



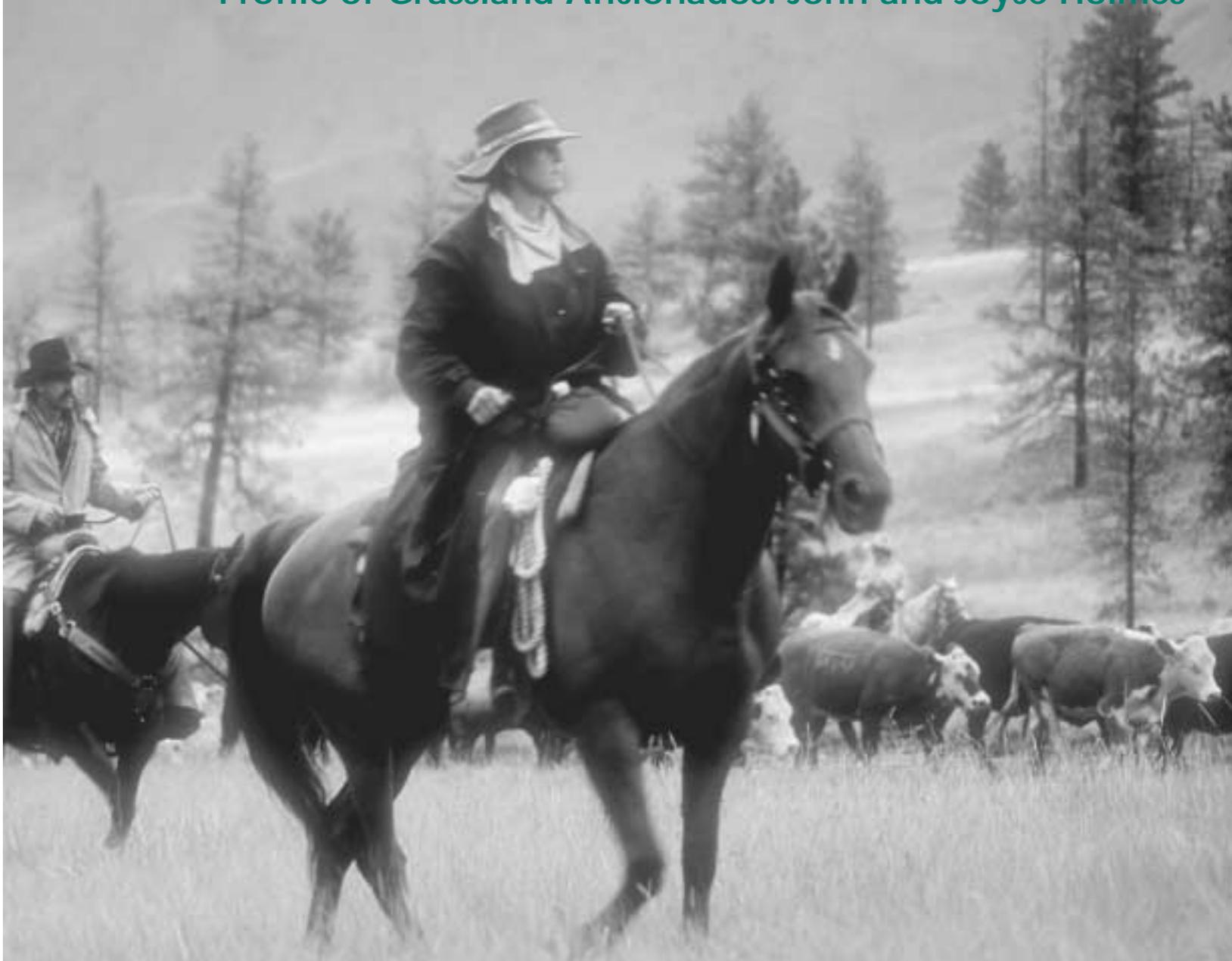
BC **Grasslands**

"The voice for grasslands in British Columbia"

SEPTEMBER 2003

Range Management and BC's Ranching Legacy:
Past, Current and Future Challenges

Profile of Grassland Aficionados: John and Joyce Holmes



The Grasslands Conservation Council of British Columbia

Established as a society in August 1999 and subsequently as a registered charity on December 21, 2001, the Grasslands Conservation Council of British Columbia (GCC) is a strategic alliance of organizations and individuals, including government, range management specialists, ranchers, agrologists, grassland ecologists, First Nations, environmental groups, recreationists and grassland enthusiasts. This diverse group shares a common commitment to education, conservation and stewardship of British Columbia's grasslands.

The GCC Mission is to:

- Foster greater understanding and appreciation for the ecological, social, economic and cultural importance of grasslands throughout BC;
- Promote stewardship and sustainable management practices that will ensure the long-term health of BC's grasslands;
- Promote the conservation of representative grassland ecosystems, species at risk and their habitats.

