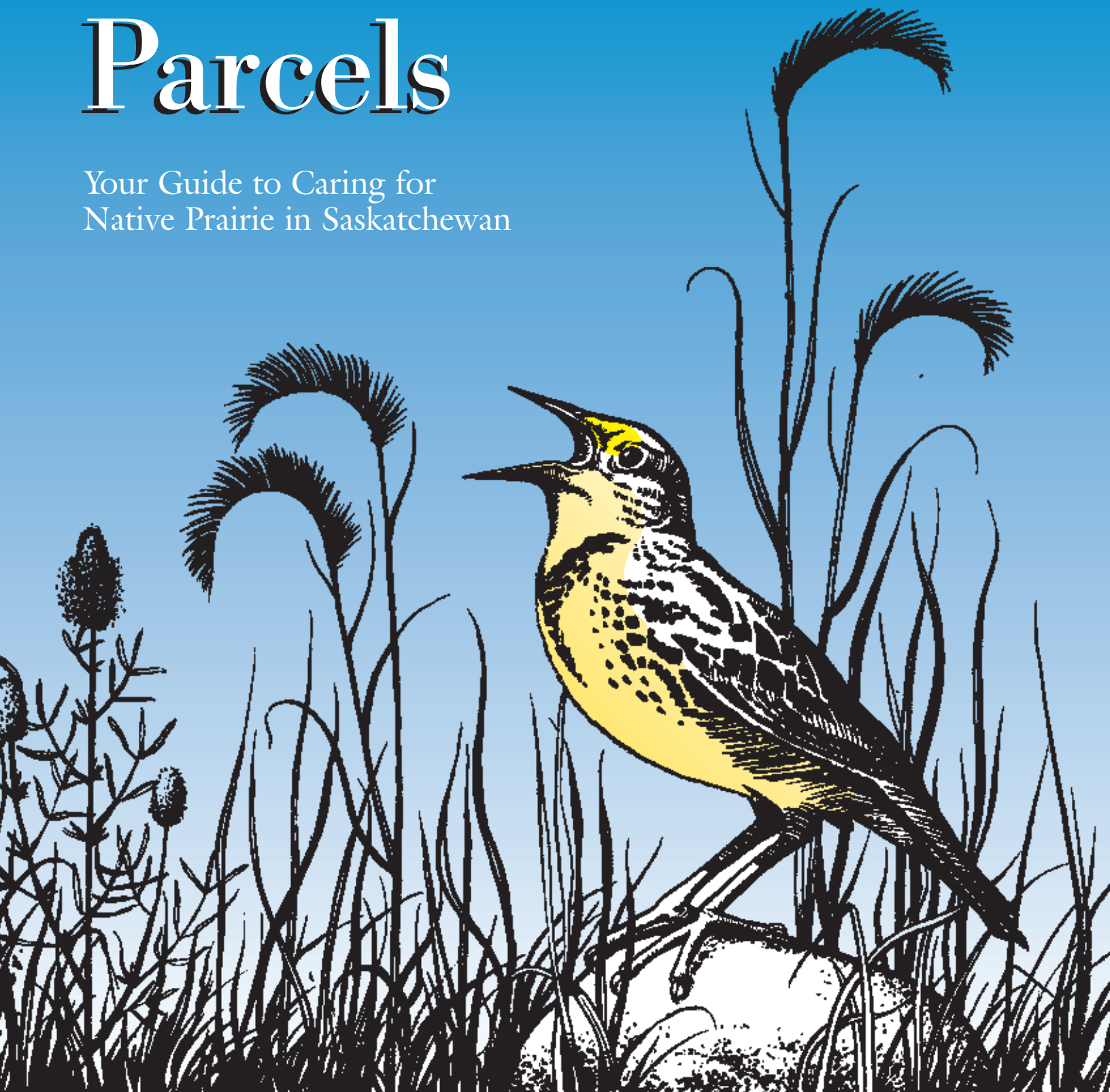
Managing Your Native Prairie Parcels

Your Guide to Caring for
Native Prairie in Saskatchewan



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Your Guide to Caring for Native Prairie in Saskatchewan

by

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June Grass

Needle and Thread Grass

WHO IS THIS GUIDE FOR?

This planning guide is for Saskatchewan landowners who have remnant native prairie. Remnant native prairie is a patch of native grassland in an area dominated by non-native vegetation, such as cropland. In other words, when you look at a landscape, natural prairie land is in the minority.

This guide will assist you to:

- gain a better understanding of your native prairie
- set goals and make plans for the future conservation and enhancement of your native prairie
- do a self-assessment of your native prairie
- explore techniques to improve your native prairie
- identify new income opportunities from your native prairie
- become aware of legal tools for conserving this land

Many management techniques are described in this guide, but because of their complex nature all aspects of their application is not covered. For more information on these techniques, reading materials and resource people are listed at the back of the guide.

WHY WAS THIS GUIDE PRODUCED?

Our southern Saskatchewan landscape is one of the most altered land areas in the world. Most of the land suitable for crop production has been ploughed and cultivated. The vast majority of native prairie has been lost from these areas. In many areas, less than 3% of the landscape remains as native grassland. We risk losing what little native prairie remains in Saskatchewan.

The Native Prairie Stewardship Program is being implemented by the Saskatchewan Wetland Conservation Corporation (SWCC) with the aim of working with landowners to conserve remnant native prairie.

This private stewardship is a commitment by you, the landowner, to conserve and maintain the natural features of your land. The Native Prairie Stewardship Program is providing technical assistance to landowners to help manage their remnant native prairie. In addition, you may wish to protect your piece of native prairie for the future by placing a conservation easement on the land title. More information on conservation easements is provided in this guide.

photo courtesy of Dean Nernberg

Ed Harder on his prairie land near Hepburn

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The prairie ecosystem

The Saskatchewan prairies formed after the glaciers began to retreat 16,000 years ago. This geological history has left us with distinctive landforms and soils. The native prairie developed on that landscape and in an environment characterized by a harsh climate, grazing pressure, and fires. It can be said that the prairies were shaped by these disturbances.

We often talk about ecosystems, especially when we talk about natural areas. An ecosystem refers to a group of living things and their physical environment. A very small system, such as a pond, can be viewed as an ecosystem, as can the entire world. Basically, when we talk about an ecosystem, we are talking about the whole pond or field, and all that is in it. We can look at the original native prairie as an ecosystem made up of plants, animals, humans, soils, landforms, climatic events, fires, and grazing.

photo courtesy of Dean Nernberg

Saskatchewan prairie plant communities

Native prairie is dominated by grasses, but it is anything but boring! There are hundreds of different grasses and wildflowers, as well as shrubs and trees. Careful observation of prairie from spring to fall reveals a constantly changing variety of life - the plants put on an amazing display of colours, textures, and shapes.

Biodiversity (short for biological diversity) is a term used to talk about the variety of living things. Biodiversity is important at three levels:
(1) SPECIES: the number of different species,
(2) GENES: the genetic variety within each species, and
(3) COMMUNITIES: the variety of community types (groups of species).

Biodiversity results from living things adapting to their environment. For example, in a healthy native prairie, there are species that thrive in moist conditions and some that prefer dry hillslopes. The existence of all of these species allows the prairie to maintain ground cover in drought and wet years. The species simply fluctuate in numbers in response to the environmental conditions.

Mixed grass prairie near Abernethy

Similarly, genetic variety within a species ensures the persistence of that species in the face of changing environmental conditions. For example, certain individual plants may be more tolerant of grazing or more resistant to disease.

On a larger scale, a variety of plant communities, including wetlands, saline areas, and places dominated by shrubs and trees, provides different habitat types for species besides plants.

When it comes to biodiversity, though, more is not always better. Attempts should be made to manage for natural biodiversity of a place. In fact, the addition of species that are not native to the prairies ("exotics"), such as agricultural and garden plants or weeds usually lowers the diversity of native species. Where only a small prairie area remains, it may be more important to maintain the grass cover and provide much needed habitat for grassland species than it is to have poplar bluffs, which are relatively common.

In Saskatchewan there are two main types of native prairie: the mixed-grass prairie and the fescue prairie. Within each of these prairie types there is a great deal of variety due largely to landforms, soils, and moisture availability. But here is a very general description of each.

Mixed-grass prairie occurs in southern and western areas of Saskatchewan, on the brown and dark brown soil zones. It is made up of a mixture of mid-sized wheat grasses and needle grasses, and also includes short grasses like blue grama. The shorter grasses predominate where it is drier or where there is overgrazing.

Fescue prairie is found in the black soil zone and moister areas of the dark brown soil zone. It is named after its dominant grass species, plains rough fescue. The thick growth of the plains rough fescue is often referred to as prairie wool. Because of fairly good moisture conditions, fescue prairie is often readily invaded by poplar when grazing and fire are removed.

Blue Grama Grass

Fescue prairie near Wilkie

CLIMATE

All of us who live here know that our climatic conditions are harsh! This is a land of extremes. There is severe heat and cold, the temperature fluctuating from day to day as well as from season to season. Moisture availability is generally low, due to a combination of irregular and minimal precipitation, and excessive evaporation. On top of this, severe weather often brings high winds, heavy downpours, and hail.

So during the short growing season the conditions for good plant growth are very unpredictable, and native plants and animals have adapted to endure extended periods with very little water and nutrient intake. One plant adaptation is to store food as reserves to survive times of dormancy. Another adaptation, is the way many prairie plants roll up their leaves when conditions are very hot and dry, reducing exposure to the elements and moisture evaporation through leaf pores.

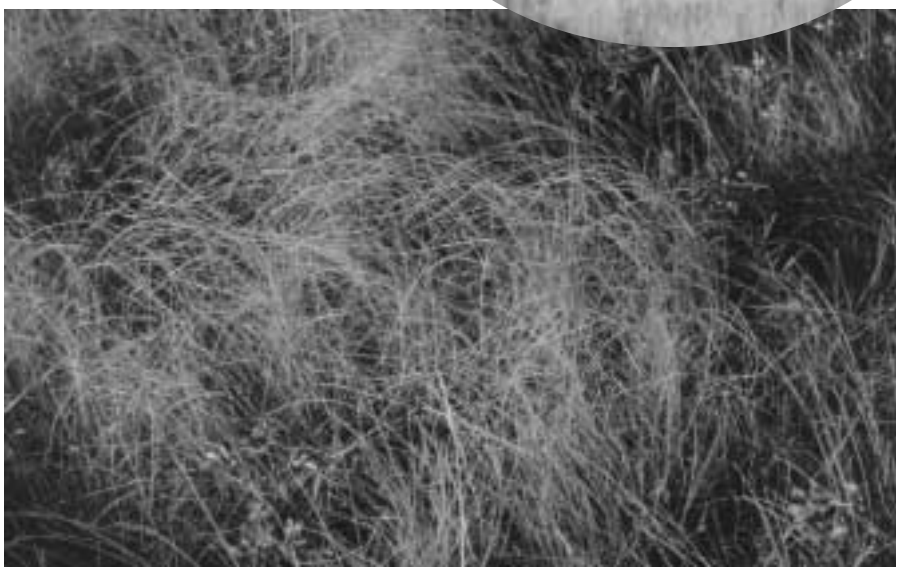
The build up of litter plays an important role as well. Vigourous groundcover decreases moisture evaporation, runoff, and erosion. Plant cover creates a local environment (a micro-climate) that moderates the extreme conditions. For example, vegetation cover slows and holds precipitation, reducing soil erosion that could result from a heavy downpour, and allowing more moisture to soak into the soil over a greater amount of time rather than run off. Vegetation cover also moderates extremes of heat and cold by insulating the soil surface and roots and bases of plants.

GRAZING

Grazing has been an integral part of the prairie ecosystem. Normally we think of bison, but other herbivores (plant eaters) including elk, antelope, mule deer, rabbits, prairie dogs, and insects such as grasshoppers played large roles as well.

Just as plants evolved strategies to withstand the climatic conditions, they evolved adaptations to grazing. Some plants developed features that discourage grazing. For example, some grass species, such as spear grasses, have seeds with awns (those "spears" that stick in your socks!). Another strategy is the development of growth forms that make grazing less harmful to the plants, such as

Photo courtesy of Dean Nernberg



The build-up of dead plant material reduces evaporation, prevents erosion, and regulates soil temperature.

having growing points near ground level that are not removed by grazing, allowing quick regrowth.

There are some characteristics about historic grazing patterns that are important to remember. For example, the large bison herds likely removed huge amounts of plant material in the areas they grazed over a very short period of time. This and the associated trampling would have exposed soil and encouraged growth of those species that are adapted to disturbed sites. However, they also had vast areas to roam, and it is likely that most of the landscape was not impacted severely year after year.

In other words, "rest" was a characteristic condition along with grazing, and the majority of the prairies were only subject to light grazing pressure.

Fire

Fires have always been a presence on the Northern Great Plains. It is thought that fires set intentially or accidentally by aboriginal peoples were in fact more common than fires caused by lightning. One of the main purposes of human-set fires was to direct bison migration. This is an interesting and important fact, as many of us tend to see the pre-European settlement landscape as untouched by humans. In fact, like any other species, humans have been part of the prairie ecosystem.

Historical accounts generally report scattered, small fires that burned for less than a day, rather than huge wildfires. Usually fires burned in a patchy way, leaving some areas untouched. Coulees and rivers acted as barriers to fire. There are records of human-set fires taking place in every month of the year except January. The highest occurences of these fires were in the spring (from March to May) and the summer/fall period (July to November). The month with the highest fire occurrence was October. Lightning-set fires, however, would have occured most frequently in the drier months of July and August.

Again, native plants have adapted to these conditions. For example, many perennial plant species can reproduce with underground parts, such as rhizomes. These rhizomes are relatively protected during a fire, and allow the plant to reestablish and invade open areas after a fire.

Today specific burning practices can be used to control some species that can invade prairie remnants, such as Kentucky blue grass and woody species such as poplar and buckbrush.

What does this mean for prairie management?

It can be argued that in order to conserve native prairie biodiversity, we must conserve the conditions under which prairie was shaped. Therefore, it may be necessary to manage for conservation by putting back some of those processes that have been removed, namely **disturbance** (especially fire and grazing) and **rest.**

Looking to history can guide us somewhat in our management today. We see that the living and the non-living pieces of the ecosystem have complicated and interdependent relationships that have shaped the prairies for thousands of years. In order to manage prairie properly today, we must consider the whole ecosystem - including the plants, animals, insects, birds, climate, grazing pressure, and fire.

