

Grazing Lease Stewardship Code of Practice



**Alberta Sustainable Resource Development
December 14, 2007**

Alberta

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1. PURPOSE AND GOALS

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

Rangeland ecosystems include grasslands, parklands, mountains, foothills and boreal natural regions.

Rangelands include grasslands, forests, riparian and tame pastures.

The code describes overarching management principles, required practices that flow from these principles, tools for the measurement of range health and the responsibilities of grazing leaseholders. The focus is on promoting sustainable use of public grazing land for the long-term benefit of leaseholders, the environment, industry, recreational users and all Albertans. The *Public Lands Act* and associated regulations provide the requirements associated with grazing leases. This document seeks to describe the roles and responsibilities of leaseholders as they exist at this time.

1A. Public Rangelands and Grazing History

Over thousands of years, Alberta's rangeland ecosystems have adapted to changes in climate and natural disturbance, especially from grazing by larger herbivores like bison, elk, deer and antelope. The effect of native grazing on the landscape was not constant—it was influenced by predators, wildfire and climate. Modern day rangeland management practices required under Alberta's *Grazing Lease Stewardship Code of Practice* seek to imitate the rhythms and patterns of this natural system.

Government grazing leases are among the oldest administrative tools connected with settlement of the province, rural development, development of a livestock economy and an array of public values and benefits. Public grazing leases have existed in what is now the province of Alberta since 1881. The federal government originally sold grazing lease contracts to individual ranching entities in Canada's North West Territory. With the formation of the Province of Alberta in 1905 and the subsequent transfer of responsibility for natural resources to the province in 1930, the federal government transferred the original leases to provincial jurisdiction.

Alberta generally issues grazing lease contracts for terms of ten years, and the contracts are renewable and assignable.

1B. Rangeland Management Practices, Range Health and Functions of Healthy Rangeland

Early rangeland management focused on maintaining or restoring the health of rangeland vegetation and soil. More recently, rangeland management has broadened to deal with the whole grazing ecosystem. This includes the soils, grazing animals, plants, microflora and mineral, nutrient and water cycles. Management of the rangeland resource encompasses

Rangeland management (SRM 2001) is the use of livestock grazing as the principal tool for managing native and tame plant communities.

rangeland management (as per SRM definition), but also includes other landscape uses within the rangeland environment. Thus the variables now include many other components beyond domestic livestock grazing, such as wildlife and human activities. Management of the rangeland resource requires many types of knowledge to maintain the health and function of rangelands and sustain the values and benefits that rangelands provide.

On public rangelands, the Government of Alberta requires grazing leaseholders to employ rangeland management practices as the core component of their stewardship responsibilities. Section 2 of this code describes key principles of rangeland management and the practices that grazing leaseholders must apply to achieve mandated range health goals. Key management variables include stocking rate, stocking density, timing, frequency and duration of grazing.

Important functions of healthy rangeland include:

Range health (Adams et. al 2003) refers to the ability of rangeland to perform certain key functions and is determined by measuring a number of critical vegetation and soil indicators.

- Forage productivity (net primary production): Healthy range plant communities make very efficient use of available energy, water, nutrient and mineral resources to produce maximum biomass and provide a relatively reliable, high-quality source of forage for livestock and wildlife. Healthy rangelands provide consumable products for a complex chain of life forms (e.g. insects, decomposers, etc.). The quality and suitability of the forage resource for different species of livestock and wildlife depends on a number of factors, including species and stage of growth for both the grazing animals and the plants they consume.
- Maintenance of soil/site stability: Conservation of rangeland vegetation cover protects and builds soils that have taken centuries to develop, and also maintains the potential productivity of rangelands. Periodic grazing fosters the growth, recession and re-growth of root mass, thereby developing soil organic matter. This vegetation growth and soil-building cycle creates organic sinks that sequester carbon. Some rangeland ecosystems sequester more carbon per acre than a rain forest.
- Capture and beneficial release of water: Healthy rangelands promote the capture of precipitation and the storage, retention and slow release of water, making moisture available over a longer time period for plants and other organisms.

