



“Environment is but our looking glass.”

James Allen

August 2015

SAGE Meetings—no meeting in August.

Riparian Restoration Workshops. August 21st, 28th and 29th in Turner Valley. Registration \$50 at [Sustainability Resources](#).

Lethbridge Sustainable Living Association is planning AppleFest for August 29th. See their website for details and apple-picking opportunities: www.lethbridgesustainableliving.org/

Lethbridge River Valley in the running for Great Places in Canada. Vote at greatplacesincanada.ca/view-2015-nominations/

Lethbridge Waste Diversion Policy

The City of Lethbridge approved a [Waste Diversion Policy](#) on June 20th which sets a five-year target of a 30-per-cent overall per-capita waste disposal reduction by 2021 and a 15-year target of 50 per cent by 2030.

From the [City of Lethbridge](#): “Existing residential recycling programs divert about 20 per cent of residential waste from the landfill. The draft policy proposes to increase residential waste diversion to 50 per cent by 2021 and 65 per cent by 2030. It also would target a 25-per-cent reduction by 2021 in waste from the Industrial, Commercial, Institutional (ICI) as well as the Construction & Demolition (C&D) sectors, increasing to 45 per cent by 2030.

Council members were also briefed on potential five-, seven- and 10 year implementation schedules for a diversion strategy for waste from the local ICI/C&D sectors, which together comprise about 75 per cent of the waste that enters the landfill each year. Each proposed implementation schedule would include a three-phase approach, starting with educa-

tion followed by the introduction of surcharges on tipping fees for targeted materials at the landfill and, in the final phase, regulations which could include mandatory recycling and/or disposal bans.”

The Industrial, Commercial and Institutional Recycling Implementation Strategy describes the plan which includes focused stakeholder engagement and the development of best practices to help Lethbridge become a leader in waste diversion from this sector.

Environment Lethbridge had identified waste diversion as a primary focus in collaboration with the community partners.



Carbon Pricing Dialogue

Robert Gagne, founder at Carbon Conversations in Calgary, is organizing a summit on carbon pricing this fall, tentatively in both Calgary and Red Deer.

The summit will “start with a presentation covering the broad strokes of what’s happening in Canada and internationally, and Alberta’s options to broadly price carbon ... to the point of speaking the same language.” Presentations will be followed by wider discussions amongst the participants. SAGE has been invited.

The goal is to prepare for a province-wide consultation on a new climate change policy for the province, as announced by Environment Minister Shannon Phillips.

Banff Introduces Feed-In-Tariff for Photovoltaic

The town of Banff (population 9600) has decided to use an environmental reserve fund to incentivize the installation of photovoltaic (PV) power generation.

Banff council have assigned \$300,000 by lottery to reduce PV paybacks from approximately 20 years to 7 years, making the technology both environmentally and financially attractive.

The environmental reserve fund is supported by the rents collected from utilities to use space (under roads and sidewalks) for their infrastructure. Banff has used this fund previously to fund LED lighting, waterless urinals, and energy efficiency rebates.

Banff expects to install 165 kW of PV capacity on residences and businesses, making the town the highest per capital producer of solar power in the province.

From [Green Energy Futures](#), Grant Canning, councillor and deputy mayor of Banff town council said: “Really, it’s just doing the right thing. As we move forward, transitioning off of non-renewable energies is the right thing to do for our community, it’s the right thing to do for our residents and our business community. If the town of Banff has the means to encourage our community to get involved then council absolutely supports that.”

Milk River Management Committee – On Watch for 25 Years

Thank you SAGE representatives:

Mel McCaugherty (1990-1996); Bob Campbell (1997-2005); and Cheryl Bradley (2006 - present).

In June 1990, a dozen individuals with diverse and often divergent interests committed to resolve their differences and work together to guide management of the Milk River Natural Area and Kennedy Coulee Ecological Reserve. Their common goal as the Milk River Management Committee (MRMC) was to protect and maintain the ecological and aesthetic character of this 64 km² block of mixed-grass prairie with minimal human interference. Twenty-five years later the MRMC continues its work with four of the original members still involved – Terry Hood, William King, Ken Kultgen Jr. and Cliff Wallis – and six other relative newcomers – Lee Finstead, Joan Hughson, Cam Lockerbie, Cheryl Bradley, Darwyn Berndt, and Peter Swain. Many others too numerous to mention have contributed to the work of the MRMC.