Photo courtesy of Dean Nernberg

The Saskatchewan Prairie Today

Where has all the prairie gone? We're left with remnants!

In areas of Saskatchewan which are particularly suited for crop production, only small areas of native prairie remain. These patches are the remnants of the native prairie that used to cover the entire region. They are the exception on the landscape, as almost all the land has been cultivated.

We have all been made aware of the destruction of the rainforests in Central and South America. It is shocking to realize that the scale of destruction of the North American prairies in the last 150 years has been equally severe.

Originally there were 67 million acres of native grassland in Saskatchewan. It is estimated that less than 15 million acres remain. Most of what is left is in the south-western portion of the province. In many municipalities where soils are particularly suited to crop production, an average of less than 2% of the land remains as native prairie. It is critical that these areas be conserved. Every acre is important!

Why should we be concerned about native prairie?

Native prairie is a valuable resource. It contains our ecological history and is the heritage of our province. If we lose native prairie we lose the mix of prairie plants and animals that are unique to the prairie grasslands. These species are the product of thousands of years of evolution and that richness can never be replaced.

Conserving prairie biodiversity in one area of the province is not enough because plant species and their genetic characteristics are adapted to suit different places. It is important that natural areas be conserved across the province, in different soils and different moisture conditions.

As the remaining pieces of native prairie become isolated, like islands in a sea of cultivated land and non-native vegetation, the wildlife diversity also decreases. Animals and birds that require larger habitat areas may not be able to survive in sufficient numbers. Grassland birds have shown a steep decline in numbers. Other animals, including insects and spiders, are seriously affected as areas of native prairie are lost. We need to identify where the remaining native prairie is and conserve and enhance it wherever possible.

Remnant Prairie Inventory

From 1995 to 1997, the Saskatchewan Wetland Conservation Corporation looked for native prairie remnants in the heavily cultivated areas of Saskatchewan. The study was focused in areas with good soils for crop production, mainly in the dark brown and black soil zones. On average, less than 2% of these areas were left in native prairie. Initial results show that the great majority (84%) were under 160 acres in size, with 40% of the remnants less than 40 acres.

Almost half of the remnants had no physical limitations to cultivation, and therefore might be considered for crop land in the future. The other sites were limited by terrain, stoniness, soil texture, salinity, or excessive moisture.

Even those parcels less likely to be cultivated were threatened. One half of the sites were subjected to heavy grazing pressure, while one quarter were not utilized at all by livestock. Over 40% of the sites were in poor to fair range condition. Exotic grasses, like smooth brome grass and Kentucky blue grass, were present at up to 80% of the sites. Some remnants (about 8%) were subjected to other threats such as acreage development and gravel extraction.

Archeological and historical resources

Native prairie on your farm may contain evidence of the earliest peoples of Saskatchewan. Because native prairie has been uncultivated and relatively undisturbed since European settlers arrived, it may hide important archeological resources. These archeological resources should be respected and left intact wherever possible. You may also see evidence of the early European immigrants to Saskatchewan, such as old cart trails and survey markers.

Photo courtesy Dale Worme

A "turtle" effigy on a native prairie hilltop

There may be tipi rings, medicine wheels, boulder effigies, cairns, burial sites and other features on your land. The stones may be positioned in a pattern. Not all stones will be visible, because some may have been buried or removed over time. These stone features will be most easily seen after a dry period, in the early spring, after heavy grazing or after a burn. The native vegetation may hide the stone features.

Stone piles may actually mark Indian burial sites. As with any cemetery, burial sites should not be disturbed. Burial sites are protected by federal and provincial law. Also visible in some areas of your native prairie, especially around tipi rings and in areas where the subsoil has been exposed, may be pieces of pottery and stone tools, such as arrowheads, hammers and scrapers.

Economic diversification and native prairie

There are ways to add to your income by utilizing native prairie. Certainly livestock production is one way, either by running the livestock yourself, or renting the pasture to a neighbour. There are other potential economic opportunities that prairie lends itself to. A few ideas include:

- harvesting, packaging, and marketing native seeds

- collecting grasses and flowers for the craft market

- gathering herbs for the health market

- hosting tourists on your native prairie to view wildlife

The possibilities are only limited by your imagination.

Native prairie is very rich in its contents, but keep in mind that there are limits to what we can take from the prairie without causing long-term degradation. If treated with respect, the prairie can be very good to you.

What is threatening prairie remnants?

Since these remnants are relatively small and located in cropland areas, they are at risk of being cultivated or overtaken by invasive species. The threats to the remnants originate from:

- CHANGES IN LAND OWNERSHIP: New owners may not place the same value on the native prairie as the previous owner.

- ECONOMIC PRESSURES: The urge to break up the native prairie and farm it may become greater as grain prices increase, or because of tax incentives and land assessments. Often, the perception that more money can be made on broken land is proven false in a matter of years, because the land is marginal.

- FEWER MIXED FARMS: Without livestock, there may seem to be no use for native pasture and the area is converted to cropland.

- MORE EFFICIENT FARM MACHINERY: As machinery becomes larger and more efficient, there can be a lot of pressure to break up the small parcel of native prairie within a large field. Many acres of native prairie are sacrificed for the sake of a square field.

- AGGRESSIVE EXOTIC VEGETATION: Introduced plants like brome grass, crested wheat grass, leafy spurge, scentless chamomile, and Kentucky blue grass commonly invade native prairie areas.

• IDLING: Some remnant prairie has been left idle for decades. Disturbances such as grazing and haying keep a prairie ecosystem healthy and maintain a natural balance of plant species.

• OVER-GRAZING: Small remnants of native prairie are often viewed as wastelands and are stocked too heavily or for too long during the growing season. As a result, some plant species may be lost and the native prairie becomes less healthy, making invasion by undesirable plants much easier.

• LACK OF FIRE: With the general absence of fire on native prairie, more litter accumulates on the soil surface, and more woody species (i.e., buck brush) and exotic species (i.e., brome grass) have an opportunity to gain a foot hold.

• ACREAGE and URBAN DEVELOPMENT: As new yardsites are developed, particularly near urban centres, clearings, landscaping, and roads eliminate any native prairie which exists.

• RESOURCE EXTRACTION: Gravel pits, oil wells, and pipelines, along with required roads eliminate the native vegetation and provide a disturbance that encourages weed establishment and spread.

• ATTITUDES: There is a general lack of interest in and respect for our native prairie, and this leaves prairie more vulnerable to abuse and cultivation.

Restoring mixed grass prairie at the north end of Last Mountain Lake

Restoration is the attempt to bring an area back to a former or healthier state. This might mean reseeding cultivated land to native grasses and wildflowers, or improving a natural area that has been degraded by misuse or poor management.

Restoration of cultivated land with native seed mixes is not an alternative to conserving existing native prairie nor an excuse to plow any of the remaining prairie. It is, however, an important addition to conservation because in many areas the natural vegetation has been almost completely eradicated.

Dean Nernberg is a researcher with the Mixed Grass Prairie Habitat Restoration Project managed by the Canadian Wildlife Service at the Last Mountain Lake National Wildlife Area. The objective of the project is to re- establish and rehabilitate diverse native prairie habitat through appropriate restoration and management. The wildlife area covers 36,000 acres and is home to the oldest bird sanctuary in North America.

The wildlife area is made up of diverse plant communities, with areas affected by salinity, moisture deficits and surpluses, as well as uplands and slopes. Dean has been collecting and cleaning native prairie seed, and replanting cultivated areas with this seed. He's using 70 native plant species in his restoration work.

He has also been experimenting with using grazing and fire in his prairie management. Dean is employing fire and grazing as tools in his attempts to control exotic species, stimulate the native plant species, and enhance the natural biodiversity.

Dean has had success in restoring native prairie through seeding. He recommends mowing during the first year of growth. A 40 acre native plant nursery is in the works. He'll get it started in the spring of 1998 and multiply seeds that have been wild-harvested.

Dean Nernberg harvests native seed

Dean has put together a manual on recommended seed mixtures for different areas of the province and different soil types, entitled Native Species Mixtures for Restoration. Check out the appendix at the back of the guide for more information.

You can visit the bird sanctuary any time of year. There is a self-guided tour and guide tapes are available. The revegetation project is not presently open to public tours, but if you call ahead you may be able to make arrangements to view Dean's work. See the contact list at the back of the guide for more information.

Conserving a special piece of native prairie at Luseland

Native prairie will always have a place in Luseland thanks to the efforts of volunteers. An abandoned school yard north of Griffen Street has always been in native prairie, but it has suffered over the years due to excessive mowing, the encroachment of dandelions and brome grass, and local traffic. In order to save this prairie remnant from further deterioration, the local citizens along with the Luseland school banded together in the spring of 1997 to form the Luseland and District Millennium Prairie Garden Project on the site.

"It's been lots of work putting the project together," says Steve Allen, the local high school science teacher. "People are starting to gain appreciation for the site. They have been walking through the area and have been asking questions."

The organizers have entered into a 25 year agreement with the town of Luseland to showcase the five acres of native prairie. The first thing they did was to to stop mowing the site.

Local high school students have been involved in identifying and flagging the plant species. Areas that need improvement have been identified. The students will help to restore native plants on the site, by collecting and germinating native seeds.

"We'll have the grade 9 class busy in the spring of 1998," says Steve. "They will be transplanting native plants and will also be working to get the areas affected by brome grass invasion under control."

Plans are in the works to develop a kiosk at the site, and to contruct a perimeter barrier to keep people from driving through the prairie. They may also develop a nursery that will feature native prairie plants.

How can native prairie be conserved?

Native prairie can be conserved by removing the threats to the remnants we have left. The first step involves a commitment to take care of the land. This is a step you may already have taken. You may commit yourself on a personal level or decide to make a more formal commitment, such as a voluntary agreement with the Native Prairie Stewardship Program. You may wish to impose restrictions on future land use through a conservation easement, or by donating or selling the area to a conservation organisation. These options are presented in Part 3 of this planning guide.

In any case, taking care of the prairie may require managing the land in some way. So the next step is to evaluate the management needs of your remnant area. Management that

reintroduces historic disturbances such as fire and grazing can help the prairie area to last for centuries to come. Part 2 leads you step by step through a management plan.

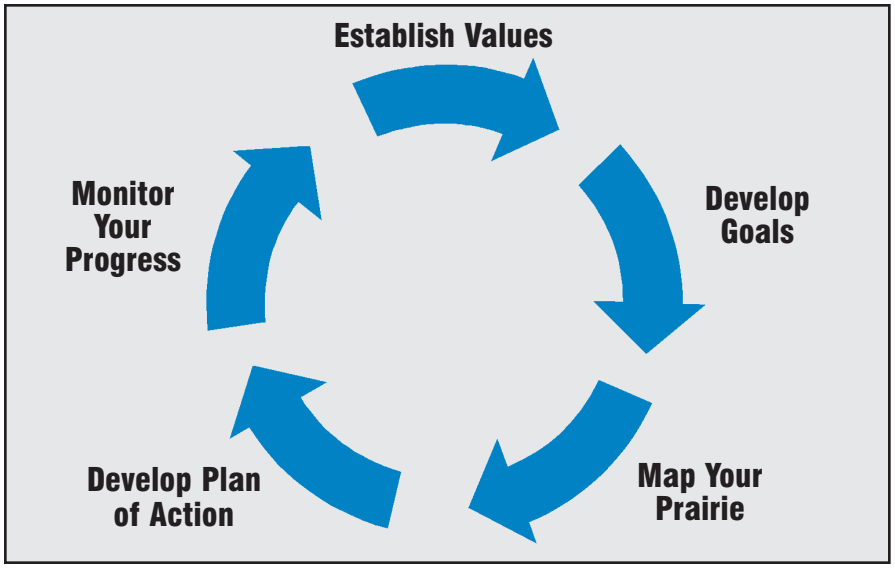
2 Develop a Management Plan for your Prairie

Once you have decided that conserving remnant prairie is a priority for you, you may want to consider what you value about your prairie. You may find that a certain amount of management is necessary to conserve the things that you value. Developing a management plan involves defining some goals for your remnant prairie and making a list of management actions that can help you meet your goals.

We will present a number of management options, but keep in mind that not all of them will apply to your particular prairie site.

You do not have to implement a complicated management plan, nor do you have to work on everything that concerns you right away.

Also, you do not need to follow the steps in the sequence they are shown - do what suits you and your situation.



Step 1 - Write down what you value about your native prairie

It helps to be clear what you like or value about your prairie area. For some, the remnant is useful as pasture. For others, the area is primarily a beautiful spot for walks and seeing wildlife. Or maybe you value the prairie because it is a piece of your heritage. Make a list of what your prairie means to you and your family. Include all the potential values that you may have considered, including economic values from such things as ecotourism or seed harvesting.

Step 2 - Set goals for your native prairie

Your list of things you value should direct you to some general goals for your remnant prairie. Goals are the overall vision of what you would like to accomplish. For example, your goals may include optimizing prairie forage production or grazing a given number of cattle while maintaining good range condition. Other goals may be to maintain the natural diversity of prairie plant species, to provide songbird habitat, or to

diversify your income by marketing seed that you have harvested from your remnant. You may want to seed some acres back to native prairie plants.

Include goals that might seem difficult to accomplish - you can make changes later when you are developing your action plan. Also think about short term and long term goals. Whatever your goals may be, they will be unique to your operation, and to the values you and your family hold.

Step 1 - What do I value about my native prairie?

1) _____

2) _____

3) _____

4) _____

5) _____

Step 2 - What are my goals?

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

8) _____

9) _____

10) _____

Step 3 - Map and take stock of your native prairie

Prepare a base map

It may be easiest to record the features of your native prairie site if you sketch it out on a map. Not only can you record what has previously happened on the land and what exists now, but you can also draw in areas where you can take steps to restore and enhance your native prairie.

Mapping can assist in visualizing future plans and in identifying specific areas that need special attention or that you might wish to protect.