Efficient precipitation capture reduces the potential for soil erosion. Moisture retention makes for a more stable ecosystem during periods of drought. Further, Alberta's rangelands are important contributors to Canada's groundwater and river systems, which sustain both urban and rural human communities as well as aquatic ecosystems

- **Nutrient cycling:** Rangelands require relatively low inputs to remain productive. Rangeland management practices encourage nutrient conservation and recycling, making these available for plant growth.
- **Plant species diversity:** Healthy rangelands possess a diversity of grasses, forbs, shrubs and trees, supporting high-quality forage plants for livestock and wildlife and maintaining biodiversity.

1C. Values and Benefits of Healthy Rangelands

As grazing is the principal tool for managing rangelands, agricultural grazing is the priority, but not exclusive, use of these lands. In addition to ecological benefits, proper rangeland management, including grazing, provides social and economic benefits to Alberta:

- Healthy rangelands provide a renewable and relatively reliable source of forage for livestock. Native rangeland ecosystems, in particular, make alternate grazing seasons possible (e.g. autumn or winter). Native rangelands are sensitive systems and require careful management. They are susceptible to invasive species. Surface disturbance, no matter the cause, predisposes rangelands to invasive species. Proper management maintains peak forage productivity and also reduces the ability of invasive species to become established.
- Careful rangeland management in the parkland and boreal forest enables timber production while maintaining forage production.
- Albertans are able to enjoy beautiful landscapes, watershed protection, good water quality, large soil carbon sinks, maintained biodiversity and opportunities for recreation, like hunting and tourism.
- Grazing leaseholder utilization of public lands help support associated rural communities and provides revenue to the province.

2. CODE OF PRACTICE

In this document, **department** refers to Sustainable Resource Development, and **rangeland agrologists** refers to rangeland agrologists employed by the department.

The Code of Practice for grazing lease management has three components:

- 2A outlines the overarching principles and requirements of grazing leaseholders to achieve sustainable resource management;
- 2B describes the tools used to measure range health; and
- 2C defines the key responsibilities of grazing leaseholders within the grazing lease management system.

2A. Principles and Practices of Rangeland Management

Grazing leases on public land contain one or more ecological site types, each with land that has specific physical characteristics and produces a distinct kind and amount of vegetation. The objective of sustainable rangeland management is to maintain plant vigor, protect and build the soil, perpetuate the forage resource and ensure a stable flow of products and other societal benefits.

Sustainable rangeland management applies ecological knowledge, principles and practices. Because rangelands are dynamic ecosystems, the flexible application of rangeland management principles and practices is the best approach to promote sustainable management, rather than rigid prescriptions or templates. Expertise in animal husbandry and behavior is also part of successful rangeland management.

Grazing leaseholders are required to apply sustainable grazing practices that flow from four key rangeland management principles.

1) Balance Livestock Demand with the Available Forage Supply (Sustainable Stocking Rates)

The **stocking rate** is the number of animals, adjusted for class, multiplied by time, that graze a specific area. It may be expressed in AUMs per acre

Any rangeland grazing system must consider how to balance livestock needs with the available forage supply through proper stocking rates—a balancing act referred to as proper use. Proper use considers the proportion of forage produced during the growing season that may be grazed. The remaining ungrazed forage is called carryover, and is left as cover to protect plants and soil, build organic matter and provide for wildlife grazing and effective watershed functioning.

The department uses long-term forage productivity monitoring studies, combined with stocking records from grazing leaseholders, to determine ecologically sustainable stocking rates. Stocking capacity is prescribed in the grazing lease contract. Depending on the climate, range site, plant community and other factors, the department sets this at between 25 and 50 per cent of long term average forage production. Under occasional severe conditions, the Government of Alberta may reduce

stocking rates on grazing leases on public lands. This usually occurs when there is not enough moisture for adequate biomass (standing crop) production.