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Message from the Chair

Maurice Hansen



I probably spend too much time reading. It's not that there's a shortage of other things to do. But one benefit is finding amusing turns of phrase. When author Kurt Vonnegut was asked how effective he and other writers had been in making a difference during the Vietnam war he said: "Our focus was like a laser beam on government... but the power of this weapon turned out to be that of a custard pie dropped from a six foot step ladder." This little essay is about organizational effectiveness. I for one am not interested in the custard pie model.

There's cynicism out there regarding the usefulness of many organizations and it's not all directed at government. Non government organizations like the GCC and consultants get their share. Everybody needs a critic and I think we should take it at that. It's a reminder of the need to ensure our actions generate useful end products. It's not that easy to do, even with the best of intentions.

As a neophyte rancher I became involved in land use politics some twenty-five years ago. Coordinated resource management planning was still living and breathing then and the future looked exciting. It took awhile but I woke up

Message from the Past Chair

Kristi Iverson



Farewell but not Goodbye

I have a confession to make. There was a time in the not-so-distant past when I struggled with the concept of ranching, and, well, cows in general. Sure, sure, I ate beef, wore leather and was generally hypocritical in my thinking. It just seemed like it required vast tracts of land to support a ranch and that this didn't employ a lot of people. Plus I was offended by the places in the grasslands that had been over-used, or even abused, by cattle.

And then one day as I was walking in the grasslands and thinking about food (I think about food a lot), food production in particular, it struck me that nearly all of our food comes from lands so modified that they no longer function as 'natural' or 'intact' areas; it would be difficult to restore them to something close to a natural ecosystem. Except, of course, grasslands and other rangelands. Ranching is one of the only ways that our society produces food in intact ecosystems. Ranchers are conservationists in the true sense of the word—their bread, butter and beef is entirely reliant on an environmentally sustainable operation. If our private grasslands don't continue as ranches, it seems assured that

one day and realized that the effectiveness of the organizations I was working with and the synergy with important partner organizations was abysmal. Most meetings were a waste of time and goals were distant dreams. What to do?

I discovered there was an entire field of knowledge called professional and organizational development. I took workshops and seminars on listening skills, consensus building and communication. My bookshelves started to swell with the writing of various gurus in the field. Armed with new insights, I was going to avoid wasting my time and generate some needed outcomes. The results were less than brilliant. Inertia is a marvellous thing. Thus ended Effectiveness 101. Producing cattle was a breeze by comparison.

Organizations that function with a high degree of effectiveness are a rarity, it seems to me. But I'm still an optimist and believe that such an animal can exist. I want the Grassland Conservation Council to be such an organization. We have had a very successful run up to becoming a credible organization. Next we must move through the implementation threshold of our strategic plan and into the zone of higher risk. We will be moving into a hotter, fiery realm and we mustn't mind the sparks.

they will be something that is not sustainable and will result in degradation or loss of our dwindling supply of grasslands. As members of the GCC, we need to continue to support ranching and find new ways to ensure sustainable ranching continues.

In BC, most ranches are cow-calf operations and the calves are sold to be raised on feedlots, so only part of the beef equation comes from rangelands. To me it seems that there is great potential for a niche-market of rangeland raised beef, preferably organic—a product that could demand higher prices and might have a more stable and growing market. It may be a naive thought, given my limited knowledge of ranching, but perhaps not. I only know that I wish I could buy some BC rangeland raised organic beef.

In my past year as your chair, my own personal growth has been one of furthering my understanding of ranching and ranchers. I have a long way to go, but I've started on the path, and I'm sure this issue of our magazine will help me travel further. The GCC is an exceptional group of people, and it has been a real pleasure to serve as your chair, and I look forward to a future of working with the GCC in different capacities.

Message from the Executive Director

Bruno Delesalle



Meeting the Challenge

It has been a difficult summer for the ranching industry: BSE, closed borders to Canadian beef, drought on the range, grasshopper infestations, fire storms, and no water for livestock. Sobering times for the ranching industry...but I have no doubt that ranchers will persevere. They have in the past.

During these difficult times, conservation organizations such as the GCC must be sensitive to the challenges facing the cattle industry. With my optimistic view on life, I often see these challenges as important opportunities where we need to focus on common ground, on building partnerships and ensuring mutual benefits to our programs.

The GCC has recently completed a strategic plan that clearly articulates our vision for programs and activities for 2003 to 2008. Within this vision are goals for stewardship and sustainable ranching, namely: To maintain and restore grasslands; to improve society's understanding and appreciation of the importance and sensitivity of grassland ecosystems; and to keep working ranches working by encouraging stewardship activities, information exchange, partnerships, and supporting ranching culture and practices that are ecologically, economically and socially sustainable. Given the ambiguity of terms such as "stewardship" and "sustainable ranching" the GCC has developed definitions:

Grassland stewardship is defined as a set of strategies and practices that will be implemented to ensure the long-term health and integrity of the grasslands landscape. Stewardship implies understanding, caring for, and maintaining a wide range of values, including those related to grazing. Stewardship is consistent with sustainable use—it does not mean preservation or protection from human use.