Make the kind of map you feel is appropriate. You might be happy with a freehand sketch, you might want to draw notes on an aerial photo, or you may make a set of mylar overlays that record different features on each sheet.

However you choose to draw your map, there are certain features that should be included, such as:

- field boundaries
- creeks, sloughs, dugouts, springs, beaver dams, wells
- roadways and trails
- fencelines and gates
- buildings
- gravel pits, oil wells, mine sites
- archeological sites
- north arrow
- legal land location
- prominent landforms such as hills and valleys

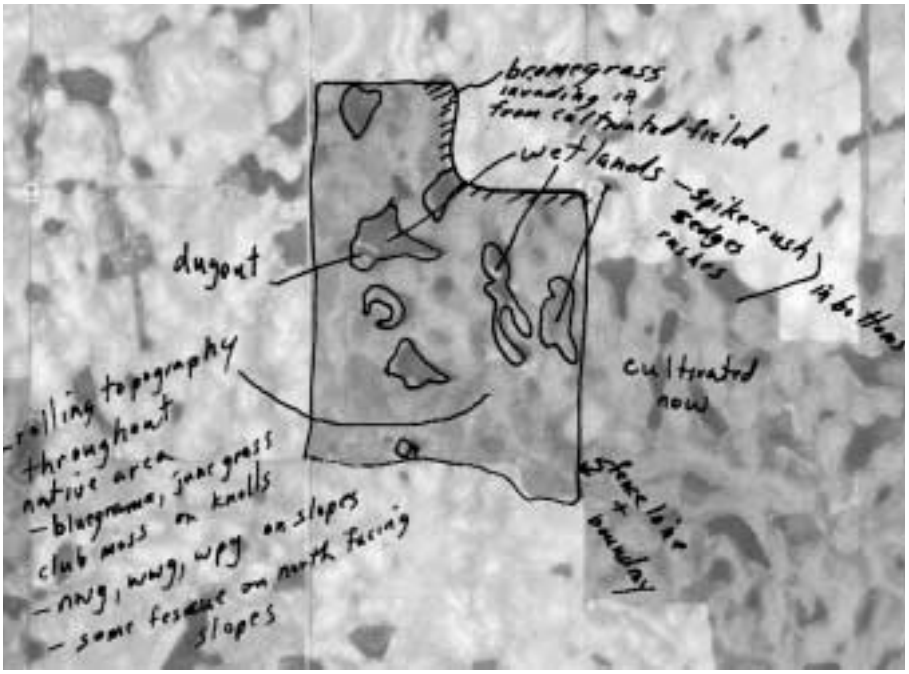
Some of these features may be noticeable from aerial photographs which are available from the government of Saskatchewan's Central Survey and Mapping Agency*. You might also want to add where different soil types occur. Soil survey reports are available from the Saskatchewan Soil Survey Unit*. You will likely need to walk through your native prairie to gather much of this basic information.

*See resource list at the back of this guide.

Take stock of your native prairie

While you are walking through your native prairie, take some time to look closely at the vegetation. The management required to accomplish the goals you identified in Step 2 will depend on the current composition and condition of the vegetation. Make notes about what you see, right on the map if you wish. You will then have a very good record of what kind of shape your native prairie is in.

Enlist help if you need it! Have a range specialist visit the land and walk through the area with you. See the resource list at the back of the guide for contact information.



Note significant features about your land on an air photo or hand-drawn map.

1. Notice what effect grazing is having on your stand of native prairie. If you can, compare it to native grass that is fenced off. What is the difference in species and appearance? Are there areas that seem to be overgrazed or not grazed at all?

3. If your area includes streams or sloughs, are they lined with shrubs and lush vegetation? Streambanks and wetlands are of special importance because they support a broad diversity of wild plants and animals. These areas also control shoreline erosion and protect water quality.

2. What is the land use adjacent to the prairie? Note where you see cultivated land, crested wheat grass, brome/alfalfa, etc.

4. What kind of vegetation is growing on any areas that may have been disturbed by resource extraction or utility lines? Are there other areas that need attention on your native prairie? Are there old junk piles or land fills? These are unsightly and can be a source of pollution.

5. Where does the brush growth occur? Are there any areas that were cultivated in the past? Have you noticed any special plants? Take note of their locations.

Identifying Native Plants

What is the condition of your native prairie and how vigorous is it? Identifying what species are present helps determine the health of your grassland. It's a good idea to learn to identify the species that are common in native prairie in your area. If you are not able to identify the main grass species in your prairie, call a range specialist to assist you.

Most common plant species in Saskatchewan grasslands:

Mixed grass prairie

- Needle and Thread Grass (Stipa comata)
- Porcupine Grass (Stipa spartea)
- Western Wheat Grass (Agropyron smithii)
- Northern Wheat Grass (Agropyron dasystachum)
- June Grass (Koeleria gracilis)
- Blue Grama Grass (Bouteloua gracilis)
- Pasture Sage (Artemisia frigida)

Fescue prairie

- Plains Rough Fescue (Festuca hallii)
- Western Porcupine Grass (Stipa curtiseta)
- June Grass (Koeleria gracilis)
- Awned Wheat Grass (Agropyron subsecundum)
- Slender Wheat Grass (Agropyron trachycaulum)
- Hooker's Oat Grass (Helictotrichton hookeri)
- Trembling Aspen (Populus tremuloides)
- Prairie Rose (Rosa arkansana)
- Western Snowberry / Buckbrush (Symphoricarpus occidentalis)
- Wolf Willow / Silverberry (Elaeagnus commutata)

Northern wheat grass

Plains Rough Fescue

Needle and thread grass

June grass

Invasive Species Checklist

Do you see non-native plant species like smooth brome grass, Kentucky blue grass, sweet clover, Canada thistle, or leafy spurge? If you do, do they seem to be spreading? Where are they coming from? Common sources are disturbed areas like ditches, gravel pits, trails, or adjacent fields.

Smooth brome established along a trail

GRASSES

Smooth Brome Grass *(Bromus inermis)*

This is the common brome grass, the one planted in hay fields and ditches. This introduced grass is extremely persistent and very competitive, spreading by creeping rhizomes and seed.

Kentucky Blue Grass *(Poa pratensis)*

This is the European grass commonly used for lawns. It appears to have come from Europe almost 300 years ago. Considering its use as a turf grass, it's easy to see that its nature is to form dense sod, largely excluding other species. It tends to occur where there is slightly more moisture. This fine grass may not stand out in a native area as much as some of the courser exotic grasses.

Quack Grass *(Agropyron repens)*

A creeping grass at home in Europe. It is very persistent, as seeds can remain dormant in the soil for several years and even tiny pieces of rhizome can regrow new plants.

Crested Wheat Grass *(Agropyron cristatum)*

This introduced perennial tuft grass is a common forage species. It can establish itself in disturbed areas of native prairie.

Downy Brome *(Bromus tectorum)*

A European annual brome grass. It shows up in disturbed areas and dry, overgrazed pastures. It produces lots of seed and can spread quickly.

BROAD-LEAVED PLANTS (FORBS)

Leafy Spurge *(Euphorbia esula)*

This is one of the most troublesome weeds species. It comes from Europe, and readily establishes in uncultivated areas. It especially likes sandy soils. It spreads very well by creeping roots and seeds. The roots can be up to 1 metre deep and it can reproduce from even small pieces of root.

Canada Thistle *(Cirsium arvense)*

A perennial thistle of Eurasian origin. It is a persistent weed, with a deep root system from which new shoots develop quickly. It produces a large quantity of seed and is usually found in recently disturbed areas.

Dandelion *(Taraxacum spp.)*

We're all familiar with the dandelion. It tends to find its way into pastures in disturbed areas. The dandelion is native to Europe. It spreads by prolifically produced seed.

Alfalfa *(Medicago sativa)*

Another forage species from Europe, alfalfa can establish in disturbed spots in native prairie. It is perennial and usually tap-rooted.

Flixweed *(Descurainia sophia)*

A European native that can get established in disturbed areas within a prairie. It acts as an annual or biennial and produces lots of seed.

Wormwood *(Artemisia absinthium)*

This is a sage species imported from Europe. It is a perennial, and once established in pastures can be difficult to eradicate.

Scentless Chamomile *(Matricaria maritima)*

A short-lived perennial (may act as a biennial) native to Europe. These noxious weeds are often called wild daisies. Each plant can produce up to 300,000 seeds per year! It is often seen around sloughs.

Sweet Clover *(Melilotus spp.)*

Another escapee from agricultural plantings, white and yellow sweet clovers can show up where the ground has been disturbed in native areas.

Step 4 - Develop a plan of action

Now that you have a complete picture of your site and a list of goals, you can decide what needs to be done and what options there are for achieving your goals. Do the goals you have set in Step 1 still fit with what you want to accomplish? Perhaps you have already met some of your goals.

It's always a good idea to double check your goals, to make sure what you want to achieve matches the resources you have. If you wish to revise your goals, go back to Step 2 and make changes. If you are satisfied with your goals, proceed to make plans and take action to conserve your native prairie.

Most plans will be designed to eliminate the threats to your native prairie. Whenever possible, try to set up a management plan that uses the historical forces that shaped and maintained the prairie - fire and grazing. Ideally, once the immediate threats are removed, long-term management with fire and grazing can prevent the need for more intensive measures like herbicide application.

Every situation is unique. Use your imagination and list a variety of options to accomplish each goal. Try not to be overwhelmed by the number of possible management options. No one can do everything, but even doing a little bit will help.

Let's take a look at some common remnant prairie management concerns and techniques.

Grazing native prairie

The condition of native prairie and livestock production can be improved through proper grazing. Grazing is an important tool for maintaining native prairie in a healthy state. It is believed that historically bison intensively grazed the prairie, but may not have returned to any particular area for extended periods of time.

Native prairie is excellent for livestock grazing and has many benefits over tame forages. It can stay vigourous without reseeding or fertilization. Its growth characteristics make for high quality summer and fall grazing. It is adapted to its environment and can buffer climatic extremes and disease.

There are simple grazing techniques for keeping native prairie in good condition. Producers can alter the timing of their grazing, change how intensively the land is grazed (how close the plants are grazed), and how often the plants are grazed between rest periods.

Native prairie can be grazed at any stage of development and be maintained in good condition provided grazing is followed by an adequate rest period. As mentioned in Part 1, rest and grazing have been natural processes in prairie ecosystems. The main concern is to allow enough rest for the plants to recover from grazing.

In most native pasture grazing systems, aim to have at least 50% of the plants' growth remaining at all times so they can save energy for later growth. This will aid in strengthening plant vigour and provides carry-over grazing for hard years when new growth is limited. This accumulation of litter is also important because it helps to conserve moisture and insulates against extremes in temperature. In some cases, where several years of rest are anticipated, grazing can be more intense.

You can provide alternative pasture or feeding to take the pressure off your native grassland. Distribute livestock evenly over your native prairie by herding, providing enough water sources, and moving salt and mineral blocks.

Biggar farmer takes the pressure off his native prairie

Dean Tavanetz is a cattle producer and mixed farm operator north of Biggar, Saskatchewan. Dean is also a member of the Biggar Grazing Co-op. He manages about 600 acres of fescue prairie near his farmstead, located in three main pastures, two of which are dominated by speargrass and wheatgrasses. The third has more fescue content.

Dean has recently become involved with a project to improve the condition of his native prairie and his bottom line with the assistance of Brendan Kowalenko, rangeland specialist with the Saskatchewan Stock Growers Association's Grazing and Pastures Technology Program out of Unity, Saskatchewan, and the Saskatchewan Wetland Conservation Corporation.

In order to defer grazing on his native pastures and improve their range condition (essentially through increasing the abundance of plains rough fescue), Dean has recently reseeded some cropland to perennial forage cover for spring and summer grazing. One pasture was seeded to crested wheat grass and alfalfa, and another was seeded to meadow brome and alfalfa.

A healthy stand of crested wheat grass can provide over a month of good grazing in the spring. By grazing the crested wheat grass it will delay the grazing on his native prairie to later in the season. Fescue maintains higher digestibility later into the season than tame forages, but it does not withstand repeated grazing periods in one year. Crested wheat grass can, however, pose a potential threat to the native stands as an invader. You may decide to substitute a less aggressive species. Refer to the Forage Crop Recommendations provided.

Dean has also seeded some of his land to meadow bromegrass. Meadow brome does not become stemmy and unpalatable like crested wheatgrass when it matures. It is a good alternative to smooth brome, because it has better regrowth and doesn't seem to be as invasive. If meadow brome is not grazed too hard on the first pass, it can provide additional grazing in late summer or fall. Crested wheatgrass can be grazed first, followed by meadow brome, and then the native range.

His pasture land will be developed into a five paddock deferred rotation system, with the objective of deferring grazing on the native pastures and then alternating which native pasture gets grazed early and which gets grazed late each year. In this way, each native pasture is left ungrazed until the fall on at least a periodic basis.

In addition to adding tame forages to his grazing program, he also grazes stubble and road allowances. Dean is also considering conducting a controlled burn on some of his native prairie to control the brush. As well, he manages the distribution of his livestock by salting and providing plenty of water sources.

Brendan will be performing range condition assessments, and has set up grazing cages to monitor the recovery growth of the native prairie. Dean's project will serve as a demonstration for other producers in the Biggar area.

TAVANETZ GRAZING SYSTEM

Year	Spring	Early Summer	Mid Summer	Late Summer	Fall
1	Crested Wheat Grass	Meadow Brome	Native Pasture 1	Native Pasture 2	Native Pasture 3
2	Crested Wheat Grass	Meadow Brome	Native Pasture 2	Native Pasture 3	Native Pasture 1
3	Crested Wheat Grass	Meadow Brome	Native Pasture 3	Native Pasture 1	Native Pasture 2

Prescribed burning

Fire has a number of impacts on a grassland ecosystem. It can kill woody saplings, remove litter, and enhance the growth of many wildflowers. But depending on when the fire occurs, how hot it burns, and how often a burn occurs, it can have different effects.

Range specialists are available to visit your land and discuss management options.

For example, a fire tends to damage plants that are actively growing at the time. This can indirectly favour those species that are not active because they will have a competitive advantage. Therefore, repeated spring burning may lead to a grassland dominated by species that emerge later in the year.