The area over which these dedicated individuals keep watch is a native prairie landscape of great beauty and diversity tucked into a remote nook of the Milk River watershed bounded by the interna-

tional boundary, the Pinhorn Grazing Reserve and the deepest part of the Milk River canyon. Few visit the area because of its remoteness. It is as the prairie would have appeared prior to European settlement and a reference point for understanding how our activities have affected the prairie landscape.

Widespread interest in the area's future arose in the 1970s when conservation interests concerned over loss of native grasslands suggested protective designation at the same time that this parcel of public land, ungrazed by livestock since the early 1960s, was being withdrawn from the Lost River Ranch as a result of limits placed on the size of government grazing dispositions. A public hearing of the Advisory Committee on Wilderness Areas and Ecological Reserves in 1984 heard not only from individuals wanting to maintain a benchmark of dry mixed grassland without livestock grazing, but also from those wanting to expand livestock grazing, guarantee motorized access for hunting and discourage large numbers of visitors.

Based on the recommendations of a non-governmental task force, in 1987 the Alberta Government through order-in-council designated the small (10 km²) Kennedy Coulee Ecological Reserve bordered by the much larger (54 km²) Milk River Natural Area – the 100th natural area in the province. The two designations were a compromise. Ecological reserve status placed priority on maintaining a benchmark area of mixed grassland in climax condition. Natural Area status allowed for human activities, including livestock grazing and recreation, provided they were compatible with the main conservation objective.

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Environment Lethbridge
Fundraiser
Rain Barrels—\$70 each
(Only 3 remaining)

Order Online:

<http://>

www.environmentlethbridge.org/

Interesting Links:

Natural Capital at Risk: a study of the top 100 business impacts.

<http://www.naturalcapitalcoalition.org/>

The State of Food Insecurity in the World, 2014.

<http://www.fao.org/>

Growing Water Scarcity in Agriculture: Future Challenge to Global Water Security

<http://www.water.ox.ac.uk/>

Global Water Scarcity: Risk and Challenges for Business

<http://awsassets.panda.org/>



Southern Alberta Group for the Environment (SAGE)

A Leading Voice for a Healthy and Environmentally Sustainable Community.

Visit us at: <http://sage-environment.org/>

If you are interesting in getting involved, contact us at:

sage-communications@sage-environment.org

Draft Report on Waste Management in Lethbridge Part 3 - What are the Benefits of Recycling?

Not all materials can be recycled. Some materials can be recycled into a closed loop (to make equivalent products), and others are downcycled (to make inferior products). Some materials save a lot of energy by recycling (compared to virgin materials), while some materials save only a little energy reprocessing into new products. So, what are the benefits of recycling?

In general, recycling reduces the amount of waste sent to the landfill; it prevents pollution created in extracting raw materials, and emissions from the landfill when disposed; it conserves natural resources; it saves energy; and helps sustain the environment for other species and for future generations.

Aluminum

Aluminum has dramatic environmental and economic benefits when recycled.

- 95% energy savings
- 95% pollution reduction
- 4 kg of bauxite not excavated for every 1 kg of aluminum

Steel

75% energy savings
One tonne of recycled steel saves 1.25 tonnes of iron ore, and 0.5 tonnes of coal.

Paper

- 60% energy savings
- 95% less air pollution
- Recycling one tonne of paper saves 20 trees and over 7000 gallons of water.

Glass

- 50% energy savings
- 20% less air pollution and 50% less water pollution
- Glass can be recycled indefinitely.

Plastics

About 4% of the world oil production is used to make plastics.

Thermoplastics can be recycled (typical of food containers), but thermoset plastics (epoxy, silicone, melamine, polyester) cannot be recycled.

Thermoplastics (according to their recycling number) include:

1. Polyethylene terephthalate (PETE) used for soda bottles;
2. High-density polyethylene (HDPE) used for milk bottles;
3. Polyvinyl Chloride (PVC) used for shampoo bottles, olive oil containers;
4. Low-density polyethylene (LDPE) used for bottle caps and single use bags;
5. Polypropylene (PP) used for margarine and cottage cheese containers;
6. Polystyrene (PS) used for

foam trays, beverage lids, disposable plates.