Key Practices to Achieve Sustainable Stocking Rates:

Biomass (standing crop) is the annual dry weight of specified rangeland vegetation (forage) used for calculating the stocking rates of rangeland plant communities, and the management thereof.

- Apply ecologically sustainable stocking rates. In typical conditions, the prescribed stocking capacity assigned to the grazing lease shall be adhered to.
- Monitor use and adjust stocking rates to maintain range health. During unusual conditions, leaseholders shall discuss adjustments to the stocking capacity with the rangeland agrologist and implement required adjustments.
- Maintain long-term stocking records. Leaseholders shall complete a stock return form each year and return it to the local Rangeland Management Branch office.
- Maintain appropriate stocking rates during drought periods. Leaseholders must maintain appropriate stocking rates during drought periods.
- Maintain appropriate stocking rates on sensitive ecological sites. The rangeland agrologist will prescribe appropriate stocking rates on sensitive ecological sites. These stocking rates shall be applied.
- Adjust for animal unit size. Leaseholders must calculate when larger sized grazing animals consume more forage on a monthly basis (see AUE) and adjust management to adhere to the prescribed grazing capacity of their lease.

2) Distribute Livestock Grazing Impact

AU defines a standard animal—a mature cow weighing about 1,000 pounds that is either dry or has a calf up to six months old.

AUE is an Animal Unit Equivalent. Livestock that consume more or less forage than an AU because of their type, class or size are assigned AUEs.

AUM is an Animal Unit Month. It refers to the amount of forage required by one AU for one month.

The selective grazing habits and patterns of grazing animals may result in uneven grazing on rangeland vegetation. In addition, many complex factors contribute to uneven livestock distribution including topography, watering sites, insects and variability in vegetation. Range managers use a variety of management practices and tools to overcome or modify the selective grazing habits of livestock and to distribute the grazing load as evenly as possible over the landscape. Riparian areas where livestock may find succulent forage, drinking water and shade require extra effort to ensure good livestock distribution and prevent potential negative effects.

Key Practices to Achieve Effective Livestock Distribution:

- Careful placement of salt or other attractants. Salt blocks shall be placed away from where cattle naturally congregate.
- Fencing - Before development of cross or drift fences, the grazing leaseholder shall request and obtain departmental approval in accordance with department requirements.
- Riding or herding can be used to distribute cattle.
- Trail development. Before access trail development, the

grazing leaseholder shall request and obtain departmental approval in accordance with the department's requirements.

- Development of water sources. The grazing leaseholder shall request and obtain approval from the department for development of water sources in accordance with the department's requirements.
- Changes to the kind or class of livestock. Such changes shall be in accordance with the department's requirements.
- Stocking rate, timing and duration must be limited to the AUMs allocated to the lease, as prescribed by the rangeland agrologists.
- Alterations to stocking density. Stocking density affects livestock distribution. Thus, increased stocking densities require adjustments to duration of grazing to comply with prescribed carrying capacity, and vice versa.

3) Avoid Grazing During Vulnerable Periods

Riparian areas are vegetation zones next to flowing and standing water bodies, such as rivers, lakes and sloughs.

Rangeland and riparian plant communities may be vulnerable to damage from grazing during particular growth phases or seasons. Native and tame ranges may be damaged by early spring grazing; delaying grazing until the sensitive plant growth phase is past may protect them. Riparian areas may be damaged by trampling when stream banks are soft during spring flood conditions. To effectively manage rangelands, leaseholders need to understand these vulnerabilities.

Key Practices to Protect Rangeland during Vulnerable Periods:

The leaseholder, in consultation with the rangeland agrologist, will apply these practices as required when rangelands are considered vulnerable.

- Manage spring grazing so that range plants have opportunity to replace root reserves and achieve range readiness.
- Manage grazing on stream banks during vulnerable periods to prevent permanent trampling damage.
- Dormant season browsing (if approved for the lease) shall be minimized to encourage woody plant regeneration in riparian areas.
- Winter grazing is not permitted on native or tame pasture areas in the boreal areas of the province.
- Manage grazing on riparian sites during vulnerable periods, such as when these are saturated, to prevent permanent trampling damage.