Sustainable ranching is defined as domestic animal grazing practices that maintain and enhance the economic and social viability of a ranching operation, while maintaining the ecological integrity of the grassland landscape on which these operations depend.

Since its inception, the GCC has held a basic philosophy that we will deliver on programs and services based on provincial needs where these programs or services are not currently being delivered by other organizations. In other words, the GCC will fill in critical gaps.

One of the gaps we have decided to focus on is grassland monitoring. Monitoring is key to maintaining and enhancing the long-term health and ecological integrity of BC's grasslands. We cannot discuss range management and planning without considering short- and long-term monitoring.

The GCC has recognized a growing need to work with the ranching industry and other interest groups to develop (or adopt) a grassland monitoring methodology that is suitable and practical for ranchers and range managers to assess grassland ecological condition. This is an important step to ensure the long-term health and integrity of the grassland landscape, to work proactively with the ranching industry to "keep working ranches working" and to ensure long-term ecological sustainability.

Over the past 18 months, the GCC established the Hamilton Commonage Grassland Monitoring Project to test and provide a qualitative grassland monitoring tool for ranchers that is practical, easy to use, and tested in British Columbia. Guided by a technical advisory committee, the project team will develop and field test a selected qualitative model for assessing grassland ecological condition, testing it against a more rigorous Daubenmire, or canopy cover, methodology. As part of the assessment process, the project team will test two well-established methodologies, namely the "Rangeland Health Assessment" from Alberta (Adams, 2002/2003) and the "Rangeland Health Indicators for Qualitative Assessment" (Pyke 2002). This project proposes two or three pilot project sites in other regions of the province to test and further develop the methodology with ranchers. This will ensure that the methodology is applicable and tested in other grassland types and with other ranchers.

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They stayed because there was grass

Kathy McCauley, BA, BEd, freelance Journalist

Ranching is a bittersweet way to earn a living. Men and women stick to it because they treasure the freedom and independence, and work that is defined by the natural cycles of nature. But the other side of ranching is not so ideal. Fickle markets, ever-increasing production costs and sinking profits have worn many a rancher down and out of business. Even nature regularly turns traitor by withholding the water required to grow crops, destroying livestock with killer winters, and providing a plethora of insects and noxious weeds to choke forage.



Hilde and Guy Rose

Whims of the marketplace and the weather will always be beyond control, but the most essential need for cattle ranchers, abundant grassland, is within their sphere of influence. This fact of life has created the symbiotic relationship between ranchers and the land upon which they live: Their careful stewardship makes the difference between healthy grassland ecosystems and dried out, unproductive dunes incapable of nourishing cattle, wildlife or any other living thing.

The necessity and the principles of judicious grassland management has been an evolving science, led by the needs of ranching. The BC beef industry emerged in the mid-1800s, trailing the gold rush from the Fraser to the Cariboo and Kootenays. The gold ran out and the miners ran off, but the cattlemen

stayed because there was grass. They created ranches on the verdant valley bottoms and mountain plateaus, and shipped their beef by rail to other markets.

In those days, livestock grazed year round and soon damaged the delicate grasses. In 1873, a traveler through the Cache Creek area noted in his journal that in areas where cattle had grazed heavily, weeds and sagebrush had replaced the bunchgrass. For several miles on either side of the roadways, the grasslands had deteriorated to, "little better than a vast sand and gravel pit bounded by broken hills, bald and arid except for a few summits that support a scanty growth of scrub pines." Over the years that followed, cold winters with deep snow covered the grass, and changing markets forced the ranchers to begin raising hay for winter feed, and trucking beef to feedlots for finishing.

During the early 20th century, BC's ranching industry grew up through world wars that brought voracious demands for beef, plus new technology to produce it. The benefits were a mixed blessing, however, because the incentive and the means to produce more beef also gave reason to over use and thus further weaken the grasslands, leading to drought and grasshopper plagues.

"BC grasslands were in terrible shape by the early 1930s," remembers ninety year old Bert Brink, who worked for the federal Department of Agriculture at the time. "The ranchers themselves recognized the problem and asked the government for assistance to rehabilitate the range." The Kamloops research station, where Brink began his career, was the result. Experiments in rotational grazing, weed control, and other conservation methods already practiced by the more progressive ranchers gradually grew commonplace as the principles of grassland management became better understood. Researchers and ranchers learned that grassland ecosystems are delicate, complex and limited. Once diminished, restoration is a slow, difficult process.

Ranchers whose livelihood depends upon grass, have the most urgent need to advocate for its protection. Ranches kept within the same family for succeeding generations usually have the best kept grasslands, as the desire to pass the property on to the next generation provides even greater incentive to protect it. Such families are on the land for the long term and manage the grass accordingly.

The ancestors of seventy-four-year-old Guy Rose, owner of Merritt's Quilchena Ranch, began ranching in the Nicola Valley in the 1860s. "When I got into ranching, we were just coming out of the age of horsepower and into machines," he reflects. "Farm machinery has changed a lot since then. Tractors now are air-conditioned and radioed, like cadillacs inside. In the 1940s, it took forty to fifty workers to run the ranch; now it takes about twelve in summer and eight in winter. Ranching is physically easier now, but cattle prices, transportation, insects and drought are still problems."