Energy savings are:

PETE	70%
HDPE	50%
PVC	55%
PP	45%
PS	45%

Energy savings do not include transportation energy, which can be significant for lightweight materials like plastic. For this reason, polystyrene is often not accepted at recycling stations.

PVC is not often recycled due to dangerous gases produced when reheating or burning.

Much of the recycled plastics are downcycled to fibers (for textiles, for example), or lower grade plastics (#7 Other). PETE, for example, can be recycled back into bottles or downcycled to fibres, whereas HDPE is often downcycled to secondary uses. As a result, they have less value for plastics recyclers.

A final report on waste management in Lethbridge will be made available this fall.

Confronting Hidden Threats to Sustainability: State of the World 2015



The annual publication from The Worldwatch Institute focusses on threats to sustainability, including emerging and escalating issues like unsustainable economic growth, agricultural losses due to water scarcity, disease vectors, climate change, and resilience of oceans.

It is a welcome return to environmental issues compared to the past few years which have dealt with governance, technology and prosperity issues.

Tim Jackson, the author of *Prosperity without Growth*, offers a precise evaluation of economic growth in a finite natural world. He says: "While economic growth has brought higher living standards and jobs for many people, along with tax revenues for governments, it has been achieved at the cost of depleted soils and aquifers; degraded lands and forests; contaminated rivers, seas, and oceans; disrupted cycles of carbon, nitrogen, and phosphorous; and more" (p.39).

The popular idea of decoupling material throughput from a growing economy is unsupported by evidence presented by researchers like Smil and Wiedmann. They conclude: "As wealth grows, countries tend to reduce their domestic portion of materials extraction through international trade, whereas the overall mass of material consumption generally increases" (p.44).

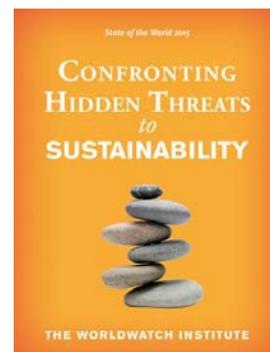
Ben Caldecott offers a chapter titled *Avoiding Stranded Assets* which explores the risk of investing in industries that can no longer contribute to a low-carbon economy. He suggests: "Visionary management of policies, companies, and investments is needed to ensure that new investments are consistent with environmental health and resilience, and the economies are weaned, smoothly and efficiently, off investments that are harmful to sustainability" (p.52).

The author cites a 2013 TEEB report that suggests "in 2009, unpriced natural capital costs associated with primary production (agriculture, forestry, fisheries, mining, oil and gas exploration, utilities) and processing (cements, steel, pulp and paper, petrochemicals) totaled \$7.3 trillion annually, the equivalent of 13 percent of global economic output that year" (p.58). The significance of this value is that a diminished environment will have harmful effects on these industries - stranding current and future investments in these assets.

Another example, "adhering to a carbon budget that limits temperature increase to 2°C requires that some 80 percent of proven fossil fuel reserves remain unburned – which would make them stranded assets" (p.54). The current movement to encourage (or coerce) institutions to disinvest in fossil fuel companies becomes a wise business decision from this perspective.

The final essay titled *Childhood's End* by Tom Prugh is a call for greater resilience through participatory and deliberative forms of democracy - as opposed to the "sound-bite democracy of manipulation and electoral advantage" that we have become familiar with in recent years.

Prugh quotes Gus Speth at length: "We've got to ask afresh, 'What is an environmental issue?' The conventional answer is air and water pollution, climate change, and so on. But what if our answer is: 'Whatever determines environmental outcomes.' Once we think about it this way, then, surely the creeping plutocracy and corporatocracy we face – the ascendancy of money power and corporate power over people power – these are environmental issues. And more: The chartering and empowering of artificial persons to do virtually anything in the name of profit and growth – that is the very nature of today's corporation; the fetish of GDP growth as the ultimate public good and the main aim of government; our runaway consumerism; our vast social insecurity with half the families living paycheck to paycheck. These are among the underlying drives of environmental outcomes. To succeed, ... environmentalists are going to have to address these issues" (p.134).



