve scarce moisture.

Alberta Environment and Sustainable Resource Development's (AESRD's) mission is to contribute to the provincial economy and sustain Alberta's public lands and natural resources through responsible and innovative resource management and conservation. Alberta's public lands are managed to provide economic and biodiversity benefits as well as to enrich Albertans' quality of life.

Grazing Lease Stewardship Code of Practice

SRD has prepared a *Grazing Lease Stewardship Code of Practice* (December 2007) which identifies the requirements and roles of public land grazing leaseholders. The *Stewardship Code* applies to all public lands under a grazing disposition within the Milk River basin. The code can be accessed at:

http://srd.alberta.ca/LandsForests/GrazingRangeManagement/documents/GrazingLeaseStewardshipCodeofPractice_signed_Dec2014-07.pdf

The opening 2 paragraphs of the Code are worth noting:

Traditionally, Albertans valued public rangelands as an important source of forage for the livestock industry. However, advancing environmental science indicates that feed for livestock is only one part of the goods and services that healthy rangelands provide. Alberta rangelands play an extremely important role in watershed functioning, carbon sequestration, maintenance of biodiversity, habitat for species at risk, aesthetics, tourism and recreation. Careful stewardship is necessary to maintain healthy, functional rangelands ecosystems on public lands for present and future generations. This is the goal of Alberta's Grazing Lease Stewardship Code of Practice.

The code describes overarching management principles, required practices that flow from these principles, tools for measurement of range health and the responsibilities of grazing leaseholders. The focus is on promoting sustainable use of public grazing land for the long-term benefit of leaseholders, the environment, industry, recreational users and all Albertans.

2.2 Private (Deeded) Land

There are about 400 commercial farms and ranches in the Milk River watershed or about 2% of Alberta’s total. Generally, dryland farms are between 560 ha and 770 ha in size and includes owned and leased land. Farms and ranches tend to be smaller in the more humid west and larger in the more arid east. Cereals are the predominant crop type, representing 81.8% of total crop production. Wheat predominates in the central and east parts of the watershed and barley is grown more often in the west. Less than 6% of the cropland is used for canola or mustard production. Irrigation is used to augment forage and cereal production. There are 66 water licenses issued to 33 license holders, allowing for withdrawals from the North Milk and Milk Rivers for irrigation purposes. Summerfallow is relatively insignificant in the west, but occurs more frequently in the more arid eastern areas of the watershed.

Ranching remains an important way of life for many in the Milk River watershed, with 40% of all commercial farms and ranches specializing in beef production. There is an estimated 70,000 head of cattle in the watershed under the management of 160 beef producers.

3.0 TARGETS AND THRESHOLDS

Other targets? Area of agricultural land in the watershed?

3.1 Range Health Targets

Table 1. Targets and thresholds for range health on public and private land.

Range Health Category ¹	Current Range Health (% Sites) (2003-07; 1400 sites)	Target (% Sites)	Threshold (% Sites)
Healthy	62	90	80
Healthy with Problems	33	10	20
Unhealthy	5		
No individual site should have more than 5% of the area rating unhealthy, due to natural or unforeseen reasons, at any point in time.			

Range managers should also strive to meet targets and thresholds for plant community forage and litter biomass (lbs/acre) and appropriate stocking rates (AUM/ac) that are published by AESRD for the Rocky Mountains Natural Region (Montane Natural Sub-Region) and Grassland Natural Region (Mixedgrass, Foothills Fescue and Dry Mixedgrass Natural Sub-Regions).

An example of range targets by plant community is found in Table 2.

¹ Refer to Appendix A for a description of range health categories and how they are determined.

Table 2. Forage and litter biomass target and thresholds for selected plant community types within the Mixedgrass Natural Sub-Region.

Natural Region	Plant Community	Indicator	Target (lbs/acre)	Threshold (lbs/acre)	Stocking Rate (AUM/ac)
Grassland Natural Region					
Mixedgrass Natural Sub-Region	Wheat grass-Needle-and-Thread	Forage Biomass	1510	1090	0.28
		Litter Biomass	1482	549	
	Blue Grama-Needle-and-Thread	Forage Biomass	Not Available	Not Available	0.2
		Litter Biomass	Not Available	Not Available	

The following target and threshold in Table 3 are proposed for public land rangelands to ensure the future sustainability of public lands under grazing dispositions within the watershed.