When Rose took over the Quilchena in 1957, the range was in good shape because of the consistent efforts of the generations who preceded him. He is passing on the ranch to the next generation in equally good or even better condition than when he began. "The place looks as good as ever; that's my reward for all my years in ranching," he says. "The problem of range overuse is behind us. We depend on the range so we have to keep it in good condition. Serious ranchers can be counted on to care about the grass. Those who don't, don't last long."

However, new threats to grasslands have arisen that ranchers cannot control. Subdivision of agricultural lands into “ranchettes” has chopped up the range, forest ingrowth reclaims hundreds of hectares of grassland yearly, and uncontrolled use of recreational vehicles disturbs wildlife, pummels the grass and spreads weeds.

“In the past few years, several of the big ranches neighbouring ours have been sold in small parcels,” says Ray Frolek, whose family has managed the 30,000 acre Kamloops ranch, Frolek Cattle Co., since 1904. Ranches, which include over 80% of the grasslands, will slowly disappear.”

Bert Brink agrees, “Urbanization of grasslands has been disastrous. People don’t understand grasslands’ limitations.”

Alkali Lake Ranch, 40 kilometres south of Williams Lake, was the first ranch in BC and is still one of the largest. When Doug and Marie Mervyn bought the 40,000 acre spread in 1977, the grass was in good condition, and they have improved it through vigilant weed management and reseeded. “I love the land,” says Doug. “I wouldn’t want to be anywhere else. It’s a real privilege to look after a piece of land and make it better. This ranch has been here for 150 years and our grass is in extremely good condition. Drive down the road and look at the ranchettes and it’s a different story. They don’t know how to manage grass.”

Ranchers have learned the hard way. “There’s been big strides in grasslands management, but there’s still much to do,” concludes Guy Rose. “The next step is educating the public that it’s an important ecosystem. Sometimes people just don’t understand about grass,” he continues thoughtfully. “So we need to educate them. You can’t legislate everything,” he muses. “It’s like legislating against sin—it just doesn’t work. Education is the key, more effective than legislation.”

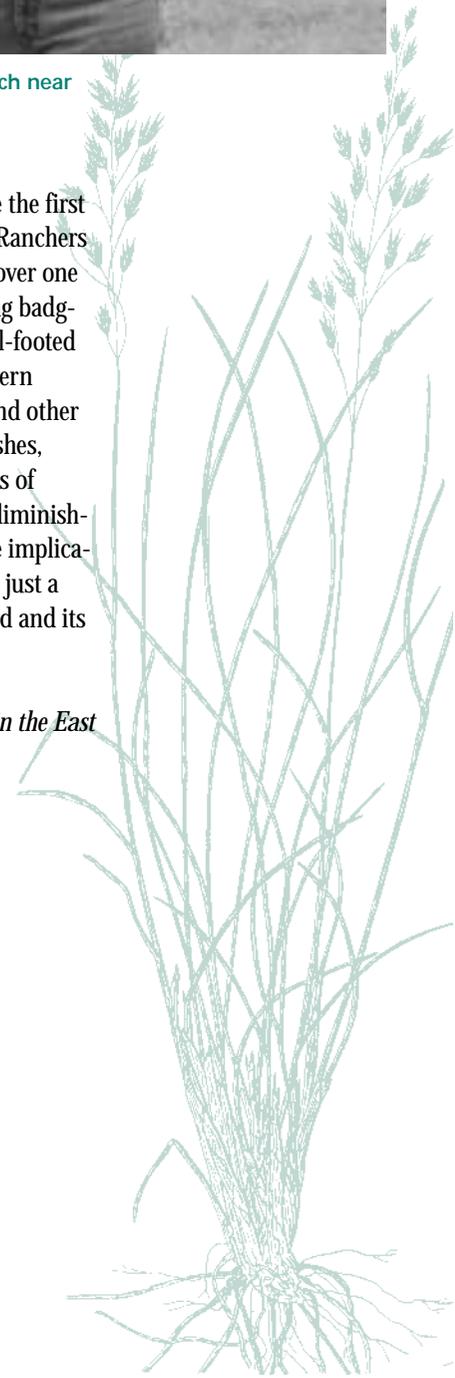


Doug and Marie Mervyn at their Alkali Lake Ranch near Williams Lake

If the grasslands are destroyed, ranchers will be the first to feel the loss. However, they will not be the last. Ranchers aren’t the only ones who inhabit BC’s grasslands; over one third of BC’s species at risk live there too, including badgers, long-billed curlews, sharp-tailed grouse, small-footed myotis (bats), 333 rare insect species in the Southern Interior alone, and hundreds of delicate grasses and other plants. Grasslands include not just grass, but marshes, streams, and forest zones with hundreds of species of wildlife and plants. If one believes that whatever diminishes the earth’s creatures, diminishes us all, then the implications are terrifying. Disappearing grassland is not just a concern for ranchers, but for all who value the land and its creatures.