As for buckbrush or poplar, one fire will likely stimulate growth in the following seasons, whereas fires every year can reduce their cover. However, the new growth that follows a fire is much more palatable for grazers, and a regime of fire combined with grazing pressure may adequately reduce buckbrush, for example.

The effects of fire also interacts with other environmental conditions, such as moisture availability and grazing pressure. A spring fire burns off accumulated leaf litter in the spring and exposes a darkened soil surface to the sun. During a drought, recovery from a fire may be substantially slower because regrowth will be limited.

There are many reasons for using fire as a tool for conserving native prairie in the mixed and fescue prairie regions. Fire, like grazing, helped shape the prairies. Fire can rejuvenate native prairie plants, causing plants to flower and produce more seed and others to grow taller and more robust. Fire can help control invading grasses, shrubs, and trees and can increase available soil nutrients. Fire likely also has effects that we do not yet understand.

With prescribed burning, fire is used as a management tool for burning a specific area under controlled conditions. For example, fire can be used to set back cool season invading species like Kentucky bluegrass. For brush control, fire can be combined with grazing, because cattle will graze on the new brush growth after a fire and further set it back. Fire can also be used as part of a long-term plan for conservation of biodiversity by recreating historical fire patterns.

However, fire alone may not be adequate for conservation management - it should be used in conjunction with other tools. It is also important to remember that the impact of fire cannot always be predicted.

Many people are very uncomfortable with the idea of burning. If you'd like to burn but don't feel you could do it safely, try to read more about it and become familiar with common safety practices. Start with very small and safe burns and build your knowledge and experience.

Burning patches rather than very large areas provides important refuges for insects and animals. Smaller-scale burns will also be safer and more easily controlled.

Safety is important

Fire can be a useful tool to rejuvenate native prairie and control invasive plants. Here are some points to consider if you are thinking about prescribed burning.

- Carefully plan the burn.
- Safety is the greatest concern. Do not burn by yourself. Have an experienced person in charge of the fire because even a small fire can get out of control.
- Notify your local fire protection department that you will be burning, and obtain a permit for the burn. This will prevent them from having to respond to the fire later.
- Notify neighbours bordering your property that you will be burning.
- First consider the amount of fuel that your area of native prairie has developed. For the first burn, ensure the amount of plant material is great enough to sustain a fire. Also the volatility of the plant material must be considered. Some highly volatile fuels such as woody plants can release burning embers which can be carried through the air.
- Make sure you know the current weather forecast for your area and that the wind direction is right for the burn.
- Fire breaks must be prepared before burning. A path or a road could serve as a fireguard, or back burn a small area where you want the fire to stop. The wider the fire guard, the less chance there is of escape. Following the burn, the area will appear blackened and most plant material will disappear. Depending on the weather, new growth will start appearing within a week or two.

photo courtesy of Dean Nernberg

A prairie crocus flowering just days after a burn

With the goal of native biodiversity in mind, Dr. Jim Romo, professor of plant ecology at the University of Saskatchewan, advocates using burning to simulate the natural conditions under which native prairie developed. “Fire is an essential part of the prairie ecosystem,” says Dr. Romo. “Try to include fire in your plan for managing your native prairie.”

Refer to Appendix C for manuals that can explain more about how to burn native prairie.

Meewasin Valley Authority uses fire to control exotic plant species

The Meewasin Valley Authority is responsible for maintaining many native prairie areas along the Saskatchewan River near Saskatoon. Luc Delanoy, who works for Meewasin, is taking an active role in conserving the native prairie stands. He has gained considerable experience in maintaining native prairie through practices like burning, seeding native species and hay mulching.

Luc's job is to manage these natural areas along the Saskatchewan River, including Cranberry Flats, Beaver Creek, Wanuskewin and the North East Saskatoon Natural Grasslands. Through "education and conservation" he provides an environment for the public where they can enjoy, understand and share in the beauty of the Saskatchewan River riverbank area. In addition Luc is taking a leading role in many community projects, including the native prairie landscaping project at the new St. Joseph's High School.

Luc uses fire as a tool in controlling exotic species invasion and in invigorating the native prairie within the Cranberry Flats and Beaver Creek recreational areas. His main targets are smooth brome and Kentucky blue grass patches. Brome is especially invasive coming in from fields outside the recreational areas. Following burning, after the patches have had a chance to regrow, Luc will apply glyphosate herbicide with a wick applicator to complete the control of the undesirable grasses.

He is careful to burn when weather conditions are favourable and he always has a crew available with a supply of water. He notifies the fire department to obtain a permit before burning.

Photo courtesy of Luc Delanoy

Meewasin staff burn a fireguard at the Silverspring Prairie in Saskatoon

Controlling exotic species in native prairie

Exotic species are species that are not native to a place. In Saskatchewan, most of the exotic species originate from Europe or Asia. Almost every garden and agricultural weed is an exotic plant. In the native prairie, too, these exotics can invade and take over the native species.

Many tame forage grasses, particularly smooth brome grass, Kentucky blue grass and crested wheat grass can be serious weed problems in native prairie. They are very competitive and aggressive, and if given the opportunity will invade native prairie. Broadleaved weeds like leafy spurge and scentless chamomile can spread quickly and overtake native areas. Other common invaders are sweet clover, Canada thistle, and wormwood. If exotic plants have invaded your native prairie, you should take action.

Wicking bromegrass along Eagle Creek

"Brome is my enemy!" Don Murphy is not shy in making this statement. He is an owner of native prairie land along Eagle Creek near Struan, Saskatchewan. The tiny village of Struan is approximately 75 kilometers north west of Saskatoon.

Don's native prairie is bordered by a highway. Brome grass from the road ditches has crept up into his native pasture. He has been using a wick applicator to fight back the brome for over a year now. The brome grass usually grows taller than the native grasses, and a wick applicator can be used to wipe herbicide on the brome without harming the native grasses growing underneath.

Don Murphy with some of his wicking equipment

A large area of Don's native prairie is grazed. There is no problem with brome in this area. The cattle seem to keep it in check. It's in the ungrazed area along the road where the brome problem has gotten out of hand. Don is doing his best to control it and trying to keep it from spreading.

A keen student of native prairie management, Don has been following the work of the native prairie expert John Morgan from Argyle, Manitoba. John Morgan is an expert in native prairie restoration, and has developed a guide book called "Restoring Canada's Native Prairies." Don has been gaining advice and experience, and hopes to one day get into the native grass seed production business. First, he must get rid of the brome and get his native prairie back in shape.

Don allows the brome to grow until June when its rhizomes are weakest. He then uses a hand-held wick applicator to wipe on a 30% solution of glyphosate to knock it back. After two weeks the brome patches will yellow, and after four weeks they will be browned off and dead looking. He then mows the area using a rotary weeds wacker, and rakes up the dead plant material into piles to be burned later. As the soil warms up, the native vegetation that was under the brome will have a chance to grow back. Any brome that grows back will be touched up using a wick applicator.

In the late fall of 1997, Don experimented with burning to help control his brome grass invasion. He used a backpack sprayer to apply a 4-to-1 mixture of diesel to gas to the area to be burned. When safe conditions were present he burned the patch of native prairie. He'll monitor the area in the spring of 1998 to assess the effects of the fire as compared to the glyphosate application.

An innovator by nature, Don has developed his own weed wiping equipment, including pull type units, hand-held hockey stick type units and a special glove assembly which he uses to wipe glyphosate onto the brome regrowth. He has also set up a series of plots in his native prairie, where he is comparing the effectiveness of different types of weed wiping equipment, along with the effect of raking out dead material on native prairie regrowth. He is also collecting native prairie seeds for restoring areas where the bromegrass has been eliminated.

Photo courtesy of Don Murphy

Brome treated with glyphosate (right) bordering the native prairie

Using sheep fescue to fight brome

Planting border strips of sheep fescue around native prairie can help fight brome invasion. Phil Curry, with Ducks Unlimited at Melfort, has been using the technique for several years now with great success.

The sheep fescue Phil uses is a low maintenance, long lived, low growing exotic bunch grass. It is commonly used in school and church yards. It is a long living, drought tolerant grass. It can provide nutritious, good late fall grazing. There is also a native variety, *Festuca saximontana.*

"Fescues are circumpolar", explains Phil. "They are spread world wide. Sheep fescue is especially useful in fighting brome invasion".

A drought zone develops around the sheep fescue plant which inhibits creeping rooted species like smooth brome from coming in. Sheep fescue can be used together with crested wheat grass, however the crested wheat grass must be mowed so that it doesn't set seed. Phil reports that experiments are ongoing with species suitable for border planting, including tall wheat grass and creeping red fescue.

Sheep fescue can be burned to rejuvenate it. Phil also stresses: "It's important to keep the native stand as healthy as possible to resist brome invasion through burning and grazing".

Photo courtesy of Phil Curry

Sheep fescue

LEAFY SPURGE: control with beetles and sheep

The Saskatchewan Wetland Conservation Corporation owns one and a half miles of shore front native prairie on Last Mountain Lake. The total area of the land, which was donated to the corporation by Arnie Robinson and Emily Robinson, is about 180 acres. It is located straight across from Regina Beach on Pelican Point. The Saskatchewan Wetland Conservation Corporation is managing for a particular problem weed that is causing concern in the area - leafy spurge.

Leafy spurge

Leafy spurge is a troublesome weed in many native prairie stands in Saskatchewan. It is a bother to cattle, whose mouths can become very sore from ingesting the plant. It can also cause scours.

Leafy spurge can spread rapidly by seed and root buds if left unchecked. It is very difficult to control through herbicides as it has an extensive root system and the necessary herbicides are toxic and expensive. Biological control through the use of spurge flea beetles from the plant's native Eurasia and grazing by sheep seem to be the best solution to keeping the plant in check.

Leafy spurge beetles were released in 1996 on the native prairie. They naturally feed on leafy spurge plants, and if their numbers are great enough, they can keep the plant under control. The beetles have multiplied and are establishing new colonies. It will take up to five years for the beetles to establish themselves in the spurge stand.

Other landowners are using sheep and goats to keep their leafy spurge under control. Sheep and goats will graze on leafy spurge and this can help reduce the infestation and slow or stop its spread. This will allow grasses to be grazed by cattle and horses later.

Start grazing sheep and goats early in the spring when the plant first emerges. Prevention of flowering and seed-set by leafy spurge is important. Before you move the sheep and goats to a leafy spurge free area, contain them for a few days so any viable spurge seed can pass through their digestive system. While you may not have sheep yourself, maybe you can find a sheep producer who will graze your pasture for several years.

Mowing or cutting can help limit its spread, but hand pulling seems to stimulate new rhizome growth. The best approach to controlling leafy spurge is to take an integrated approach. Use more than one method to control the weed for best results.

Controlling brush expansion

It is common for buckbrush and poplar to spread in native prairie. Historically, fire and grazing pressure kept the brush confined to areas of higher moisture availability, where they had a competitive advantage. Today it is often necessary to impose specific brush management techniques. For example, repeated burning can effectively control brush and poplar. Mowing can also be part of a brush control regime. Herbicides can be used selectively on small areas of brush or along fencelines.

"Girdling" a poplar involves removing the bark and phloem in a ring around the tree.

For small scale poplar control, you might try "girdling" trees by removing a ring of bark with a knife, while on a larger scale, bark scrapers (mechanical devices pulled over the trees which scrape back the bark) have a similar effect. Both allow the tree to keep moving stored nutrients from the roots as it grows, but the removal of the outer layer of bark and "phloem" means that the food produced in the leaves cannot be moved back down to the roots. In essence, the tree is fooled into depleting its reserves and dies.

Controlling buckbrush in Kronau

There's no easy way to control buckbrush in native prairie. It's a real knock down, drag out affair. And that's exactly what Hal Petterson is doing to control buckbrush on his native prairie pasture.

Hal has a small acreage near Kronau, Saskatchewan, some of which is native prairie. Native prairie is particularly scarce in the Kronau area. Hal became involved with the Native Prairie Stewardship Program administered by the Saskatchewan Wetland Conservation Corporation.

A creek runs through Hal's 35 acres of pasture. He's had a problem with buckbrush choking out his native grasses for several years.

"The buckbrush problem was getting worse. It was so thick the cattle wouldn't go in there, and they would overgraze the good native grasses," explains Hal. "The Wetland Corporation suggested I call the Grazing and Pastures Technology Rangeland Agrologist at Weyburn for advice. He suggested I use a mower to knock down the buckbrush and give the native grasses a chance to come back."

Hal kept cattle out of his native prairie pasture for the 1997 season, and used a gyro mower on the buckbrush in mid-June, after the shrubs had used some of the nutrients stored in their roots to produce new leaves. The shrubs regrew, depleting their stored resources even further. So when Hal mowed a second time in mid-July, the shrubs had been hit fairly hard. Added to this, new growth at this time of year may be more susceptible to winter damage.

For long term brush control, Hal plans to implement a rotational grazing system on his native prairie in future years. This will involve cross fencing the areas, and putting in a new water system to keep his livestock from drinking directly from the creek. He also plans on getting into sheep next year. The sheep will browse on the buckbrush and help control its spread.

Hal Petterson mows the heavy buckbrush cover

Without its root reserves it does not have the ability to generate suckers.

High input controls, such as mowing, scraping, or herbicides, are perhaps not good long-term solutions. Initially, intensive measures may be needed to set back poplars or brush. Ideally, though, management should lead to a point where brush remains in a balance with the grassland.

A combination of fire, haying, and grazing can be very effective in controlling woody species. For example, burning an area can draw cattle to feed on new lush grass and twigs. This follow up can add to the impacts of the fire. Also, other livestock, such as elk, sheep, and goats browse on woody species and control their spread. For more information on brush control techniques, refer to the publications and resource people listed at the back of the guide.

WHAT ACTIONS WILL YOU TAKE?

On the following pages, write your plan for managing your native prairie. Develop your plan based on the goals you set up in Step 2 and on the resources you have available.

Look your plan over and decide which goals are priorities for you. Everyone is limited by time, energy, and money. You will likely not be able to work to achieve all goals at the same time. Maybe you will decide to work on only one of your goals this year, or you may need to scale back your expectations in some areas.