Table 3. Proposed target for the percentage of public land in “good standing”. **What is the current percentage?**

Measure	Watershed Target (public land)*	Watershed Threshold (public land)*
Percent of SRD managed rangeland grazing leases in “good standing” ²	90%	80%
<i>* discussion should occur on whether this Target and Threshold should also be voluntarily adopted by owners of private rangelands within the basin</i>		

4.0 RECOMMENDATIONS

2.2.1 Water Supply

- a) Any water used in the watershed by agriculture producers should be done so with a conservation mindset (i.e., minimize water wastage; maximize water productivity and efficiency).
- b) Reduce the occurrence of flood irrigation (which is a highly inefficient form of crop watering) in the region of the Eastern Tributaries and other areas within the watershed where this may occur. **More discussion needed: Producers flood irrigate because the water supply in most years is only available for a short period during runoff. There is little or no opportunity to store more water because of the regulatory system and storage would have as much or more losses than what occur through flood irrigation.**
- c) Address issue of water storage³ in the watershed by following up with **Assessment of Potential Water Storage Sites and Diversion Scenarios** [📄](#), completed under *Water for Life's* goal of ensuring “reliable, quality water supplies for a sustainable economy”. The study assesses and ranks previously identified water storage sites and diversion scenarios based on technical and

² Refer to Appendix B for criteria used to assess if dispositions are in “good standing”.

³Note that about 30,000 acre-ft of water passes through the Milk River watershed in Alberta annually since there is no water storage.

subjective criteria. Storage sites are rated and compared within each major basin. The study is meant to identify sites that would be eligible for further evaluation, not to suggest where dams should be built. The report assessed four sites in the Milk River watershed to have an "A" rating. One of these sites had incomplete information. Two potential sites are on the Milk mainstem and two on the North Milk. (From Water Matters 2008; Accessed November 18, 2012 at <http://www.water-matters.org/node/77>)

- d) Improve the security and volume of water supplies in the Milk River watershed via storage or pipeline to attract industry and provide agricultural producers security for expanding operations. **Relates to above recommendation**

Rationale:

- i. Already impacted system where flows are increased above natural for the irrigation season and then return to natural flow in a widened channel
 - ii. Opportunity to ramp and control flows in the Alberta reach
 - iii. Potential improvements to riparian areas and fisheries (e.g., overwintering habitat)
 - iv. Potential improvements to water quality (e.g., reduce sediment transport)
- e) Explore opportunities cross-border for water sharing in lieu of storage in Alberta.

2.2.2 Water Quality

- a) Encourage offstream watering options to livestock to reduce streambank erosion and nutrient, sediment and bacteria contamination to the river. **Are there new water licences available in the Milk River Watershed?**

2.2.3 Riparian Areas and Wetlands

- a) Livestock grazing strategies should consider distribution, timing and stocking rates that fall within the carrying capacity of each pasture
- b) Provide maximum rest during the growing season, skim grazing and time-controlled grazing management practices can be applied to reduce the potential for an increase in invasive and disturbance-caused species and maintain an abundance of native species.
- c) Provide adequate rest from continuous browse pressure to promote regeneration of existing native grass, forbs, preferred tree and shrub species and improve future reproduction and establishment of these vegetative communities.
- d) **Encourage the development and use of riparian pastures⁴ within grazing systems.**

⁴ Riparian pastures are defined by dividing the landscape into pasture units based on similar plant communities and topography; the bottomlands are fenced separately from the uplands (Cows and Fish).

2.2.4 Range Health

- a) Adopt range management principles that maintain or foster healthy productive rangeland. These include:
 - i. Balancing livestock demands with the available forage supply; the rancher harvests forage to produce red meat but leaves adequate un-grazed residue to protect plants and soil and to provide habitat for wildlife
 - ii. Promoting even livestock distribution by using tools like fencing, salt placement and water development to spread grazing over the landscape
 - iii. Avoiding grazing rangeland during vulnerable periods; early spring grazing can stress native range plants when energy reserves are depleted as new growth is initiated
 - iv. Providing effective rest periods after grazing to allow range plants to recover from the stresses of grazing

2.2.5 Soil Conservation

- a) Mechanical summer fallow still occurs within some areas of the watershed. All farmers should consider chem fallow as an alternative to mechanical fallow to promote soil conservation. [Does this recommendation need a qualifier, indicating that BMP need to be observed when using chemicals near waterbodies?](#)
- b) **Best management practices should be applied to conserve soil, including:**

2.2.6 Natural Capital

- a) Explore incentives for maintaining Alberta's Natural Capital on private land in the Milk River watershed.
 - a. Apply the Stewardship Credit Program model (NCC Sandstone Ranch) to Public Lands
- b) Assess the monetary value of natural capital in the Milk River watershed to inform an incentive program.
- c) Promote best management practices to stewards that will increase the value of the Milk River watershed's natural capital on private lands.
- d) Assess the impact of ALSA on the further loss of private land in the Milk River watershed on social and economic conditions.

2.2.7 Protected Land (these are miscellaneous recommendations that relate to agriculture and protected land – they may be better placed in another section, but the thoughts are captured here)

- a) Province should recognize that most public land is held in disposition (is occupied land) rather than unoccupied land. Continuous surveillance by lease holders and landowners helps to

enforce land management expectations by other industries. Landowners and leaseholders are working together to manage the resources better locally.