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New threats to grasslands have arisen that ranchers cannot control. Subdivision of agricultural lands into “ranchettes” has chopped up the range, forest ingrowth reclaims hundreds of hectares of grassland yearly.



Grassland stewardship and sustainable ranching

Maurice Hansen, Co-ordinator, Rocky Mountain Trench Natural Resources Society



Arrow-leaved balsamroot
ILLUSTRATION BY NICOLE M.
BRAND

Since 95% of BC's grasslands are grazed by cattle, the link between cattle ranching and grassland stewardship is a fact of life. This is not likely to weaken anytime soon (although the effects of the mess created by BSE are yet to be tallied, I'd like to think BC ranching will endure this and come through perhaps beat up but more or less intact).

The Grassland Conservation Council has recognized this linkage and established the Grassland Stewardship and Sustainable Ranching Program as a result.

The GCC's vision is of healthy and life-sustaining grassland ecosystems in the province. This also implies keeping secure what grasslands we now have and recovering and restoring grasslands where possible. The Sustainable Ranching Program goal, in support of this vision, is to keep working ranches working. Of the laundry list of issues that threaten this goal, the GCC has chosen subdivision and fragmentation of ranches as deserving immediate attention. A problem analysis is underway and from that the board of directors will develop an action strategy. The biggest problem, of course, is that selling the ranch for amenity purposes can pay very well. And this trend is in play throughout western North America. There's no point in kidding ourselves: Reversing this trend will not be a cinch. If the reader would like to examine in full the ideas the board will be implementing to achieve the Grassland Stewardship and Sustainable Ranching Program's goals, these can be seen in their entirety in the GCC's strategic plan document (www.bcgrasslands.org).

So if, over time, we can put a stop to ranches being dismembered we will have gone a distance towards keeping them in place as functioning enterprises contributing to the GCC's vision.

In addition to the threat of subdivided ranches becoming playgrounds for urban refugees, where starter castle fantasies and other open space disasters erupt, there's an issue much closer to the ground that is also critical to the

GCC's vision and the second part of this program area: Stewardship of grasslands. To quote from the 2003–2008 Strategic Plan: "Stewardship implies caring for and maintaining a wide range of values including those related to grazing. Stewardship is consistent with sustainable use [and] does not mean preservation or protection from human use." So the picture that emerges is one of intact viable ranching enterprises whose grazing practices are in tune with the ecological integrity of the grasslands on which they depend for existence.

To indulge in a little history, grassland stewardship is, in the context of ranching history, a new concept. During its frontier phase, North American cattle ranching moved across the landscape like a ripple on a pool. Two causes drove this phenomenon: Either depletion of the forage resource or colonization of grassland frontiers by farmers and civilization, or both. The most extreme example of rapid resource depletion I've discovered was on Mexico's central mesa during its time as a cattle frontier in the 1700s. The interval between establishing a cattle estancia on a grass frontier and forced departure to grass beyond the mountains, by reason of a depleted resource, was about twenty years. In the case of forced departure we all know who won the battle between the sodbusters and the cattle barons. This dynamic and often devastating pastoral migration came to rest on the margins and in pockets of its former territory. It may be worth repeating the obvious, that today cattle raising, based on the extensive range model, exists only on those areas unsuitable for farming and intensive types of agriculture and away from heavy human traffic. No new frontier beckons as it famously did through the latter half of the 19th century. The shift from a business that was always on the move, to one of fixed horizons is still being adjusted to in my opinion. Terry Jordan's book, *North American Cattle Ranching Frontiers*, gives a fascinating account and analysis of the progression of these frontiers from the arrival of cattle in the Americas in 1493 to the closing of the final cattle frontier, BC's Chilcotin in the 1950s.

In any event, we have moved, as a society, from permitting unfettered exploitation of grasslands to an attitude of preservation, conservation and restoration. Combining the notions of grassland stewardship and sustainable ranching is consistent with the leading conservation ideas of the day and holds the possibility for benefits to both grasslands and the ranching community. Because of ranching's history, combining the notions of cattle ranching and grassland



Jim White, GCC Director/Rangeland Associates, details the process of setting up photo-point transects and the methodology for monitoring during the GCC's Healthy Grasslands Workshop in June.

PHOTO BY PAUL SANBORN

stewardship has been met with suspicion in some quarters. Allaying those suspicions and enhancing credibility is another desired outcome of this part of the program.

So grassland stewardship has two challenges: Actually achieving stewardship goals and then being believed. Making this happen calls for a combination of science and politics. The science is the easy part and there's a lot of it around. Over the last 75 years a flood of knowledge on the effects and management of domestic animal grazing on native grasslands has been produced by the scientific community. Over the last thirty years in BC there has been a solid effort to introduce more sophisticated range management. Anecdotal evidence indicates this has had a positive effect on BC's grasslands. We've advanced from the Columbus cattle management system: Turn 'em out in the spring and discover 'em again in the fall. That's all to the good, but as grazing management has improved, so the darn bar keeps getting raised. For ranchers this is like another cost/price squeeze.

