

GRASSLANDS PROTECTION: A PRIMER FOR LOCAL GOVERNMENTS



Prepared by the Environmental Law Clinic
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What are Grasslands?

Grasslands are open landscapes where grasses, or grass-like plants, are the dominant vegetation. Grasslands are generally found in arid areas where there is more precipitation than in deserts, but not enough to support forests; and where frequent, low-severity fires occur naturally. Although native grasses dominate the landscape, other plants such as forbes, wild flowers and shrubs thrive in this environment. It is common to find grasslands interspersed with aspen and coniferous stands, wetlands and small streams with lush riparian areas. The varied habitats found in grasslands support diverse forms of life. Ponds, wetlands, lakes and streams punctuate the hills, valleys and plateaus of grassland country to create an ecological mosaic. The riparian and treed areas, cliffs, rocky outcrops and slopes combine to support a rich variety of both plants and animals.

From California bighorn sheep to the western harvest mouse, mule deer to marmots, sharp-tailed grouse to sharp-tailed snake, sagebrush to cactus, a variety of living things call grasslands home. In fact, more than 30% of British Columbia's threatened or endangered species depend upon grasslands to survive.¹

NATIVE GRASSLANDS – A VANISHING RESOURCE

Of all the ecosystems on earth, none has been more dramatically affected by humanity than native grasslands. These lands have been widely altered, because they are attractive places for humans to build settlements, grow crops and graze livestock. Although native grasslands at one time covered 40% of the North American Continent, the vast majority has been transformed into agricultural lands, urban settings, and other settlement uses.² In places with significant development and agricultural pressures, virtually all native grasslands have disappeared. For example, 98% of the tallgrass prairie east of the Missouri River is gone, and California has lost 99% of its native grasslands.³

Grasslands are recognized as one of BC's most threatened ecosystems. In fact, grasslands represent less than 1% of the provincial land base, and they are far more endangered than old growth forests. Of the four most endangered ecosystems in Canada, two are grasslands -- the Garry Oak Woodlands of Vancouver Island and the Gulf Islands and the Okanagan Antelope-Brush grasslands.⁴

Grasslands face a number of threats, including residential development, habitat fragmentation, climate change, damage from recreation activities, inappropriate grazing practices, forest encroachment, and invasive plants. Forest encroachment -- where trees are replacing grasslands due to fire suppression measures -- is a serious problem. For example, in the Cariboo region alone it has been estimated that 40% of its grasslands will be lost to encroachment over the next 120 years.⁵ Climate change is another major threat. However, the most urgent threat to native grasslands is sprawling urban development and the fragmentation of rural landscapes.⁶ With more than 40 percent of BC grasslands held as private land, development pressure on our remaining grasslands is intense and increasing.

Urban encroachment

Populations are growing rapidly in grassland areas, particularly in the Okanagan, and local governments are under pressure to expand urban boundaries in order to accommodate housing demands. Although there are legal tools and planning approaches that aim to contain urban sprawl, such measures are not consistently applied. As a result, low-density subdivisions are steadily encroaching onto grasslands.

For example, in the South Okanagan Basin, more than 20% of the native grasslands have been lost to urban uses, rural residential development, hobby ranches, agriculture and industrial development, transportation and recreational uses. The South Okanagan Highland has lost 38% of its grasslands, and the North Okanagan Basin has lost 45%.⁷

The municipality of Kelowna has lost 7692 hectares, or 81%, of its original grasslands. Similarly, Williams Lake, Oliver and Lilloet have lost more than 80% of their municipal grasslands; Keremeos, Armstrong, and Chase have already lost 100% of their limited original grasslands.⁸

Fragmentation of rural landscapes

There is an increased demand for grasslands to be developed into rural vacation/retirement homes, recreational developments and small hobby ranches. Because increasing numbers of British Columbians are near retirement or are affluent enough to acquire rural “getaways”, land values are rising rapidly. High land prices combine with the economic difficulties that the cattle industry faces to create pressure to subdivide large ranches, or sell off individual parcels within the ranch. This subdivision of ranches into smaller lots is incompatible with the natural values of grasslands. While ranching can be done in a way that sustains grasslands values, subdivision of grasslands breaks up the continuity of grassland ecosystems, bringing in roads and invasive species and fundamentally damaging grassland ecosystems.⁹