Milk River Management Committee – On Watch for 25 Years (Continued from p.2)

Over its 25-year history the MRMC has consisted of representatives of the provincial government (public lands, parks and fish & wildlife), County of Forty Mile, and of non-government interests including the ranching community, Alberta Wilderness Association, Foremost Fish & Game Association and Southern Alberta Group for Environment. For several years the local MLA was an ex-officio member. The non-government members are directors of a non-for-profit society and hold a recreational lease on the Natural Area. Each year members strive to have a winter business meeting and a summer field tour targeted to a specific management issue or undertaking.

One of the first accomplishments of the MRMC, in 1992, was agreeing on an operational management plan that guides decisions. This plan has served the committee well with no major amendments needed for two decades. Specific plans, procedures and activities have been defined as needed for biodiversity monitoring, and management of weeds, fire, access and livestock grazing.

Biodiversity monitoring

Biophysical inventory in the 1970s and 1980s documented the plants, animals and significant natural features that occur in the Natural Area and Ecological Reserve. In 1991 the MRMC began a biodiversity monitoring program to evaluate the impact of management strategies on the grassland. Focus of surveys along transects annually from 1991 to 1995 and again in 1998, 1999, 2006 and 2011 has been on vegetation, rare plants, breeding birds, small mammals, northern leopard frog and short-horned lizard. Raptors along the Milk River canyon were surveyed in 1997 and 1999. Following wildfires in 1991 and 2007, transects were established to monitor vegetation response to burning. Introduction of livestock grazing on the uplands of the Ecological Reserve in 2013 is accompanied by a plan to assess effect on biodi-

versity of native species and vegetation communities.

Data from monitoring of vegetation transects in the Natural Area and Ecological Reserve in the 1990s was analyzed by Public Lands to define climax community types and assess differences in plant species diversity between the Natural Area and Ecological Reserve. Researchers concluded that the management goals of both the Ecological Reserve and Natural Area were being achieved.

Visits in 1999 to the ungrazed grasslands and riparian areas in the Ecological Reserve by internationally-recognized experts in range management and in riparian area management have verified the protected area's uniqueness and usefulness as a benchmark against which to evaluate management actions in mixed-grass prairie.

Over the last 25 years, permits have been issued to a variety of researchers who have enhanced knowledge of range condition/health, vegetation inventory/assessment, invasive-alien plants, mammals, grassland-nesting birds, raptors, species at risk, reptiles, amphibians, dinosaur fossils, lichens and bryophytes, ecology of springs, grassland and riparian plant communities, rare plants, soils, geological mapping, leopard frog diseases, fish in Kennedy Creek, butterflies and other insects.

Weed management

Over its 25-year history the MRMC has been vigilant in monitoring for presence and spread of invasive non-native plants, particularly noxious weeds, through vegetation surveys and field tours. When patches of nodding thistle, a prohibited noxious weed, were found on the uplands in the Ecological Reserve in 2006, a County of Forty Mile crew used backpack sprayers to apply herbicide. This was followed with MRMC members pulling and bagging any surviving plants prior to flowering as part of annual field

trips over a four-year period successfully eliminating the population. Two forays have been made into the Milk River Canyon to control a nuisance species, Russian olive and a third foray is planned. This will be an ongoing effort as there is a large source of seed from an expanding patch of Russian olive originally planted around a farm south of the international boundary. Crested wheat grass planted in fields along the southern border of the Ecological Reserve and Natural Area has been a concern for the MRMC since establishment of the protected area. A vegetation plot was established in 1992 to document spread of this agronomic species into native grassland.