Politics, and there's a lot of that also, will be the hard part, at least on the commons—and the majority of grazing lands in BC are publicly owned, about 47%. As anyone knows whose work, career, interests and aspirations centre on the commons, decision making goes into the slow lane, communication goes off the complexity scale, the full spectrum of human virtues and vices come into play, often weighted towards the latter. If someone figures out how to cut this Gordian knot, they will be hailed as the hero of the millennium. What we do know is the commons will become increasingly crowded. In the meantime, perseverance is probably the most important attribute for working on the commons.

The principle upon which this program area will live or

die is partnership. Everyone's doing partnerships today so why not the GCC? Partnerships with ranchers and the ranching community will be the foundation of the program. The ideas to be implemented that will result in this program area meeting its goals are stewardship activities, information exchange (we should change this to "learning") and supporting ranching culture and practices. There is no more detail than that at the moment, and for good reason. Until partnership(s) between the GCC and the ranching community are formed, these are only ideas, not silver bullets. For the ideas to work, the partnership must function.

At the February 2003 Society for Range Management meeting in Casper, Wyoming, I watched a presentation that told an interesting story of (what appeared to be) a successful grazing management innovation strategy resulting from a partnership between a grazing association and academia. In this case the partnership was initiated by the grazing association's ranchers who were motivated by the potential loss of their grazing allotment in the face of stringent environmental standards. As the GCC's program moves into implementation, I hope we can cook up a partnership that works as well as this one apparently did. Much is at stake for the GCC, the ranching community, and most importantly BC's grasslands.

Maurice is a semi-retired rancher whose love of savannah grasslands developed at an early age. As coordinator for the Rocky Mountain Trench Natural Resources Society, he works for seven local organizations to influence restoration of ecosystems in the Columbia Valley. Maurice lives just south of Ta Ta Creek near Kimberley, BC. He can be reached at (250) 427-5200 or Highfieldranch@cyberlink.bc.ca

Grasslands, sustainable ranching and BC's

G. Gary Runka, PAg. CAC FAIC



Horses taking a break at Alkali Lake Ranch.
PHOTO BY LIZ TWAN

The grasslands/ranching context

From the grassy dunes and beaches of the Queen Charlotte Islands to the Tobacco Plains of the southern Rocky Mountain Trench; from the Stikine River slopes at Telegraph Creek to Crater Mountain south of Keremeos, there has been a long history of domestic livestock grazing use of grasslands. Currently 95% of BC's grasslands are reported as components of 'working ranches.'

'Grasslands' and even the term 'working ranch' mean different things to different people. Sustainable livestock grazing use can help maintain the structure and function of grassland ecosystems, while overuse and unsustainable grazing practices can hasten their demise. Finding common ground amongst all of those with interests in grassland biodiversity conservation and stewardship has never been more critical.

The fact is that grassland biodiversity and working ranches are both under increasing threats. What many may not recognize, however, is that their respective futures are intricately linked. Lose 'working ranches' and we probably also lose our precious grassland ecosystems and their unique biodiversity.

Diverse and increasing threats

Grasslands and working ranches are exposed to a multiplicity of threats, with the intensity and combination dependent upon ecological characteristics and specific geographic location within the province. In some cases, the threats are external to those with grassland interests—the "usual suspects" that include residential/industrial urban land use conversion, rural lifestyle residential, and the age-old problem of confusing stewardship roles and responsi-

bilities within and outside of governments. In other cases, the threats have emerged only in recent decades, such as forest encroachment, climate change and the impacts of recreational uses that include everything from off-road ATVs to hang gliding.

Some of the most complex and difficult-to-deal-with threats originate within agricultural and environmental interests themselves. These include noxious weeds, the changing economics of beef production, unsustainable livestock grazing practices, fish habitat requirements for water quality and quantity, and sale or conversion to other agricultural uses of existing ranch legal parcels.

Overarching this multiplicity of threats—which often occur in tightly interrelated combinations—is a continuing lack of public understanding of just how much is at stake. This in itself is a monumental issue.

While space doesn't allow for specific discussion of all of these threats to the grassland/ranch complex, several warrant at least a few further comments. Perhaps a big surprise to many British Columbians (but probably not to those directly involved or concerned with grasslands) is that one of the most serious threats to grassland integrity is noxious weeds. Depending on geographical location, knapweed, toad flax and a host of other weed species are having a major negative impact on grasslands ecosystems, both in terms of sustainable livestock grazing use and critical habitats for species-at-risk.

Despite our 30-year—and overall successful—history of agricultural land preservation in BC, the threat of rural and urban land use conversion continues in parts of the province for a variety of reasons. Often, the very attributes of climate, micro-climate, aspect and soils that result in grassland ecosystems also offer high suitability—including attractive views— for residential uses.