4) Provide Effective Rest after Grazing

Grazing leaseholders must provide effective rest periods for rangeland vegetation. When moisture and growing conditions do not allow normal root and leaf regrowth, rest periods

must be adjusted. Growing season rest allows plants to replenish root reserves, maintain vigor and produce seed.

Key Practices to Provide Effective Rest Periods:

Effective Rest is leaving an area ungrazed for a period of time to allow plants to replenish root reserves and photosynthetic capacity.

- Flexible rotational grazing practices provide adequate periods of rest and recovery. Grazing leaseholders must provide effective rest periods.
- A single grazing period followed by rest is normally recommended for prairie, foothill and forested rangelands, given the relatively short growing season.
- Certain riparian plant species, like cotton woods, may require a number of years of specialized or site-specific management.

2B. Monitoring Range Health

The government has traditionally measured the environmental performance of rangelands with vegetation and soil indicators. Prior to 2002, the Government of Alberta applied a variety of systems to rate rangeland condition including the *Stocking Guide*, first published in 1966. Since then, the government has adopted a new range health assessment system (Adams et al., 2003) to address developments in range science and the need for a more robust and transparent set of indicators for rating range health.

The core measure of sustainable rangeland management applied to grazing leases on public land is **range health**, with an associated measure for riparian health. Range health is rated for an ecological site type in relation to the reference plant community and local soils. Ratings are based on questions that address five indicators of range health. These are:

- a) **Integrity and Ecological Status** – Each ecological site will produce a characteristic kind and amount of vegetation, called a reference plant community. Is the plant community native or modified to non-native species? Has grazing management maintained the plant community or are there shifts in species composition to less desirable or weedy plant species?
- b) **Plant Community Structure** – Are the expected plant layers present or are any missing or significantly reduced, revealing a possible reduction in plant vigor?
- c) **Hydrologic Function and Nutrient Cycling** – Are the expected amounts of organic residue present to safeguard hydrologic processes and nutrient cycling?
- d) **Site Stability** – Is the site stability maintained or is the ecological site subject to accelerated erosion?
- e) **Noxious Weeds** – Are noxious weeds present on the site?

Responses to questions are scored, and the combined score produces a per cent health score. This score determines the ranking of the site as healthy, healthy with problems or

unhealthy. If the site is ranked as healthy with problems or unhealthy, the department will work with the leaseholder to identify ways to improve range health.

Riparian Health Assessment - Riparian plant communities are rated in a similar way, but with a set of indicators appropriate to riparian systems (Fitch et al., 2001; Ambrose et al., 2004).

Rangelands are dynamic ecosystems. Periodic range health audits allow determination of trend lines. The objective is to manage grazing lease lands in a fashion which results in stable trend lines in the case of healthy rangelands and improving trend lines in the case of rangelands categorized as healthy with problems or unhealthy.

2C. Grazing Lease Management System and Responsibilities of Grazing Leaseholders

Sustainable rangeland resource management begins with the effective application of rangeland management principles and practices by the grazing leaseholder. A system of periodic and renewal inspections helps the province achieve a high standard of rangeland resource management. Professional rangeland agrologists inspect and rate range health on leases and then discuss management with leaseholders. Management agreements and tenure conditions help leaseholders meet their stewardship commitments and include a peer review process when stewardship commitments are not achieved.

Requirements of Grazing Leaseholders:

- 1) **To invest in management practices that result in stable range and riparian health** in the case of healthy rangelands and improving trend lines in the case of rangelands categorized as healthy with problems or unhealthy.
 - New and existing leaseholders must show a basic, acceptable application of sustainable rangeland management practices, as indicated by range health, to enjoy normal grazing lease tenure.
 - Leaseholders must participate in periodic rangeland health assessments conducted by the department.
 - Leaseholders must address rangeland management shortcomings identified by the department. Leaseholders are required to adjust range management practices to address identified management problems (e.g. reduce stocking rates, improve livestock distribution, avoid grazing during vulnerable periods or provide more growing season rest). Leaseholders accept responsibility to reverse declining range health trends and that failure to do so will lead to penalties. Failure to achieve minimum acceptable rangeland management levels will lower the standing of the grazing lease and can lead to cancellation.