In 2012 a broad survey was undertaken in the Ecological Reserve to assess the extent of invasion of non-native invasive plant species and to obtain advice on control measures available to manage these invasions effectively. This survey found that three species on the provincial noxious list are present in significant amount – downy brome, Japanese brome and creeping thistle. In addition there are four nuisance weeds that may be of ecological concern and an additional seven species that are escaped from agricultural areas, including sweet clover, smooth brome, creeping foxtail and crested wheat grass. The consultant recommended introducing grazing to suppress invasion of some invasive species and a spot spraying program to control others. In response, the MRMC received Alberta Parks permission for an early-season grazing trial, targeted towards problem weed areas on the uplands of the Ecological Reserve. The trial began in 2013, will continue for three years, and will be assessing effects on invasive non-native species. Other options to manage weeds will be carefully reviewed and considered.

Fire management

Fire is considered to be a natural part of the grassland ecosystem however social

Milk River Management Committee – On Watch for 25 Years (Continued from p.5)

implications restrict its use as a management tool. Wildfires are suppressed and any prescribed burning will require a detailed plan approved by all members of the MRMC. The fire chief for the County of Forty Mile, Aden volunteer fire chief, and sheriffs of Liberty County and Hill County in Montana have mutual-aid agreements to contain fires in the Ecological Reserve and Natural Area preferentially using methods that minimize surface disturbance. Wildfires in September 1991, August 2007 and April 2010 along the southern boundary of the Natural Area and Ecological Reserve were quickly suppressed with little lasting environmental impact.

Access management

No motorized access is permitted in the Ecological Reserve and the boundary is signed where it abuts the Pinhorn Grazing Reserve. A sign is posted at the entrance to the Natural Area indicating dry weather access only and encouraging drivers of motorized vehicles to stay on the main access trail. Vehicles are permitted on existing trails north and east of the main access trail in the Natural Area, but only to the edge of valley slope and only under dry or frozen ground conditions. No motorized access is permitted south or west of the main access trail and early in its history the MRMC closed several trails off of the designated route using rocks or posts. Signage has been kept to the minimum required to ensure safety and compliance with designated access.

In July 2008 three automated traffic counters were buried at key points along the main access trail in the Natural Area. Analysis of five years of data indicates that there is low overall annual usage (less than 100 entries in a year) with by far the highest peak in activity during the hunting season (October – November). During the spring and summer there are generally less than five entries per week, and the majority that do occur appear to be for livestock management purposes.

Livestock grazing management

One of the first projects of the MRMC was fencing of pastures in the Natural Area to allow livestock grazing while minimizing risk to sensitive features, including preventing access to the river valley and Kennedy coulee. Since 1991 livestock have grazed the uplands of the Natural Area through a contract publicly tendered and administered by the society. The MRMC in consultation with the contractor, guides rate and timing of grazing from year to year depending on weather, range productivity and water supply. For example in 1992, cattle were not put in the Natural Area due to drought. A wetland and a water reservoir formed by damming a small creek are the main sources of water for livestock in the Natural Area. To alleviate impact on the riparian area a fence was constructed around the reservoir in 1991 and in the late 1990s a hardened ramp and gravity-fed piping system to a trough were installed. Observations are that cattle preferentially drink from the trough.

Following investment in re-constructing the border fence and a portable electric fence to protect springs and riparian areas along Kennedy Creek, the MRMC was permitted to introduce light livestock grazing to a portion of the Kennedy Coulee Ecological Reserve in 2013 continuing to 2015. The goal of livestock introduction is to control invasion of specific non-native plant species while maintaining or improving biodiversity of native species and vegetation communities associated with a dry mixed grassland ecosystem in climax condition. The effectiveness of the management activities will be assessed over the next few years.

The next 25 years?

Henry Ford said - "Coming together is a beginning; keeping together is progress; working together is success." Twenty-five years ago few would have bet money

on the success of managing a protected area through a committee that involved representatives from a variety of government agencies as well as ranchers and non-government organizations, some with a history of conflict. The MRMC has defied the odds. Members have demonstrated their commitment to protecting and maintaining the ecological and aesthetic character of this special tract of mixedgrass prairie by basing decisions on sound science, learning from each other, being good neighbours, continuing to work through their differences, and most importantly, by sticking together.

Key challenges that lay ahead for the MRMC include reviewing the management plan, weed management, assessing and defining the role of grazing and other ecosystem management options within the Ecological Reserve, getting all the years of data in a comprehensive database and geographic information system, and realizing tourism benefits while being sensitive to local concerns. Any bets on success for the next 25 years?