Decisions of the Agricultural Land Commission (ALC) have sometimes resulted in loss of important grasslands. Perhaps understandably, Commission focus has been mainly on arable lands (Capability Classes 1–4), although in some of the ranching areas of the province, key grasslands (Capability Classes 5 and 6) are included in the Agricultural Land Reserve (ALR) and considered equally important. As pressures continue for subdivision within the ALR or exclusion of land from the ALR, key grasslands are sometimes seen by local and regional governments, and even the ALC, as the 'lesser of two evils' urban expansion option because of their narrower range of cropping options due to soil, climate or slope constraints. The viability of working ranch units—and their associated grasslands—have sometimes been seriously compromised by

changing land use

the selling off of existing parcels of land for “ranchettes,” rural recreational or urban development.

Recreational use on grasslands varies from well-managed with cooperation of all users to completely out-of-control with serious degradation to grassland ecosystems to the detriment of livestock grazing, biodiversity and multi-species habitats. Often closely linked with weed infestation, this impact problem occurs on grasslands, whether privately owned, First Nation Reserve or Crown. Seldom can dogs, livestock, ATVs, critical habitat and recreationists all co-exist on grasslands, except under exceptional management circumstances.

The constantly changing economics of beef production, spiraling input costs, consumer demands for different products, international marketing complexities, biotechnology, genetics management and bombshells like BSE all trigger management crises—and, therefore, grasslands stewardship crises—on too many working ranches.

Changing land values, particularly on the urban/grasslands edge, also take their toll. When land values escalate far above economic rent for forage/beef production, some ranchers start considering land use change and perhaps moving to an area of land values they can afford. Thus, we have a general trend of beef production moving away from some traditional use grassland areas to regions of the province where land values are more in line with what a forage/beef enterprise can carry.

Even within agriculture itself, conversion of grasslands to cultivated, often irrigated, crops has long been part of our history. For example, on the Okanagan Valley lower elevation grasslands, lands historically used for livestock grazing and winter feed production and home to many species at risk, have in recent times been converted to grape production because of their super heat-unit microclimate. This conversion to more intensive agricultural use within the ALR may be of benefit to provincial agriculture in general but it impacts negatively on grasslands.

Then, there are the competing environmental and ‘natural phenomena’ factors that put additional stress on grassland ecosystems and working ranches. Perhaps key to this group of ‘threats’ is the competition for water. If we include multi-species grassland habitat requirements, fish habitat, forage requirements and livestock health, the linkages necessary to accommodate all grassland interests have wide ranging tentacles. With water becoming an increasingly scarce commodity, working ranches have to compete for water that is needed for their beef production unit. This further stresses the economics of beef production, resulting in reduced stewardship options on the grasslands.

Forest encroachment is an issue in regions such as the East Chilcotin where this transition in vegetation community is moving us toward a more forested landscape with grass as a lesser component. Through this and other issues as specific as fire management and as general as climate change, we can expect significant vegetation community shifts, which will require considerable adjustment to our thinking about grasslands management.

Last, but certainly not least, lack of public awareness must also be seen as a threat to a sustainable future for grasslands. More effective communication on what ‘grasslands’ mean ecologically to a significant number of species and how this links/integrates with livestock grazing and economically sustainable working ranches is difficult but essential.

Grasslands stewardship the only option

The position of grasslands is often central to the provincial land use change maze, and the interests associated with grasslands represent a cross-section of BC society. The tangible progress we have made in recent decades in terms of grasslands stewardship is perhaps partly due to this positioning.

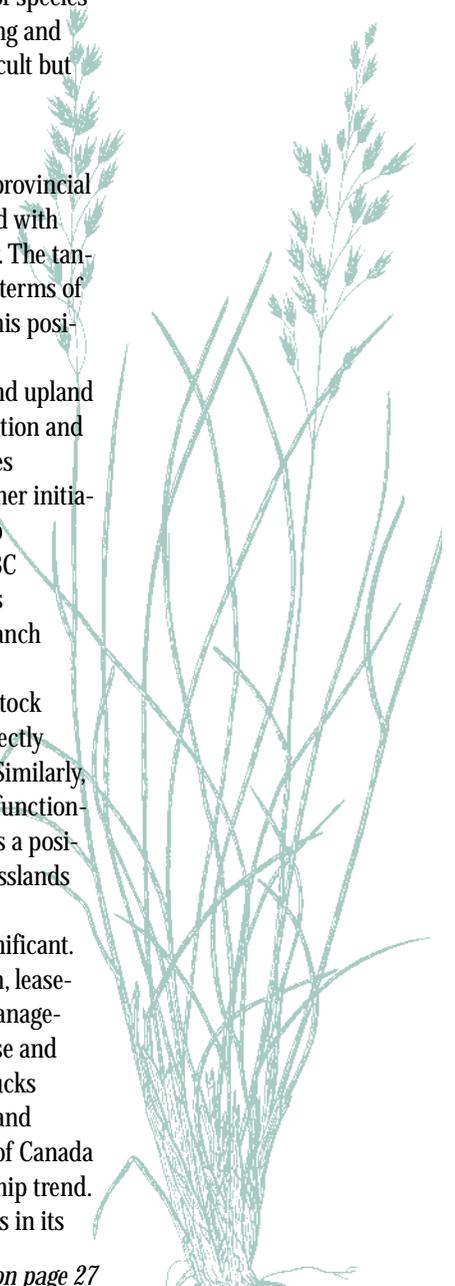
The increased on-ranch attention to riparian and upland grasslands with respect to winter feeding site location and range management fencing is evident as one drives Highways 1, 97 or 20, for example, and these rancher initiatives have contributed significantly to stewardship improvement. Award programs, such as those of BC Cattlemen’s Association and Canadian Cattlemen’s Association, also enhance the image of working ranch stewardship.