- **Health and Function of Riparian Areas** – Grazing leaseholders have a particularly critical responsibility to address any riparian area management issues on their grazing lease. Improved riparian area management begins with an understanding of the natural processes and functions of riparian areas and applying rangeland management principles to maintain or restore riparian health. The Alberta Beef Producers, an industry trade association for beef cattle, with the support of the Alberta government, the federal government and other organizations, offers a proactive program of education and awareness on livestock grazing issues in riparian areas, the Cows and Fish Program.
 - **Watershed functioning** – Watershed functioning extends to associated upland areas and is important to the public. Water quality and quantity are linked to watershed management and riparian area management.
 - **Management of Invasive Species** – Monitoring and mitigation of establishment of invasive species, especially noxious weeds, is a requirement of grazing leaseholders. They are the first line of defense in protecting grazing leases from invasion by noxious weeds and other invasive species. Sound rangeland management practices will reduce the potential for weed invasion, but the leaseholder must also monitor their grazing operations and the impact of other land-use practices, to safeguard the integrity of native landscapes, and take control measures when necessary. The required recreational and exploration access mentioned below add to the leaseholders' responsibilities and costs on this issue.
 - **Wildlife Habitat** – Rangelands in their natural state provide much of the best remaining wildlife habitat for birds, mammals, reptiles, amphibians, insects and fish. Much of Alberta's grazing lease land is still in its natural state. The stewardship objectives and practices outlined in 2A normally protect habitat quality for most fish and wildlife species. As part of responsible stewardship, leaseholders must understand how rangeland management may influence habitat quality and take steps to ensure that habitat is protected.
 - **Multiple Use** – Grazing leaseholders must monitor range health and condition, and implement management practices to achieve the above objectives. The impacts of multiple use of the public lands, and the expectations of societal ecological goods and services flowing from those lands must be considered in management practices.
 - Leaseholders will develop a grazing plan that incorporates the above objectives and that has the ability to react to changing conditions.
- 2) **To maintain and provide stocking records annually on a field basis (stock return reports).**

- The leaseholder shall keep accurate records of the paddocks grazed and rotation periods and include other lands used in conjunction with the lease.
 - Only livestock that meet department standards or approvals are permitted to graze on the lease.
- 3) **To provide for recreational access and exploration access as per current access legislation and regulations.**
- **Recreation and Access to Public Rangeland** - The Government of Alberta, through legislation (*Public Lands Act*, and the *Recreational Access Regulation*) requires that holders of agricultural leases allow reasonable access to the land for recreation. Leaseholders are required to follow the intent of this legislation, which is to balance the right of recreational users to access with the leaseholder's need to protect the land, livestock and improvements. Leaseholders must be available for contact, update their website information and provide time and expertise to communicate with recreational users. The legislation includes a process for addressing recreational disputes. The new rules encourage communication, co-operation and respect and can be found at <http://www.srd.gov.ab.ca/lands/usingpublicland/recreation/accessagriculturalpublicland/default.aspx>
 - **Exploration Access to Public Rangeland** - The Government of Alberta, through legislation (*Public Lands Act* and the *Exploration Dispute Resolution Regulation*) requires that holders of agricultural leases allow reasonable access for industrial exploration and review industrial exploration applications to identify potential operational concerns. The legislation includes a mandatory process for addressing exploration access disputes. The new rules encourage communication, co-operation and respect and can be found at <http://www.srd.gov.ab.ca/lands/formspublications/aboutpublicland/explorationbackgroundunder.aspx>
- 4) **To provide input into proposed overlaying leases (primarily industrial) and consent to applicant when agreement is reached.**
- Grazing leaseholders will co-operate and effectively communicate with industrial disposition holders on developments such as wellsites, access routes, timber operations and gravel pits and, when appropriate, provide their consent to industrial disposition holders or applicants.
 - In order to effectively communicate with industrial disposition applicants, the grazing leaseholder must be familiar with applicable legislation and regulations.
- 5) **To use the grazing lease within the prescribed stocking capacity with the leaseholder's own livestock.**
- Not grazing or significantly under-grazing a lease when conditions do not warrant such treatment causes a lease to be considered to be not in good standing.