For example, you may want to eradicate some brome that is invading, but realize you only have time to mow it to control seed production and spread. If you are interested in seed marketing, you may find it's best to spend a year or two getting to know more about native plants, reading about the native seed industry, and making connections for marketing in future years.

You will need to be aware of the cost effectiveness in undertaking a new conservation practice. Spend your energy and dollars on what you can actually accomplish if your time and financial resources are limited. Prioritize your goals and select practical actions that suit your needs and abilities. Record a deadline date for implementing each action.

Photo courtesy of Jim Moen

Some livestock, such as elk, will browse on woody species

Three-Flowered Avens

Step 4(a) - A list of things I can do to move toward my goals:

Goal 1 - Actions

1) _____

2) _____

3) _____

4) _____

Goal 2 - Actions

1) _____

2) _____

3) _____

4) _____

Goal 3 - Actions

1) _____

2) _____

3) _____

4) _____

Goal 4 - Actions

1) _____

2) _____

3) _____

4) _____

Step 4(b) - My action plan

	Start Date	Priority
Goal 1		
Actions		
Goal 2		
Actions		
Goal 3		
Actions		
Goal 4		
Actions		
Goal 5		
Actions		

Step 5 - Monitor and evaluate your progress

Remember that your plan should be flexible. Your goals will change as time goes on, as will markets and technology. As you proceed with your plan, it's very important that you take time every so often to evaluate your progress, and make changes where necessary. Think back to your goals. Are they being achieved? Is your management making a difference? Is there positive change? If not, what must be done to make the change happen? Patience is the key. It can take several years to see the changes take place.

Photographs taken on field walk abouts are useful in monitoring change. Areas of your native prairie can be flagged and serve as benchmarks to be visited later on. Take a series of "before" pictures so you can compare changes over time. Pictures can illustrate gradual changes that you otherwise might not notice.

Initial changes will be seen in vegetation. You can monitor the composition of plants at these sites and how vigourous the plants appear, as well as your accomplishments in controlling problem weeds like brome grass.

Secondary signs of positive change will result from the changes in vegetation. These can include a more productive and healthy livestock herd, the occurrence of more wildlife, as well as a higher quality of life for you and your family.

Step 5 - Am I reaching my goals?

Goal 1 evaluation:

Changes required:

Goal 2 evaluation:

Changes required:

Goal 3 evaluation:

Changes required:

Goal 4 evaluation:

Changes required:

Goal 5 evaluation:

Changes required:

Harvesting and marketing native seeds at Arcola

Prairie Mountain Nursery near Arcola

Don and Nora Stewart from Arcola, Saskatchewan, have a good thing going. And it's called the Prairie Mountain Nursery, a native plant nursery which is producing and selling seed from native perennials established from wild, hand-collected seed. They live on 480 acres, most of which is native prairie.

Don and Nora now have a one-acre native plant nursery in operation. They hand-collect wild seed from their own land and other native areas and multiply the seed in their nursery. The nursery plants include eighteen species of grasses and sixty species of wildflowers.

The Stewarts have turned their passion into a business and have started a native seed company. They sell seeds to interested gardeners, native plant enthusiasts and conservation groups. They plan to expand their nursery in the coming year so that it is over 4 times the current size.

Nora has had plenty of interest in her nursery following her presentation at the Western Canada Farm Progress Show in June 1997 in Regina.

The Stewarts have always been concerned about the plight of native prairie and wanted to do something about it. Their passion has become a business for them.

Coderre man harvests native seeds

Denis Huel from Coderre has always had an interest in native plants. Coderre is a community in southern Saskatchewan just west of Old Wives Lake. Recently Denis has become involved in harvesting native seed for money.

He has been buying seeds from seed companies for years. Recently he noticed some ads in company catalogues looking for sources for native seeds. Denis knew of many areas where native seed could be collected, so he decided to give it a try.

"It can be a money maker, but it's a tough one," reports Denis. "Sometimes it can be a lot of time spent, with not much return. But after a while you learn a few tricks and you are better able to judge what is worthwhile and what isn't."

Denis began to concentrate on a number of species, particularly brush species like berries, rosebush, and wolf willow. He has tried a seed stripper, purchased from Prairie Habitats Inc., a company from Argyle, Manitoba, and has had some success with it. When it comes to collecting seed from brush species, he feels that hand picking is best.

"I've done some harvesting around Coderre and some in forest areas," says Denis. "I harvest mainly in the fall, when the seeds are ripe and dry enough."

Denis Huel

Denis got started in supplying seed to seed companies because of the money. "There's lots of opportunity for collecting and selling native seeds," adds Denis. "You've just got to know where to look and be willing to work hard to reap the rewards."

3 Prairie Stewardship

Prairie stewardship is meant for anyone who owns, leases, or cares for native prairie. Even a tiny area is important and valuable. You likely have already decided to take care of your native prairie remnant. But you may want to become involved with a group of prairie stewards like yourself or be sure that the remnant area will be conserved in the future.

Voluntary stewardship and the Native Prairie Stewardship Program

The Native Prairie Stewardship Program is intended to promote awareness and conservation of remnant prairie in Saskatchewan. We are building an active network of prairie landowners and managers who share a common interest in native grasslands. People can become involved with the program through a voluntary stewardship agreement - a verbal commitment to maintain and conserve a piece of native prairie.

The program provides support to voluntary stewards in their management efforts by providing up-to-date information on management techniques (such as this guide), help in assessing the condition of their remnant prairie, and resource people, including rangeland specialists, who can answer questions and provide advice.

The collective effort of voluntary prairie stewards is making a large impact on prairie conservation in the province, while also promoting prairie to all Saskatchewan residents.

Photo courtesy of Dean Nernberg

The wild pink-flowered onion

Voluntary stewards Bill and Helen Thiessen, near Hepburn

Easement conserves Bradwell land

Jack Hay farms in the Bradwell area of Saskatchewan. He rents 320 acres from lawyer and farmer, Don Lehr. The half section was previously owned by Lehr's great uncle, who worked in the Bradwell area when the railroad came through. In fact, a CP rail line cuts right through the half section.

The landowner, Don Lehr, wanted to conserve the 200 acres of native prairie, retain ownership of the land, and still rent the 100 acres of crop land to Jack Hay. A conservation easement was a way for him to accomplish his goals. He decided to enter into a letter of understanding and eventually into a conservation easement agreement with the Saskatchewan Wetland Conservation Corporation (SWCC).

Display of the male sharp-tailed grouse

"The town of 'French' initially surveyed on this half section," said Jack Hay. "But the town was moved from the CP to the CN track and since became the town of Clavet." As a result the town of French never did develop and much of the land stayed as native prairie. It is still that way today.

Of the 320 acres, 200 acres is native prairie, and the rest is cultivated or under the railroad track. Jack Hay has been farming the 100 acres of crop land for over 40 years.

The native prairie has lots of wildlife on it, with some open water on it during the wet years.

"There were about 20 prairie chickens (sharp-tailed grouse) and some waterfowl nesting this year," reports Jack. "We don't allow hunting in there though. It's a great place to watch birds. The conservation easement will help retain the native grassland and the wildlife in the area."

The landowner, the renter and the Saskatchewan Wetland Conservation Corporation are all happy with the easement arrangement.

Jack adds "the agreement is alright, it has done what the owner, the SWCC and I wanted to accomplish. It's really a win-win arrangement for everyone."

Conservation easements: a tool for private landowners

If you are concerned about conserving your special piece of native prairie in the future, then a conservation easement may be for you. Conservation easements between landowners and conservation organizations can be set up to protect ecosystems, conserve open spaces, and ensure the continued enjoyment of historic and scenic areas.

Conservation easements may be an option for landowners wanting to control how their piece of native prairie is managed in future years. Easements move with the land title, and new owners of the land must accept the terms of the easement, or negotiate new terms with the parties involved in the easement.

Conservation easements are new to Saskatchewan. Legislation was enacted in Saskatchewan in January 1997 which allows these voluntary legal agreements to be struck between landowners and a qualified conservation agency of the landowner's choice. The landowner continues to own and manage the land. If the land is sold, the easement is transferred with the land title.

There can be tax benefits to granting conservation easements. Revenue Canada views the conservation easement as a charitable gift, which is tax deductible. The difference between the land's market value with the easement and the value without the easement is the value of the charitable gift. This tax benefit may be observed at the time of donation or extended over 5 years. See Appendix B for a list

of conservation agencies with whom you can hold an easement in Saskatchewan.

Donate or sell your land to a conservation organization

Many landowners have decided to protect their native prairie land by donating or selling it to conservation agencies like the Saskatchewan Wetland Conservation Corporation, Ducks Unlimited Canada, the Nature Conservancy of Canada, or Saskatchewan Wildlife Federation. These agencies are set up to manage natural areas. They can assume the title on the land and ensure that the land stays free from cultivation and development into the future.

Landowners can donate land directly to these conservation organisations and receive a tax receipt for a charitable donation. Alternatively, landowners may wish to sell a parcel of their land to a conservation agency.

Last Mountain lake farmers donate land

George Colvin is a landowner along the west side of Last Mountain Lake in an area south of Regina Beach. One of his land holdings is a half section, 320 acres, which has particularly good wildlife habitat on it. About 150 acres of this land is still native. Colvin rents the pasture area to a local rancher who manages the grass land. The half section has been under increasing pressure to be subdivided and developed for cottages and businesses.

"My grandfather homesteaded the land in 1903," says George. "Because there has been so much activity in the area, I wanted to leave some of the land undeveloped as it was when my grandfather came here. If I left the land unprotected it would eventually be subdivided and developed."

It has taken Colvin some time, over 10 years, to figure out the best way to conserve this half section. George heard about the Nature Conservancy of Canada (NCC) and the role it was playing in conserving natural areas in Canada. He liked the fact that the NCC is an independent conservation organisation. He decided to donate his half section to the Nature Conservancy of Canada.

"I've given them the land title," George says. "One of the conditions of the donation is that I have retained a life interest in the land. The Nature Conservancy will ensure the land is conserved after I'm gone, however, and that's comforting to know." A donation with a "life interest" means that George can continue to live on his land as long as he wishes. Until he does leave, he continues to pay the taxes and and collect any lease revenues.

On the east side of Last Mountain Lake, Arnie Robinson and Emily Robinson are landowners with a similar interest in conserving native prairie. They too wanted to donate native prairie to a conservation organisation to keep it in its natural state into the future.

"We didn't want the land developed into resort lots," says Arnie. "It's one and a half miles of lake front land along Last Mountain Lake, and it's a beautiful area with plenty of wildlife."

After careful consideration, Arnie and Emily decided to donate their land to the Saskatchewan Wetland Conservation Corporation (SWCC). It took some time to get the donation arrangements in place. They had discussions with their accountant and lawyer. SWCC arranged to have the land appraised. The deal was finalized in 1997, and SWCC now has title to the land. Arnie and Emily received charitable tax receipts for the value of their land.

"I'm happy that the land will be protected into the future," says Arnie. "It will be nice to have some undeveloped areas along Last Mountain Lake for wildlife and people to enjoy for years to come."

We hope that this guide has been of assistance in your efforts to care for your prairie.

Photo courtesy of Prairie Farm Rehabilitation Administration

Our native prairie is a heritage worth conserving for the future. The stewardship of native prairie on privately-owned land is the foundation of prairie conservation in this province. Management and long-term planning can help ensure that native prairie exists in Saskatchewan for generations to come.

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Appendix A - Assessing native remnants and conservation easements

Native prairie, along with all other Saskatchewan land, is assessed by the Saskatchewan Assessment Management Agency (SAMA). SAMA is responsible for the management of assessment policy in Saskatchewan. Land assessment in Saskatchewan has undergone extensive updating recently with the introduction of SAMA's 1997 Assessment Valuation System.

Agriculture land is valued on the basis of productivity, and is related to the average selling prices as of June 30, 1994. For land suitable for crop production, productivity is based on long term wheat yield data. For pasture land, productivity is based on its potential carrying capacity of the land. Assessment adjustments are made to reflect local economic circumstances.

The general formula for cultivated land is :

cultivated land assessment = productive capacity x cost of production adjustments x economic adjustments

Pasture land is more difficult to assess than crop land. Assessors must determine the condition of the pasture by rating the land in respect to over grazing, carrying capacity, available water, fencing recreational use, location, sales of similar land and other factors.

The general formula for pasture land is:

pasture land assessment = productive capacity x economic adjustments

Productive capacity is determined by potential carrying capacity, using methods developed by Saskatchewan Research Council. Carrying capacity is the ability to graze without degrading the long-term potential of the pasture. It is measured in animal unit months (AUM), which is a 1000 pound cow with or without a calf grazing on a pasture for one month. Carrying capacity is dependent on range site characteristics, such as the amount of native vs. seeded grass, the amount of tree cover and the depth to water table.

The assessment value of the land is then multiplied by a percentage of the value established by the provincial government to get the taxable assessment. Range land is valued at 50%, other agricultural land is valued at 70%, and commercial land is 100%. The taxable assessment is then multiplied by the local municipal mill rate to determine the property taxes.

Native prairie is assessed like all other land in Saskatchewan, according to its highest and best use within the agricultural land category. The land may have potential to be used for grain production, beef ranching, resort development, recreational property or as an acreage. This may not be in the best interest of native prairie, especially if it is on soils that are suited for annual crop production, such as clays or loams or in an area which is highly desired for development. In many cases, remnant native prairie may be assessed as "native arable" (as arable crop land), and consequently annual taxes will be higher.

If the remnant native prairie is located on land which has soil limitations due to excessive stoniness, topography, high salinity, poor soil texture or wet conditions, it will probably be assessed in the non-arable tax class, and will receive a lower rating. Consequently taxes will be lower.

How can your assessment be appealed?

If landowners are not satisfied with the assessment rating given for a parcel of native prairie, they can appeal the rating with their local municipality. Perhaps the parcel of native prairie is rated arable, whereas the landowner feels it should be rated non-arable. Landowners have a 30 day period after assessment notices are mailed out each year that they can appeal their assessment. Assessment notices are normally mailed out to landowners in the summer by their local municipality. Landowners must submit evidence that the assessment made on their land was done in error. Appeals come before a local board of revision established by the local municipality, and if the landowner is not happy with the outcome, the appeal can be taken to a regional board.

How do conservation easements affect the assessment of the land?