WHAT HEALTHY GRASSLANDS PROVIDE YOUR COMMUNITY

The fragmentation and loss of grasslands poses a threat to the many benefits that grasslands offer to your community, including the following:

Municipal Infrastructure Functions

- *Water Treatment and Water Supply*

Grasslands play a central role in protecting water quality and helping ensure sustainable, clean water supplies. They serve as a biological filter, reducing water runoff contaminated by chemicals and pollutants. If grasslands were not intact to carry out this function, more contaminants would find their way into our water supplies.¹⁰

- *Stormwater functions*

Grasslands play a key role in absorbing excess water during storm events, reducing the hazard from flood and debris flow.

- *Soil conservation*

Grasslands ensure healthy soil by providing perennial cover that reduces erosion by slowing down overland flow of water. Root systems hold soil particles together, preventing both water and wind from carrying away topsoil.¹¹ The economic value that grasslands provide in the form of erosion control, waste

treatment, pest control and pollination services has been well documented.¹²

Land for Ranching

Grasslands are essential to the ranching industry, and provide both grazing land and forage production. Over 90% of the province's grasslands are grazed by domestic livestock.¹³

Grasslands are important not only for the ranching industry but also related enterprises that support communities, such as feed companies, machinery retailers, mechanics and animal health providers.

Sustainable range management of grasslands is now being addressed by industry, government and the non-government sector. They are working together to achieve stewardship through planned grazing systems and sustainable practices that will protect natural values while supporting efficient cattle production.

Recreation and Tourism

The ranching industry supports rodeos, stampedes and a Western culture that is important for tourism. Ranch grasslands have become a symbol of our national heritage, and BC's grasslands have been featured in a number of feature film productions. This has had a significant economic impact on communities, not only from film production but also from tourism generated by the release of the films.

In addition, grasslands provide diverse recreational opportunities, such as hunting, fishing, hiking, horseback riding, wildlife viewing, camping, mountain-biking, backpacking, picnicking, interpretive guides and photography.

Many regions are capitalizing on the recreational attractions that grasslands offer. For instance, Tourism British Columbia highlights the South Okanagan Grasslands Protected Area as Canada's "premier star-gazing locations", with breathtaking views in the daylight.¹⁴ Tourism Canada highlights the Grasslands

National Park of Canada as a “magical land of diversity, beauty and history”.¹⁵

Grasslands have tremendous tourism and recreational potential but need to be managed to protect the very values that make them attractive for recreation.

Community Economic Development

Grasslands can help to attract twenty-first century businesses to locate in a community. They create distinctive natural viewsapes, and make communities more attractive. They lend an open feeling to an area, reflecting light and shadow across the landscape. Vast expanses of grasslands give people a place of recreation and reflection, where one can contemplate an uncluttered horizon.

Maintaining such green space is essential for the long-term prosperity of a community. Parks and green space are essential to the high quality of life that a highly educated workforce demands. As a result, green space is one of the most important factors modern companies look at, when seeking to locate new enterprises. Numerous state governments officially recognize that protection of open space must be a critical part of their economic development strategy. The CEO of one of California’s largest corporations has found that corporate decision-makers consistently rank the quality of an area’s physical environment as one of the top factors in determining a location for an enterprise.¹⁶

The attractiveness and openness of your grassland-based community provides a quality physical environment both for residential and corporate growth. The preservation of these values and quality of life is essential for long term economic, ecological and cultural sustainability.

Habitat for Species

One of the most important functions of grasslands is that they provide diverse habitat for wildlife, including tiger salamander, sharp-tailed grouse, burrowing owl, badger, mule deer, bighorn sheep, and the white-tailed jackrabbit, to name just a few.

More than 30% of British Columbia’s species at risk depend on grasslands for their survival. In fact, more species at risk are found in the grasslands of the

South Okanagan than in any other area of Canada.¹⁷

Development and fragmentation of grassland habitat seriously threaten the survival of these species. In fact, a number of grassland species, such as the sage grouse, pygmy short-horned lizard and the large marble butterfly have entirely disappeared from BC.

The fact that grasslands occupy less than .8% of the provincial landbase only strengthens the importance of these landscapes and the responsibility of communities to protect this resource and heritage.