- b) Perception that recreation/access is a public right on agricultural land in the watershed.
- c) For every activity that occurs within the Milk River watershed the property rights of the landowner, leaseholder, license and/or permit holder, need to be recognized.
- d) Highest and best use of remaining deeded land in the Milk River watershed is agricultural grazing land. The good stewardship and management applied, sometimes in partnership with non-profit organizations, is compatible with other goals for the watershed associated with biodiversity/recreation/viewsapes.
- e) Not all land needs to be protected to achieve goals. The province should recognize that the land manager (e.g., grazing lease holder) is willing to pay for use of the land. The province has it in its power to declare land “protected” (e.g., Tax Recovery Lands). The Province could designate grazing lease lands protected under the existing grazing lease system since grazing is a compatible land use. This might apply in the SE corner of the watershed where anything under grazing lease may already be protected through the Grazing Lease Holders Association and provincial inspectors.
- f) Land swaps should be considered between higher valued conservation land that may be privately owned and publically owned land that is not as highly valued for its conservation value.

2.2.8 Economy

- a) Municipalities in the watershed should consider developing a master plan for agriculture, similar to the one developed in other rural municipalities⁵ to identify a long term vision and policy framework that will support existing agricultural operations and provide new opportunities to the industry.
- b) Unique economic attributes in the watershed should be identified and used to develop a sustainable agricultural growth strategy (as part of a master plan?). Opportunities that exist include: use of existing available surface water, consider unique agri-climatic features, (i.e., a soil and climate suitable for specialized crop and livestock production), close proximity to United States markets, and the strategic location serviced by Alberta-Montana Highway 4 and the CP railway.
- c) Focus on keeping people in the Milk River watershed by exploring new ways to approach main sectors: agriculture, tourism, energy.
- d) Consider promoting alternative industries in the Milk River watershed – what would these be?

⁵ Rocky View County adopted its Agriculture Master Plan in November 2011. *“Its purpose is to identify a long term vision and policy framework which will support both existing agricultural operations and provide new opportunities for diversification of the agriculture industry in the County.”* Rocky View County’s master plan can be accessed at <http://www.rockyview.ca/Default.aspx?tabid=1044>

2.2.9 Education and Awareness

- a) Increase awareness of conservation farming – water management – best management options.

2.2.10 Monitoring

- a) There is limited recent data available on crop production in the watershed. This information should be updated to reflect current conditions.
- b) **Water meters should continue to be used to monitor the use of Milk River water for irrigation purposes.**
- c) Riparian health should be periodically assessed on private and public lands, using the Riparian Health Inventory or Assessment methods applied by Cows and Fish, to ensure that undesirable impacts on these sensitive areas and on water quality due to livestock access are prevented or minimized. (**link to riparian and wetland management**)

APPENDIX A. OVERVIEW OF RANGE HEALTH

Readers are encouraged to review section 6.1 (“Public Range Health”) in the *Milk River State of the Watershed* report for an explanation of management issues that pertain to rangelands within the basin. Also addressed in this section of the SOW report is a description of the five rangeland health indicators used by SRD and how rangeland health scores are established for public rangelands. The 5 indicators used to determine rangeland health and function are:

1. Integrity and Ecological Status
2. Plant Community Structure
3. Hydrologic Function and Nutrient Cycling
4. Site Stability
5. Noxious Weeds

Once a rangeland site has been assessed, the combined score of the above indicators is expressed as a percent health rating. This figure can then be compared against three range health categories to determine the condition of the assessed rangeland site:

- a score of 75 -100% = Healthy
- a score of 50 – 74% = Healthy with problems (further monitoring is needed; adjustments in grazing practices may be required)
- a score of < 50% = Unhealthy (urgent management action may be required)

APPENDIX B. CRITERIA USED TO DETERMINE IF A DISPOSITION IS IN “GOOD STANDING”

A disposition under the *Public Lands Act* is assessed (to see if it is in “good standing”) against the following 3 categories and a decision is made whether to renew or not renew a grazing disposition.

1) Disposition Use

- a) “Acceptable” use means that the disposition is being used properly.
- b) “Unacceptable” use could include such things as: severe over-grazing, failure to graze a lease (without approval), and unauthorized subletting of the lease.

2) Health

- a) Range health could be considered “Acceptable” if it was determined to be:
 - i) healthy or healthy with problems on the majority of the grazing lease,
 - ii) lower than healthy with problems but there is an upward trend or identified health problems have been addressed, or
 - iii) affected by external factors beyond the control of the lessee.
- b) Range health is considered to be “Unacceptable” when range condition has been determined to be unhealthy on the majority of the grazing lease.

3) Proper Management

- a) “Acceptable” is considered when the disposition is being used appropriately and conditions of the disposition, range management operation plan (RMOP) or other planning agreements are being followed and the *Public Lands Act* is not being contravened.
- b) “Unacceptable” is considered when the disposition is not being used appropriately, i.e., if conditions of the disposition, RMOP or other planning agreements are not being followed and/or regulations defined in the *Public Lands Act* may have been contravened.

If one of more of the above three categories is not met the grazing lease is considered to be “not in good standing” and is subject to progressive compliance measures as outlined in the *Public Lands Act*.