If a conservation easement is placed on the land title, stating that the land is to remain in native prairie for the long term, the landowner may have a case for the Board of Revision that the land should be rated in the non-arable tax class. More information should be obtained from your local Saskatchewan Assessment Management Agency office to determine the assessment implications of conservation easements.

More information is available from the SAMA office nearest you:

Melfort	1-800-216-4427
North Battleford	1-800-824-2570
Regina	1-800-498-0578
Saskatoon	1-800-667-5203
Swift Current	1-800-498-0574
Weyburn	1-800-498-0575
Yorkton	1-800-498-0576

Appendix B - Conservation agencies who may hold easements

Some agencies which may hold conservation easements:

	Phone	**Fax**
Ducks Unlimited Canada	306-569-0424	306-565-3699
Meewasin Valley Authority	306-665-6887	306-665-6117
Nature Saskatchewan	306-780-9273	306-780-9263
Rocky Mountain Elk Foundation	306-691-2854	306-691-2856
Saskatchewan Environment and Resource Management	306-787-2314	306-787-9544
Saskatchewan Parks and Recreational Association	306-780-9262	306-780-9257
Saskatchewan Wetland Conservation Corporation	306-787-0726	306-787-0780
Saskatchewan Wildlife Federation	306-692-8812	306-692-4370
Wakamow Valley Authority	306-692-2717	306-692-8188
Wascana Centre Authority	306-522-3661	306-565-2742
Nature Conservancy of Canada	306-787-6987	306-787-0780
Trans-Canada Trail Foundation	306-780-9262	306-525-2283

Appendix C - Agencies and associations with information on native prairie conservation and restoration

Conservation of native prairie

Agriculture and Agri-Food Canada, Brandon Research Centre, Box 1000A, R.R. #3, Brandon, Manitoba, R7A 5Y3, (204) 726-7650, fax (204) 728-3858,

Mandate: Centre of Excellence for land resource management in western Canada

Contact: Dr. Reg Kucey, Director

Internet: http://res.agr.ca/brandon/brc/welcome.htm

Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, Alberta, T4L 1W1, (403) 782-8100, fax (403) 782-6120

Mandate: the centre manages breeding programs and improves crop-production systems for use in the agri-food industries of the western parkland and northwestern Canada.

Contact: Dr. Perry Lidster, Director, (403) 782-8100

Internet: http://res.agr.ca/lacombe/welcome.htm

Publications:

Canada's Forage Resources

Agriculture and Agri-Food Canada, Prairie Farm Rehabilitation Administration (PFRA), 1800 Hamilton Street, Regina, Saskatchewan, S4P 4L2, (306) 780-5110, fax (306) 780-5018

Mandate: To work with Prairie people to build a viable agricultural industry and to support a sound rural economy, healthy environment and a high quality of life.

Contact: Communications Division, (306) 780-7385

Internet: http://www.agr.ca/pfra/

Agriculture and Agri-Food Canada, Semiarid Prairie Agricultural Research Centre, Box 1030, Airport Road, Swift Current, Saskatchewan, S9H 3X2, (306) 778-7200, fax (306) 773-9123

Mandate: to conduct research and development in the following areas: land resource conservation, cereals, forages and field crops. Its focus is on the Brown soil zone and the drier areas of the Dark Brown soil zone in southwestern Saskatchewan and southeastern Alberta.

Contact: Dr. Wayne Lindwall, Director, (306) 778-7200

Internet: http://res.agr.ca/swift/welcome.htm

Library open to the public

Environment Canada, Inquiry Centre, 351 St. Joseph Boulevard, Hull, Quebec, K1A 0H3, 1-800-668-6767, fax 819-953-2225

Mandate: to help Canadians live and prosper in an environment that is properly protected and conserved.

Internet: http://www.mb.ec.gc.ca/

Publications:

Conservation of Canadian Prairie Grasslands, A Landowner's Guide, 1992.

Meewasin Valley Authority, 402 Third Avenue South, Saskatoon, Saskatchewan, S7K 3G5, (306) 665- 6887 fax (306) 665-6117

Mandate: to protect the natural and cultural heritage resources of the South Saskatchewan River Valley in Saskatoon, Saskatchewan and area.

Contact: Luc Delanoy, Conservation and Facilities Officer

Internet: http://www.lights.com/meewasin/index.html

Northern Prairie Science Center, 8711 37th Street Southeast, Jamestown, North Dakota, 5841, (701) 253-5500, fax (701)-253-5553

Mandate: to develop research information on the quantitative ecological requirements for sustainable wildlife populations, to design and conduct studies of numbers and distribution of flora and fauna including identification of change resulting from habitat loss and modification, and to disseminate the latest in technical information and research findings such that interested audiences benefit to the maximum extent possible.

Internet: http://www.npsc.nbs.gov/

Saskatchewan Environment and Resource Management, 3211 Albert Street, Regina, Saskatchewan, S4S 5W6, (306) 787-2314, fax (306) 787-9544

Mandate: to manage, enhance and protect Saskatchewan's natural and environmental resources - fish, wildlife, lands, forests, parks, air and water - for conservation, recreation, social and economic purposes and to ensure they are sustained for future generations.

Internet: http://www.gov.sk.ca/serm/ENVIRON.HTM

Saskatchewan Wetland Conservation Corporation, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-0726, fax (306) 787-0780

Mandate: To lead and co-ordinate the province's wetland conservation initiatives to ensure the sustainability and biodiversity of the prairie environment for people and wildlife.

Contact: Lesley Hall, Native Prairie Stewardship Program

Internet: http://www.wetland.sk.ca

Publications:

A Question of Value, Native Prairie Stewardship Program factsheet,1996

A Cultural Landscape, Native Prairie Stewardship Program factsheet,1996

Native Prairie Stewardship Program, brochure,1996

Protecting an Ecosystem, Native Prairie Stewardship Program factsheet, 1996

Land Programs, Saskatchewan Soil, Water and Wildlife Habitat Conservation Directory and Referral Book.

University of Saskatchewan, Department of Crop and Horticultural Science and Plant Ecology, Room 4D36, Agriculture Building, 51 Campus Drive, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 5A8, (306) 966-4944, fax (306) 966-5015

Mandate: a centre for research on applied plant science related to crop development, production and management and plant ecology in the Canadian prairies.

Internet: http://www.usask.ca/agriculture/cropsci/

Archeological resources on native prairie

Saskatchewan Archeological Society, #5 - 816 1st Avenue N., Saskatoon, Saskatchewan, S7K 1Y3, (306) 664-4124 fax (306) 665-1928

Contact: Tim Jones

Saskatchewan History and Folklore Society, 1860 Lorne Street, Regina, Saskatchewan S4P 2L7, (306) 780-9204, fax (306) 780-9489

Mandate: to gather, preserve and share the human history and rich folklore of Saskatchewan.

Internet:
http://www.sasknet.com/~SCCO/scii/members/shfs.html

Native prairie plants

Agriculture and Agri-Food Canada, Saskatoon Research Centre, 107 Science Place, Saskatoon, Saskatchewan, S7N 0X2,
(306) 956-7200, fax: (306) 956-7247

Mandate: includes crop production and pest control practices for the parkland region, conservation, documentation and distribution of diverse germplasm by Plant Gene Resources of Canada

Contact: Dr. Ashley O'Sullivan, Director, (306) 956-7200

Internet: http://res.agr.ca/sask/mainpage.html

Alberta Agriculture, Food and Rural Development, 7000-113 St., Edmonton, Alberta, T6H 5T6, (800) 292-5697, fax (403) 422-8835

Mandate: To enable the growth of a globally competitive, sustainable agriculture and food industry in Alberta through essential policy, legislation, information and services.

Internet: http://www.agric.gov.ab.ca

Publications:

Alberta Range Plants and Their Classification, 1986, #FS134/06

Poisonous Plants on Range and Pasture, 1991, #FS130/666-1

A Guide to Using Native Plants on Disturbed Lands

Ducks Unlimited Canada, Box 4465, 1606 4th Avenue, Regina, Saskatchewan, S4P 3W7, (306) 569-0424, fax (306) 565-3699

Mandate: to conserve wetlands and associated habitats for the benefit of North America's waterfowl, which in turn provide healthy environments for wildlife and people.

Contact: Lee Moats, Prairie Care Program

Internet: http://www.ducks.ca

Publications:

Native Prairie Plants, 1993.

Revegetating with Native Grasses, 1995.

Wet and Wild Forages, 1989.

Mixed Grass Prairie Habitat Restoration project, Box 280, Simpson, Saskatchewan, S0G 4M0, (306) 836-2022 fax (306) 836-2010

Mandate: to implement wildlife habitat conservation objectives of the North American Waterfowl Management Plan within the Prairie Habitat Joint Venture region.

Contact: Dean Nernberg

Native Plant Society of Saskatchewan, c/o Andy Hanmmermeister, P.O. Box 21099, Saskatoon, Saskatchewan, S7H 5N9, (306) 668-3940, fax (306) 373-4462

Mandate: to increase understanding and conservation of native plants through facilitation, communication, research and education among interested organizations and with the public

Contact: Andy Hammermeister, Co-ordinator

E-mail: info@npss.sk.ca

Internet: http://www.npss.sk.ca

Publications:

Native Plant News

Recommendations for the Collection and Use of Native Plants

Your Expert Choice, A Native Plant Material Directory

Saskatchewan Grazing and Pasture Technology Program, 2nd Floor, Canada Centre West Building, Exhibition Grounds, Box 4752, Regina, Saskatchewan, S4P 3Y4, (306) 757-9499, fax (306) 569-8799

Mandate: to extend grazing and pasture technology to Saskatchewan producers.

Publications:

Field Guide, Identification of Common Range Plants of Northern Saskatchewan, 1994.

Field Guide, Identification of Common Range Plants of Southern Saskatchewan

Seeded Native Range Plants, 1995

Saskatchewan Wetland Conservation Corporation, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-0726, fax (306) 787-0780

Mandate: To lead and co-ordinate the province's wetland conservation initiatives to ensure the sustainability and biodiversity of the prairie environment for people and wildlife.

Contact: Lesley Hall, Native Prairie Stewardship Program

Internet: http://www.wetland.sk.ca

Publications:

Plants with a Sense of Community, Native Prairie Stewardship Program factsheet,1996

Society for Range Management, 1839 York Street, Denver, Colorado 80206, (303)355-7070, fax (303) 355-5059

Mandate: a professional partnership in the scientific study, protection and management of all rangeland resources.

Internet: http://www.srm.org

Publications:

Rangeland Plant Physiology, book

Wildland Plants: Physiological, Ecology and Developmental Morphology, book

Restoration of native prairie

Environment Canada, Canadian Wildlife Service, Prairie and Northern Wildlife Research Centre, 115 Perimeter Road, Saskatoon, Saskatchewan, S7N 0X4, (306) 975-4087, fax (306) 975-4089,

Mandate: The Canadian Wildlife Service handles wildlife matters that are the responsibility of the federal government, including protection and management of migratory birds, nationally significant habitat and endangered species, as well as work on other wildlife issues of national and international importance.

internet http://www.ec.gc.ca/cws-scf/cwshome_e.html

Publications:

Native Species Mixtures for Restoration in the Prairie and Parkland Ecoregions of Saskatchewan, 1995

Prairie Habitats Inc., Box 1, Argyle, Manitoba, R0C 0B0, (204) 467-9371, fax (204) 467-5004,

Mandate: conserving biological diversity by encouraging the use of locally collected seed in ecological restoration.

Internet: http:\\www.prairiehabitats.com

Publications:

Restoring Canada's Native Prairies, A Practical Manual, 1995

Royal Saskatchewan Museum, College Avenue and Albert Street, Regina, Saskatchewan, S4P 3V7, (306) 787- 2815, fax (306) 787-2820

Publications:

Growing a Native Prairie Garden, Regina Prairie Garden Project, 1997.

University of Wisconsin Press, 2537 Daniels Street, Madison, Wisconsin, 53718, (608) 224-3880, fax (800) 258-3632

Contact: Journal Division

Publications:

Restoration and Management Notes

Wildlife

Agriculture and Agri-Food Canada PFRA Shelterbelt Centre, Box 940, Indian Head, Saskatchewan, S0G 2K0, (306) 695-2284, fax (306) 695-2568

Mandate: a federal tree nursery that promotes economic security, rural development and agricultural sustainability by producing hardy trees and shrubs for prairie farmers and other eligible clients.

Contact: Dr. Gordon Howe, Director

Internet: http://www.agr.ca/pfra/shbgene.htm

Publications:

Combat wildlife damage with common sense control methods.

Deer attractants.

Designing tree plantings for wildlife.

Planting Trees for Wildlife

Protecting trees from animal damage.

Tree and shrubs for wildlife habitat plantings

Environment Canada, Inquiry Centre, 351 St. Joseph Boulevard, Hull, Quebec, K1A 0H3, 1-800-668-6767, fax 819-953-2225

Mandate: to help Canadians live and prosper in an environment that is properly protected and conserved.

Internet: http://www.mb.ec.gc.ca/

Publications:

Wildlife Habitat: A Handbook for Canada's Prairies & Parklands

Prairie Raptors: A Landowner's Guide

National Fish and Wildlife Foundation, 1120 Connecticut Ave., NW Suite 900, Washington, DC 20036, (202) 857-0166, fax (202) 857-0162

Mandate: a nonprofit organization dedicated to the conservation of natural resources — fish, wildlife, and plants. Among its goals are species habitat protection, environmental education, public policy development, natural resource management, habitat and ecosystem rehabilitation and restoration, and leadership training for conservation professionals

Internet: http://www.nfwf.org/

Nature Saskatchewan, Room 206, 1860 Lorne Street, Regina, Saskatchewan, S4P 2L7, (800) 667-4668, (306) 780-9273, fax (306) 780-9263

Mandate: to promote the appreciation and understanding of our natural environment through education, conservation and research.

Contact: nature.sask@ucomnet.unibase.com

Internet: http://www.unibase.com/~nature/

Publications :

Blue Jay Journal

Nature Views newsletter

Audio and video loans

Also sell many wildlife and conservation books through the Blue Jay Bookshop.