Maintaining the global environment and food supply

Grasslands play a key role in storing carbon, which reduces carbon dioxide in the atmosphere and counters global climate change. One-third of the terrestrial global stock of carbon is stored in grasslands.¹⁸ In addition, maintaining a diversity of wild grasses is important to maintain genetic diversity for long-term food security. The United Nations World Resources Institute reports that “wild strains of grasses may provide genetic material to improve food crops and to help keep cultivated varieties resistant to disease”.¹⁹ Most important in BC today, grasslands play a critical role in supporting the livestock industry, and provide significant opportunities to capitalize on emerging markets for natural BC range beef and other products. Managed in a sustainable way, grassland ranches can provide a sustainable and renewable resource to our local communities.

Maintaining a positive ratio between tax dollars received and municipal services required.

Fragmentation and loss of grasslands puts all the above benefits at risk. Ironically, it often does so at a net economic cost to local government. Numerous studies have shown that conversion of rural land to residential uses costs more in services than it produces in revenues. For instance, the American Farmland Trust research cites a Texas study that found that for every dollar ranch and open land provides in revenue from property tax, sales tax and other revenues, they demanded only \$0.26 back in services, whereas residential development required \$1.10 in services for every tax dollar it generated.²⁰

Rural subdivision of grasslands may not only cost communities the loss of the valuable natural services that grasslands provide; it may also end up costing more to provide municipal services than will be recovered in taxes.

On the other hand, the conservation of grassland landscapes, and ranchlands will benefit the long term sustainability and livability of communities.

WHAT YOUR LOCAL GOVERNMENT CAN DO TO PROTECT GRASSLANDS

If the full value and benefits of grasslands are to be maintained for sustainable communities in BC, local governments will need to take action. Various local governments are beginning to do so. Initiatives include:

- * The Central Okanagan Regional District has done detailed work identifying and mapping Environmentally Sensitive grasslands, and establishing Development Permit Areas to protect them, in the Westside Official Community Plan and the Mount Boucherie Neighbourhood Plan.
- * The Osoyoos Rural Official Community Plan in the Regional District of Okanagan-Similkameen provides protection to grasslands.
- * The Regional District of Okanagan-Similkameen is starting to develop a Regional Growth Strategy (RGS) that may provide strategic direction for member municipalities and Electoral Areas to enact bylaws to protect grasslands.
- * Penticton's Northeast Sector Plan has identified substantial Conservation and Open Space Areas that will respect grassland habitat values, and also provides for Environmentally Sensitive Areas to be established and protected in nearby developments.
- * Saanich and others decline to provide services to new development in areas outside of urban containment boundaries, thereby curbing the sprawl that threatens grasslands.

THE MODEL BYLAW PACKAGE: A STEP FORWARD

While a few BC local governments are beginning to take steps to protect grasslands and other sensitive areas, few are following a comprehensive approach. Most local governments have acted *ad hoc*, in response to a specific local issue.

In the attached package of model bylaw provisions, the *Green Infrastructure Model Bylaws Package*, we try to bring together the best of what is being done by local governments around the province. The Package attempts to integrate the best of the tools that are being used to protect not just grasslands, but the entire Green Infrastructure – including watercourses, wetlands, grasslands, and other sensitive natural areas and systems.

The key benefit of this package is in the comprehensive approach. This package demonstrates the possibility of developing integrated tools. Local governments can get beyond reacting to specific issues, regulatory or other, by ensuring that the systems are in place that enable a proactive approach to managing the entire green infrastructure.

For smart communities now recognize that the organizing principle of community planning should be to plan development around the “green infrastructure” of natural areas, instead of around an arbitrary grid of service infrastructure (e.g., roads). The GVRD Green Zone and the CRD Blue-Green Spaces Strategy are BC examples of this approach, which is well articulated in the report of the Crombie Commission. Smart communities:

- Examine the landscape’s particular characteristics in order to determine the optimal uses for all its different parts; and
- Identify the natural systems, such as water, soil and biota, and plan development around that green infrastructure.

By identifying and planning around sensitive areas, the same amount of development can take place, without blundering into areas that damage the Green Infrastructure.

The Substantive Advantages

The *Green Infrastructure Model Bylaws Package* will protect key grasslands and will:

- Maintain the natural infrastructure necessary to maintain surface and ground water supplies
- Maintain the natural infrastructure that purifies your community's water
- Maintain natural drainage and provide stormwater functions and flood control.
- Maintain critical habitat for wildlife in your community that rely upon grasslands.
- Maintain the ecological, recreational, tourism, and economic development services that grasslands supply.