6) To build or purchase perimeter fence for the lease and maintain same in accordance with Alberta's *Line Fence Act*. To operate within the *Public Lands Act* and regulations.

- The leaseholder shall comply with any range improvement or management plan for the lease area (including maintenance of those improvements).
- Newly acquired leases shall be fenced within two years of the leaseholder's being awarded the lease, unless otherwise agreed to by the department.
- Existing lease fencing must be maintained to contain the grazing leaseholder's livestock.

7) To pay to the Province all rental and other fees owing on the grazing lease.

8) To pay to the municipal government the property taxes assessed on grazing leases on public land.

9) To be responsible for the costs of developing range improvements such as watering sites, grass re-seeding, brush control, cross fences etc. Appropriate approvals or authorization must be obtained from the department prior to implementing range development plans.

10) As occupant of the grazing lease lands, to comply with several Provincial Acts such as the *Stray Animals Act*, *Soils Act*, and *Weed Control Act*.

3. FUTURE CODE OF PRACTICE CONSIDERATIONS

Ongoing scientific developments, other land use practices and societal trends will influence rangeland management priorities and grazing leases. For example, the use of common land for grazing and timber activities recently led to development of new guidelines that provide an integrated approach to planning, operations, standards, agreements, monitoring and dispute resolution. The Code of Practice will be open for review in a maximum five years time (sooner if deemed appropriate) from the date of sign-off.

Current and emerging issues include:

- **Fostering rangeland stewards** - Leaseholders who ensure long term land stewardship through intergenerational and other passing on of stewardship knowledge have great value to the province.
- **Responding to industrial development** – Industrial development results in surface disturbance of soil and vegetation in the construction of wellsites, access roads, pipelines and other production facilities. Such developments make effective rangeland management more difficult. Grazing leaseholders must work with industry to minimize disturbance to range plant communities and enable effective reclamation and restoration of rangeland. This requires diligent planning and minimum disturbance practices, to prevent undesirable cumulative effects and the loss of plant community through landscape fragmentation and encroachment of invasive species. In addition to conventional oil and gas, other industrial developments are growing in importance and potential impact, including coal bed methane, wind power generation, acreage developments and urban sprawl, and infrastructure for energy and transportation.
- **Maintaining natural capital** – Emerging new public policy places an increased value on the maintenance of rangelands and their associated natural capital (e.g. watersheds and water quality, wildlife and biodiversity, open space and aesthetics). Leaseholders who establish a high standard of range health through superior stewardship practices provide significant benefits to the province, including contributions to natural capital and the public good. They would be excellent choices for extended lease tenure.
- **Developing operational rangeland management plans.**
- **Managing grazing lease rangelands for multiple use** – Societal demands for alternate non-grazing uses of public lands sometimes ignore the importance of grazing in maintaining a stable grassland ecosystem. Increasing awareness of ecological goods and services and their value adds complexity to rangeland management planning. Shifting and dynamic wildlife populations sharing the grazing resource create uncertainty in planning.

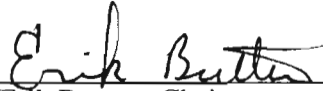
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SIGNATURES



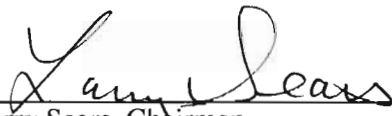
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