Saskatchewan Wetland Conservation Corporation, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-0726, fax (306) 787-0780

Mandate: To lead and co-ordinate the province's wetland conservation initiatives to ensure the sustainability and biodiversity of the prairie environment for people and wildlife.

Contact: Lesley Hall, Native Prairie Stewardship Program

Internet: http://www.wetland.sk.ca

Publications:

Songbirds of Saskatchewan, 1997

Your Wildlife Neighbours, Native Prairie Stewardship Program factsheet,1996

Saskatchewan Wildlife Federation, 444 River Street West, Moose Jaw, Saskatchewan, S6H 6J6, (306) 692-8812, fax (306) 692-4370

Mandate: to preserve habitat for all species of fish and wildlife

Internet: http://www.wbm.ca/wilderness/swf/

Society for Range Management, 1839 York Street, Denver, Colorado 80206, (303)355-7070, fax (303) 355-5059

Mandate: a professional partnership in the scientific study, protection and management of all rangeland resources.

Internet: http://www.srm.org

Publications:

Rangeland Wildlife, book

Rangeland Entomology, book

Wildlife Habitat Canada, 7 Hinton Avenue North, Suite 200, Ottawa, Ontario, K1Y 4P1, (613) 722-2090, fax (613) 722-3318

Mandate: a national non-profit organization dedicated to working with private citizens, governments, non-government organizations, and industry to conserve the great variety of wildlife habitats across Canada.

Internet: http://www.ec.gc.ca/ecs/biodiv/whabres.html

Setting goals and making plans

Agriculture and Agri-Food Canada PFRA Shelterbelt Centre, Box 940, Indian Head, Saskatchewan, S0G 2K0, (306) 695-2284, fax (306) 695-2568

Mandate: a federal tree nursery that promotes economic security, rural development and agricultural sustainability by producing hardy trees and shrubs for prairie farmers and other eligible clients.

Contact: Dr. Gordon Howe, Director

Internet: http://www.agr.ca/pfra/shbgene.htm

Publications:

Planning field shelterbelts, 1996

Planning farm shelterbelts, 1996

Saskatchewan Map and Aerial Photograph Distribution Centre, Regina, Saskatchewan, (306) 787-2799

Publications:

Township aerial photographs

Ontario Soil and Crop Improvement Association, Stone Road West, Guelph, Ontario, Canada, N1G 4Y2, (519) 826-4214, fax (519) 826-4224

Mandate: to promote the responsible economic management of soil, water and crops.

Internet: http://res.agr.ca/lond/gp/efp/efpmenu.html

Publications:

Ontario Environmental Farm Plan, Ontario Farm Environmental Coalition, 1994

Saskatchewan Grazing and Pasture Technology Program, 2nd Floor, Canada Centre West Building, Exhibition Grounds, Box 4752, Regina, Saskatchewan, S4P 3Y4, (306) 757-9499, fax (306) 569-8799

Mandate: to extend grazing and pasture technology to Saskatchewan producers.

Publications:

Range Plan Development, A Practical Guide to Planning for Management and Improvement of Saskatchewan Rangeland, 1990

Saskatchewan Wheat Pool, 2625 Victoria, Avenue, Regina, Saskatchewan, S4T 7T9, (306) 569-4220 fax (306) 569-5077

Mandate: to be the most dynamic agri-business co-operative in the world

Internet: http://www.swp.com

Publications:

The Farm Environmental Assessment Guide.

Controlling exotic and problem vegetation

Agriculture and Agri-Food Canada, Saskatoon Research Centre, 107 Science Place, Saskatoon, Saskatchewan, S7N 0X2,
(306) 956-7200, fax: (306) 956-7247

Mandate: includes crop production and pest control practices for the parkland region, conservation, documentation and distribution of diverse germplasm by Plant Gene Resources of Canada

Contact: Dr. Ashley O'Sullivan, Director, (306) 956-7200

Internet: http://res.agr.ca/sask/mainpage.html

Publications:

Bark scrape to manage aspen, summary of progress to 1994

Bark scrape to manage aspen, summary of progress to 1995

Control of aspen in fencelines, 1996

Grassland condition after brush control, summary of progress to 1996

Management of Pasture Sage: Controlled Grazing or Herbicide? 1994

Sod-seeding forage to improve pasture, summary of progress to 1994

Sod-seeding forage to improve pasture, summary of progress to 1995

The best time to control aspen and balsam suckers, 1996

Western snowberry control, 1994

Wiper applied herbicides to manage brush, summary of progress to 1994

Wiper applied herbicides to manage brush, summary of progress to 1995

Montana State University Extension Service, Department of Animal and Range Sciences, Room 221, Linfield Hall, Box 172900, Montana State University, Bozeman, Montana, 59717-2900, (406) 994-3415, fax (406) 994-5589

Internet: http://animalrangeextension.montana.edu/

Publications:

Leafy Spurge, Biology, Ecology and Management, 1995

Saskatchewan Agriculture and Food, Communications Branch, B5-3085 Albert Street, Regina, Saskatchewan, S4S 0B1, (306) 787-5157, fax (306) 787-0216

Mandate: to promote the growth of an agriculture and food sector in Saskatchewan that embraces change to meet the challenges and opportunities of global competition.

Internet: http://www.agr.gov.sk.ca/saf/

Publications:

Foxtail Barley in Forage and Pasture

Management of Pasture Sage, Peat, H., G. Bowes, 1994.

University of Saskatchewan, Department of Horticultural Science and Plant Ecology, Room 4D36, Agriculture Building, 51 Campus Drive, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 5A8, (306) 966-4944, fax (306) 966-5015

Mandate: a centre for research on applied plant science related to crop development, production and management and plant ecology in the Canadian prairies.

Internet: http://www.usask.ca/agriculture/cropsci/

Prescribed burning

University of Saskatchewan, Department of Horticultural Science and Plant Ecology, Room 4D36, Agriculture Building, 51 Campus Drive, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 5A8, (306) 966-4944, fax (306) 966-5015

Mandate: a centre for research on applied plant science related to crop development, production and management and plant ecology in the Canadian prairies.

Internet: http://www.usask.ca/agriculture/cropsci/

Ducks Unlimited Canada, Box 4465, 1606 4th Avenue, Regina, Saskatchewan, S4P 3W7, (306) 569-0424, fax (306) 565-3699

Mandate: to conserve wetlands and associated habitats for the benefit of North America's waterfowl, which in turn provide healthy environments for wildlife and people.

Contact: Lee Moats, Prairie Care Program

Internet: http://www.ducks.ca

The following publications contain information on the use of fire in prairie areas:

Conservation of Canadian Prairie Grasslands (1992). Garry Trottier. Ottawa, Ontario: Minister of Supply and Services Canada. (Copies may be obtained from SWCC, #202-2050 Cornwall St., Regina, SK, S4P 2K5, phone: (306) 787-0726)

How to Manage Small Prairie Fires (1988). W.R. Pauly. Madison, Wisconsin: Dade County Parks Commission. (Copies may be obtained from Dade County Parks Commission, 4318 Robertson Road, Madison, WI, 53714).

Restoring Canada's Native Prairies (1995). John P. Morgan, Douglas R. Collicutt, and Jaqueline D. Thompson. Argyle, Manitoba: Prairie Habitats. (Copies may be obtained from the Manitoba Naturalists Society, 401-63 Albert St., Winnipeg, MB, R3B 1G4, phone: (204) 943-9029).

Prescribed Burning Guidelines in the Northern Great Plains (1989). Higgins, Kenneth, Arnold Kruse, and James Piehl. Brookings, South Dakota: South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University, United States Department of Agriculture Cooperative Publication EC760. (Copies available from South Dakota Cooperative Fish and Wildlife Research Unit, Box 2206, Brookings, SD, 57007).

Livestock and grazing management

Agriculture and Agri-Food Canada, Departmental Publications Service, Corporate Services Branch, Agriculture and Agri-Food Canada, Ottawa, K1A 0C5, (613) 759-6610/6626, fax (613) 759-6726

Mandate: the development, adaptation and competitiveness of the agriculture and agri-food sector generally

Internet: http://www.agr.ca/

Publications:

Reed canarygrass: A production guide, #0805/E

Alsike clover, #1264/E

Sainfoin for western Canada, #1470/E

Cicer milkvetch for western Canada, #1536/E

Management of prairie rangeland, #1589/E

Growing Russian wild ryegrass, #1607/E

Sweetclover production in western Canada, #1613/E

Red clover, #1614/E

Growing and managing alfalfa in Canada, #1705/E

Irrigated pastures in western Canada, #1862/E

Meadow bromegrass, #1889/E

Agriculture and Agri-Food Canada, Brandon Research Centre, Box 1000A, R.R. #3, Brandon, Manitoba, R7A 5Y3, (204) 726-7650, fax (204) 728-3858,

Mandate: Centre of Excellence for land resource management in western Canada

Contact: Dr. Paul McCaughey, Researcher in Beef Pasture Management

Internet: http://res.agr.ca/brandon/brc/welcome.htm

Agriculture and Agri-Food Canada, Prairie Farm Rehabilitation Administration (PFRA), 1800 Hamilton Street, Regina, Saskatchewan, S4P 4L2, (306) 780-5110, fax (306) 780-5018

Mandate: To work with Prairie people to build a viable agricultural industry and to support a sound rural economy, healthy environment and a high quality of life.

Contact: Communications Division, (306) 780-7385

Internet: http://www.agr.ca/pfra/

Publications:

Forage management, production and maintenance, 1991

Forage establishment, getting it to grow, 1991

Forage selection, choosing the right forage, 1991

Alberta Agriculture, Food and Rural Development, 7000-113 St., Edmonton, Alberta, T6H 5T6, (800) 292-5697, fax (403) 422-8835

Mandate: To enable the growth of a globally competitive, sustainable agriculture and food industry in Alberta through essential policy, legislation, information and services.

Internet: http://www.agric.gov.ab.ca

Publications:

Alberta Range Plants and Their Classification, 1986, #FS134/06

Grazing Tame Pastures Effectively, 1984, #FS130/53-1

Grazing Systems for Alberta Ranges, 1979, #FS134/14

Managing Yearlings on Pasture, Revised 1989, FS420/10-3

Native Range Fertilizer Guide, 1988, #FS130/541

Poisonous Plants on Range and Pasture, 1991, #FS130/666-1

Range and Pasture Management When Dealing with Drought, 1989, #FS130/14-1

Systematic Beef Herd Management, 1987, #FS420/10-4

Understanding the Animal Unit Month (AUM), 1987, #FS420/16-1

Winter Cereals for Pasture, #1993, FS133/20-1

Publications for Sale:

A Guide to Using Native Plants on Disturbed Lands

Alberta Forage Manual

Beef Cow-Calf Manual

Beef Herd Management, Reference Binder and Study Guide, 1995

Caring for the Green Zone, Riparian Areas and Grazing Management, Canada-Alberta Environmentally Corrals For

Handling Beef Cattle

Fencing with Electricity

Horse Handling Facilities

Toxicological Hazards of Oilfield Pollutants to Cattle

Montana State University Extension Service, Department of Animal and Range Sciences, Room 221, Linfield Hall, Box 172900, Montana State University, Bozeman, Montana, 59717-2900, (406) 994-3415, fax (406) 994-5589

Internet: http://animalrangeextension.montana.edu/

Publications:

Can I Monitor My Range Effectively and Quickly?

Do Some Cows Prefer to Graze Uplands Rather Than Riparian Areas?

Saskatchewan Agriculture and Food, Communications Branch, B5-3085 Albert Street, Regina, Saskatchewan, S4S 0B1, (306) 787-5157, fax (306) 787-0216

Mandate: to promote the growth of an agriculture and food sector in Saskatchewan that embraces change to meet the challenges and opportunities of global competition.

Internet: http://www.agr.gov.sk.ca/saf/

Publications:

Annual Ryegrass Production in Saskatchewan

Dahurian Wildrye

Grazing Mixedwood Forests in Saskatchewan

Initial Stocking Rate Recommendations for Seeded Forages in Saskatchewan

Managing Saskatchewan Rangeland, Pyle, W., W. Johnson, D. Fraser.

Prairie Grasslands, Rempel, K., Agriculture Awareness Series

Russian Wildrye for Pasture

Saskatchewan Forage Crop Production Guide 1997

Winter Swath Grazing

Saskatchewan Grazing and Pasture Technology Program, 2nd Floor, Canada Centre West Building, Exhibition Grounds, Box 4752, Regina, Saskatchewan, S4P 3Y4, (306) 757-9499, fax (306) 569-8799

Mandate: to extend grazing and pasture technology to Saskatchewan producers.

Publications:

Grazing Systems for Rangeland of Southern Saskatchewan

Grazing Steers vs. Annual Cropping

Society for Range Management, 1839 York Street, Denver, Colorado 80206, (303)355-7070, fax (303) 355-5059

Mandate: a professional partnership in the scientific study, protection and management of all rangeland resources.

Internet: http://www.srm.org

Publications:

Journal of Range Management, journal

Rangelands, newsletter

Specifications for Structural Range Improvements, book

Water, wetlands and riparian management

Agriculture and Agri-Food Canada, Prairie Farm Rehabilitation Administration (PFRA), 1800 Hamilton Street, Regina, Saskatchewan, S4P 4L2, (306) 780-5110, fax (306) 780-5018

Mandate: To work with Prairie people to build a viable agricultural industry and to support a sound rural economy, healthy environment and a high quality of life.

Contact: Communications Division, (306) 780-7385

Internet: http://www.agr.ca/pfra/

Publications:

A consumer's guide to wind-powered water pumping units, 1994

Backflood Irrigation, 1989

Backflood Irrigation, factsheet

Dugout Site Testing, factsheet

Dugout Water Quality, factsheet

Landscaping Prairie Style

Prairie Water News, newsletter

Spring Development, factsheet

Water Conservation

Water for Tomorrow

Water..Nature's most precious gift

Alberta Agriculture, Food and Rural Development, 7000-113 St., Edmonton, Alberta, T6H 5T6, (800) 292-5697, fax (403) 422-8835

Mandate: To enable the growth of a globally competitive, sustainable agriculture and food industry in Alberta through essential policy, legislation, information and services.