The Legal Advantages

The *Green Infrastructure Model Bylaws Package* will help you to respond proactively to new environmental legislation that is bound to develop in order to protect our diminishing grasslands resource. It will help you direct development away from sensitive areas – and save you future headaches. Specifically, it will help you:

- By adopting the suggested *Green Infrastructure Bylaws* package that protects grasslands and other sensitive areas, you can get beyond reacting to specific issues, regulatory or other, by ensuring that the systems are in place that enable a proactive approach to managing all environmentally sensitive and important areas.

- This initiative will assist local governments to comply with the provisions of the *Species at Risk Act*. Protection of grasslands and wetlands is a necessary component of any strategy to protect species at risk, because a majority of such species depend on either grasslands or wetlands. Proactive local action to protect these areas will reduce the need for less effective – and more costly – recovery plans for such species. By acting proactively, your government can avoid the confusion that will arise when legislative requirements begin to provide necessary protection to the endangered and threatened species found in grasslands.
- Adopting the bylaw package will help communities to deal with future requirements of other legislation, e.g., drinking water legislation. Protection of grasslands may eventually be required as part of comprehensive drinking water legislation. Communities that have protected grasslands and wetlands will be well-positioned to comply.

Enclosed in this package you will also find:

The Green Infrastructure Model Bylaws Package

Wetlands Protection: A Primer for Local Governments

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1 Online: <<http://www.bcgrasslands.org/projects/conservation/mapping.htm>>.

2 Online: <<http://www.conservation.state.mo.us/conmag/2004/12/40.htm>>.

3 Reed Noss, *Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation*, Dr. Reed Noss, University of Idaho, Department of Fish and Wildlife, Moscow, Idaho.

4 BC Ministry of Environment, "Ecosystems in BC at Risk: Antelope-Brush Ecosystems", undated. Also,

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- see Sandborn, Calvin, *Green Space and Growth*, Commission on Resources and Environment, 1996, Victoria, Introduction.
- 5 *Changes in the Grasslands – Forest Interface*, December, 2003.
- 6 Online: <<http://www.bcgrasslands.org/conservation/fragdev.htm>>.
- 7 Grasslands Conservation Council of British Columbia data base.
- 8 Grasslands Conservation Council of British Columbia data base.
- 9 See online: [BC](#) Grasslands Mapping Project, A Conservation Risk Assessment May 2004>.
- 10 See Online: <<http://www.epa.gov/nerlesd1/land-sci/region-assess.htm>>, <http://www.r6.fws.gov/realty/Grassesmt.htm>>. Also see Online: <http://www.r6.fws.gov/realty/Grassesmt.htm> and <<http://wfrs.usgs.gov/research/contaminants/STSaiki4.htm>>.
- 11 Online:<<http://www.nrm.qld.gov.au/education/modules/primary/primarybiodiversity/resourcesheets/resourcesheet4.html>>.
- 12 Costanza et al., “The Value of the World’s Ecosystem Services and Natural Capital”, *Nature*, May 15, 1997, pp. 253-260.
- 13 Online: < <http://www.bcgrasslands.org/SiteCM/U/D/D51D823AC0A09A05.pdf>>.
- 14 Online: < <http://www.hellobc.com/en-CA/SightsActivitiesEvents/Attractions/ViewPoints/ThompsonOkanagan.htm?S=N>>.
- 15 <http://www.travelcanada.ca/tc_redesign/app/en/ca/attractions.do?catId=119&provinceId=13>
- 16 Sandborn, Calvin, *Green Space and Growth*, Commission on Resources and Environment, 1996, Victoria, p. 4.
- 17 Online: <<http://www.bcgrasslands.org/grasslands/speciesatriskintro.htm>>.
- 18 Online: < <http://www.ilea.org/birdsey/intro.html#forest>>.
- 19 Online: <http://biodiv.wri.org/pubs_content_print.cfm?ContentID=281>.
- 20 American Farmland Trust, *Finding the balance: Rancing and rapid growth in Bandera County, Texas* Online: <<http://www.farmland.org/texas/cocsbandera.htm>>.