Internet: http://www.agric.gov.ab.ca

Publications:

Pasture Water Systems, 1994, #FS400/716-3

Water Requirements for Livestock, 1995, #FS400/716-1

Caring for the Green Zone, Riparian Areas and Grazing Management

Fisheries and Oceans Canada, 200 Kent Street, Ottawa, Ontario, K1A 0E6, (613) 993-0999, fax (613) 996-9055

Mandate: includes managing Canada's oceans and major waterways so that they are clean, safe, productive and accessible and to ensure sustainable use of fisheries resources

Internet: http://www.ncr.dfo.ca/

Publications:

Fish Habitat in the Prairie Provinces.

Protecting Your Shorelands.

Prairie Agricultural Machinery Institute (PAMI), Box 1150, Humboldt, Saskatchewan, S0K 2A0, (800) 567-7264, (306) 682-5033fax (306) 682-5080

Mandate:

Publications:

A Stockman's Guide to Range Livestock Watering from Surface Waters, 1996

Saskatchewan Soil Conservation Association, Box 1360, Indian Head, Saskatchewan, S0G 2K0, (306) 695-4234, fax (306) 695-4236

Mandate: to promote conservation production systems that improve the land for future generations.

Contact: Doug McKell, Executive Manager

Internet: http://paridss.usask.ca/consgroups/ssca/sscahome.htm

Publications:

Riparian Areas, An Undervalued Saskatchewan Resource

Saskatchewan Wetland Conservation Corporation, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-0726, fax (306) 787-0780

Mandate: To lead and co-ordinate the province's wetland conservation initiatives to ensure the sustainability and biodiversity of the prairie environment for people and wildlife.

Contact: Lesley Hall, Native Prairie Stewardship Program

Internet: http://www.wetland.sk.ca

Publications:

Managing Prairie Wetlands, Native Prairie Stewardship Program factsheet,1996

Society for Range Management, 1839 York Street, Denver, Colorado 80206, (303)355-7070, fax (303) 355-5059

Mandate: a professional partnership in the scientific study, protection and management of all rangeland resources.

Internet: http://www.srm.org

Publications:

Facilities for Watering Livestock and Wildlife, book

Income opportunities from your native prairie

Agriculture and Agri-Food Canada PFRA Shelterbelt Centre, Box 940, Indian Head, Saskatchewan, S0G 2K0, (306) 695-2284, fax (306) 695-2568

Mandate: a federal tree nursery that promotes economic security, rural development and agricultural sustainability by producing hardy trees and shrubs for prairie farmers and other eligible clients.

Contact: Dr. Gordon Howe, Director

Internet: http://www.agr.ca/pfra/shbgene.htm

Publications:

Fruit-bearing shrubs for multi-use shelterbelts & orchards

Maple Syrup production on the prairies.

Wood-turning.

Ducks Unlimited Canada, Box 4465, 1606 4th Avenue, Regina, Saskatchewan, S4P 3W7, (306) 569-0424, fax (306) 565-3699

Mandate: to conserve wetlands and associated habitats for the benefit of North America's waterfowl, which in turn provide healthy environments for wildlife and people.

Contact: Lee Moats, Prairie Care Program

Internet: http://www.ducks.ca

Publications:

Native Plants, Exploring Grass Seed Production and Markets, 1993

Native Plant Society of Saskatchewan, c/o Andy Hanmmermeister, P.O. Box 21099, Saskatoon, Saskatchewan, S7H 5N9, (306) 668-3940, fax (306) 373-4462

Mandate: to increase understanding and conservation of native plants through facilitation, communication, research and education among interested organizations and with the public

Contact: Andy Hammermeister, Co-ordinator

E-mail: info@npss.sk.ca

Internet: http://www.npss.sk.ca

Publications:

Market Assessment of Native Plant Materials in Saskatchewan: A Summary, 1997

Saskatchewan Agriculture and Food, Communications Branch, B5-3085 Albert Street, Regina, Saskatchewan, S4S 0B1, (306) 787-5157, fax (306) 787-0216

Mandate: to promote the growth of an agriculture and food sector in Saskatchewan that embraces change to meet the challenges and opportunities of global competition.

Internet: http://www.agr.gov.sk.ca/saf/

Publications:

Production and Marketing of Native Grass Seed

Saskatchewan Wetland Conservation Corporation, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-0726, fax (306) 787-0780

Mandate: To lead and co-ordinate the province's wetland conservation initiatives to ensure the sustainability and biodiversity of the prairie environment for people and wildlife.

Contact: Lesley Hall, Native Prairie Stewardship Program

Internet: http://www.wetland.sk.ca

Publications:

Harvesting and Marketing Native Seeds, Native Prairie Stewardship Program factsheet,1996

Legal tools for conserving native prairie

Nature Conservancy of Canada, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-6987, fax (306) 787-0780

Mandate: preserving Canada's biodiversity by protecting habitats through outright purchase, donations or conservation agreements.

Contact: Gordon Ignatiuk

E-mail: natue@natureconservancy.ca

Internet: http://www.natureconservancy.ca

Saskatchewan Assessment Management Agency, 1600-1920 Broad Street, Regina, Saskatchewan, S4P 3V2, (800) 667-7262, (306) 924-8000, fax (306) 924-8070

Mandate: responsible for the management of the assessment policy in Saskatchewan.

Publications:

1997 Agricultural Land Valuation, Assessment '97, Fact Sheet #4.

Saskatchewan Wetland Conservation Corporation, Room 101-2022 Cornwall Street, Regina, Saskatchewan, S4P 2K5, (306) 787-0726, fax (306) 787-0780

Mandate: To lead and co-ordinate the province's wetland conservation initiatives to ensure the sustainability and biodiversity of the prairie environment for people and wildlife.

Contact: Lesley Hall, Native Prairie Stewardship Program

Internet: http://www.wetland.sk.ca

Publications:

Benefitting through Conservation Easements, brochure, 1997.

Appendix D - Saskatchewan Agriculture and Food Rural Service Centres

Rural Service Centres have publications available and audio visual materials for loan. Some of these materials pertain directly to conservation of native prairie. Contact the Rural Service Centre nearest you for more information.

Internet reference: http://www.gov.sk.ca/govt/agfood/rsc's.htm

Assiniboia Rural Service Centre, 401 - 1st Avenue West, Box 250, Assiniboia, Saskatchewan, S0H 0B0, (306) 642-7225, fax (306) 642-7229, email: swaiting@agr.gov.sk.ca

Biggar Rural Service Centre, 201 - 2nd Avenue West, Box 609, Biggar, Saskatchewan, S0K 0M0, (306) 948-3577, fax (306) 948-3580, email: jitterman@agr.gov.sk.ca

Canora Rural Service Centre, 410 Main Street, Box 839, Canora, Saskatchewan, S0A 0L0, (306) 563-5604, fax (306) 563-6195, email: strach@agr.gov.sk.ca

Carnduff Rural Service Centre, 1312 Railway Avenue, Box 339, Carnduff, Saskatchewan, S0C 0S0, (306) 482-3432, fax (306) 482-3940, email: gschulz@agr.gov.sk.ca

Davidson Rural Service Centre, 103 Lincoln Street, Box 693, Davidson, Saskatchewan, S0G 1A0, (306) 567-2806, fax (306) 567-2082, email: jbrown2@agr.gov.sk.ca

Estevan Rural Service Centre, 1106 - 6th Street, Estevan, Saskatchewan, S4A 1A8, (306) 637-4606, fax (306) 637-4609, email: khiske@agr.gov.sk.ca

Hudson Bay Rural Service Centre, Highway #3 West, Box 609, Hudson Bay, Saskatchewan, S0E 0Y0, (306) 865-2272, fax (306) 865-3888, email: jbinkley@agr.gov.sk.ca

Humboldt Rural Service Centre, 311 Main Street, Box 660, Humboldt, Saskatchewan, S0K 2A0, (306) 682-6700, fax (306) 682-4711, email: dfetter@agr.gov.sk.ca

Indian Head Rural Service Centre, 719 Grand Avenue, Box 399, Indian Head, Saskatchewan, S0G 2K0, (306) 695-4250, fax (306) 695-4246, email: shubbs@agr.gov.sk.ca

Kelvington Rural Service Centre, 201 - 1st Avenue West, Box 250, Kelvington, Saskatchewan, S0A 1W0, (306) 327-4718, fax (306) 327-5238, email: kdaviduk@agr.gov.sk.ca

Kindersley Rural Service Centre, 125 - 1st Avenue East, Box 1690, Kindersley, Saskatchewan, S0L 1S0, (306) 463-5441, fax (306) 463-5469, Email: bstjohn@agr.gov.sk.ca

Lloydminster Rural Service Centre, 4827 - 44th Street, Lloydminster, Saskatchewan, S9V 0G7, (306) 825-6470, fax (306) 825-6479, email: dbenson@agr.gov.sk.ca

Maple Creek Rural Service Centre, 116 Harder Street, Box 938, Maple Creek, Saskatchewan, S0N 1N0, (306) 662-5447, fax (306) 662-5450, email: bcardiff@agr.gov.sk.ca

Meadow Lake Rural Service Centre, 719 - 1st Avenue West, Meadow Lake, Saskatchewan, S9X 1T6, (306) 236-7600, fax (306) 236-7616, email: dlowe@agr.gov.sk.ca

Moose Jaw Rural Service Centre, 45 Thatcher Drive East, Moose Jaw, Saskatchewan, S6H 6V2, (306) 694-3615, fax (306) 694-3811, email: cseaman@agr.gov.sk.ca

Moosomin Rural Service Centre, 806 Broadway Avenue, Box 239, Moosomin, Saskatchewan, S0G 3N0, (306) 435-4525, fax (306) 435-4529, email: dmarshall@agr.gov.sk.ca

Nipawin Rural Service Centre, 201-203 1st Avenue West, Box 2166, Nipawin, Saskatchewan, S0E 1E0, (306) 862-1787, fax (306) 862-1745, email: jwenzel@agr.gov.sk.ca

North Battleford Rural Service Centre, 509 Pioneer Avenue, North Battleford, Saskatchewan, S9A 1E9, (306) 446-7646, fax (306) 446-7447, email: kknisely@agr.gov.sk.ca

Outlook Rural Service Centre, 420 Saskatchewan Avenue West, Box 9, Outlook, Saskatchewan, S0L 2N0, (306) 867-5555, fax (306) 867-9600, email: mmatlock@agr.gov.sk.ca

Prince Albert Rural Service Centre, 800 Central Avenue, Box 3003, Prince Albert, Saskatchewan, S6V 6G1, (306) 953-2770, fax (306) 953-2440, email: vgarrison@agr.gov.sk.ca

Regina Rural Service Centre, Rm 101 - 3085 Albert Street, Regina, Saskatchewan, S4S 0B1, (306) 787-2344, fax (306) 787-0410, email: vleier@agr.gov.sk.ca

Rosetown Rural Service Centre, 615 Highway #4 North, Box 640, Rosetown, Saskatchewan, S0L 2V0, (306) 882-5454, fax (306) 882-5458, email: lhanley@agr.gov.sk.ca

Saskatoon Rural Service Centre, 3735 Thatcher Avenue, Saskatoon, Saskatchewan, S7K 2H6, (306) 933-5090, fax (306) 933-7352, email: dmeriam@agr.gov.sk.ca

Shaunavon Rural Service Centre, 55 - 3rd Avenue East, Box 220, Shaunavon, Saskatchewan, S0N 2M0, (306) 297-5450, fax (306) 297-5455, email: ewills@agr.gov.sk.ca

Swift Current Rural Service Centre, #1 - 1081 Central Avenue North, Swift Current, Saskatchewan, S9H 4Z1, (306) 778-8311, fax (306) 778-8604, email: mmoberg-mitchell@agr.gov.sk.ca

Tisdale Rural Service Centre, 1105 - 99th Street, Box 1480, Tisdale, Saskatchewan, S0E 1T0, (306) 878-8806, fax (306) 878-8810, email: cbeck@agr.gov.sk.ca

Unity Rural Service Centre, #5 - 100 1st Avenue West, Box 480, Unity, Saskatchewan, S0K 4L0, (306) 228-6400, fax (306) 228-6404, email: plogan@agr.gov.sk.ca

Watrous Rural Service Centre, 403 Main Street, Box 1128, Watrous, Saskatchewan, S0K 4T0, (306) 946-3230, fax (306) 946-2799, email: gberry@agr.gov.sk.ca

Weyburn Rural Service Centre, 110 Souris Avenue, Box 2003, Weyburn, Saskatchewan, S4H 2Z9, (306) 848-2374, fax (306) 848-2454, email: cermel@agr.gov.sk.ca

Wynyard Rural Service Centre, 310 Avenue B. West, Wynyard, Saskatchewan, S0A 4T0, (306) 554-2526, fax (306) 554-3127, email: szerr@agr.gov.sk.ca

Yorkton Rural Service Centre, 38 - 5th Avenue North, Yorkton, Saskatchewan, S3N 0Y8, (306) 786-1500, fax (306) 786-1511, email: mrae@agr.gov.sk.ca

Appendix E - Saskatchewan Provincial Library System

Libraries are an excellent source of information on conservation of native prairie. If a library doesn't have a particular book, your librarian can order it for you from another library on an inter-library loan. Many libraries also have computers for the public to access the internet.

For more information on the services your library can provide, please contact the library nearest you, or contact the following:

Saskatchewan Provincial Library
1352 Winnipeg St.
Regina, Saskatchewan
S4P 3V7
(306) 787-2976, fax (306) 787-2029
E-mail: srp.adm@prov.lib.sk.ca
Internet: http://www.lib.sk.ca/

Municipal libraries:

Regina Public Library, (306) 777-6120
Internet: http://rpl.regina.sk.ca/

Saskatoon Public Library
Internet: http://www.publib.saskatoon.sk.ca/

Regional Libraries:

Chinook Regional Library, headquartered in Swift Current

Lakeland Library Region, headquartered in North Battleford

Pahkisimon Nuye?áh Library System , headquartered in La Ronge

Palliser Regional Library, headquartered in Moose Jaw

Parkland Regional Library, headquartered in Yorkton

Southeast Regional Library, headquartered in Weyburn

Wapiti Regional Library, headquartered in Prince Albert

Wheatland Regional Library, headquartered in Saskatoon,
Internet: http://www.wheatland.lib.sk.ca/main.html

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