Publicly-funded programs such as the BC Livestock Management and Water Stewardship Program directly enhance stewardship opportunity on grasslands. Similarly, the provincial government assessment of ‘proper functioning condition’ of grassland plant communities sets a positive framework for managing and monitoring grasslands stewardship success or failure.

The stewardship efforts of NGOs have been significant. Using a variety of tools, including land acquisition, lease-back for enhanced integrated livestock grazing management with a biodiversity focus, options to purchase and conservation easements, organizations such as Ducks Unlimited Canada, The Nature Trust of BC, The Land Conservancy of BC, and the Nature Conservancy of Canada have all contributed to setting a positive stewardship trend.

Having said this, grassland stewardship remains in its

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The green gold of the Cariboo

Diana French, retired Journalist

Cattle ranching is one of British Columbia's major resource industries. It is also one of the oldest. Cariboo ranches established in 1860 are still in production, some are still in the same family.

The fur trade brought the first Europeans to what is now British Columbia in the early 1800s, but it had little impact on the land. The gold rush was a different matter. Thousands of miners, veterans of the California gold rush, swarmed north seeking their fortunes in the new goldfields. Cattlemen were right behind them. In June, 1858, two months after the first boatload of prospectors arrived in Victoria, General Joel Palmer, an Oregon entrepreneur, trailed a herd of cattle across the border at Osoyoos. He went through the Okanagan and on to the Fraser River where he sold the animals to hungry miners.

Other drovers followed, purchasing cattle in Washington and Oregon and trailing them to Kamloops or Cache Creek where they left them for the winter. When the grass greened in spring, the owners continued the drive to the gold fields. For an investment of six or seven thousand dollars and two months on the trail, a drover could pocket \$50,000, more than many miners made during the entire gold rush.

Jerome and Thaddeus Harper, founders of the legendary Gang Ranch, were among the first to realize the Interior's grassy slopes were ideal for raising cattle. In partners with the von Volkenberg brothers they founded a ranching empire which dominated the industry for the next 20 years. Other pioneer ranchers were Herman Bowe, who founded the Alkali Lake Ranch on the Fraser River Trail; Edward Dougherty, who began Maiden Creek Ranch near Clinton on the Cariboo Wagon Road, and Peter C. Dunlevy, the first to make a stake in the Cariboo gold fields, establishing a ranch near Soda Creek. These and many other ranches are still going strong. Maiden Creek is still in the Dougherty family.

By 1870 the gold rush was over and the market for beef gone, but one way or another the cattlemen endured, and communities grew up around the ranches. Today there are all sizes and manner of ranches from the large spreads



Bronc Twan and Cojo at Alkali Lake Ranch.

PHOTO BY LIZ TWAN

with thousands of cattle to small family operations. Grass, the green gold of the Cariboo, continues to sustain the industry which continues to be one of the province's economic mainstays.

The face of ranching has changed over the years. Computer marketing, year-round sales and huge cattle liners have replaced the brutal once-a-year cattle drives and machines have replaced work horses, but cattlemen still work on the land and in rhythm with it. Spring is still calving time. Summer is haying, but now a handful of workers put up a ranch's winter feed where it used to take a crew of dozens. Cowboys still ride the range, keeping an eye on the stock. The cows still come home in fall, and fall is when the stockyards have the biggest sales. The basic herd is fed over the winter, and then the cycle repeats.

Some ranchers say they raise cows, others say they raise grass. The truth is you can't have the former without the latter. Cattle are nature's recycling machines, turning grass humans won't eat into a protein they enjoy. The success of cattlemen depends not only on how well they manage their herds, but on how well they maintain the grasslands that sustain those herds. The fact that the grasslands have been supporting cattle for over 140 years is some indication they are doing both.

BC ranchers have always had their ups and downs. Technology hasn't changed the ranchers' dependence on the weather, and a drought or a severe winter can still raise havoc with the best of plans. Nor has technology solved the problem of fluctuating market prices. Access to Crown land, always an issue, is complicated now by the treaty process. Water rights, land use conflicts with other users such as the forest and recreation sectors, and control of noxious weeds are ongoing issues facing ranching as it enters its third century in British Columbia.

As this is written, the US embargo on beef exports because of one "mad cow" is costing the industry millions of dollars. If it isn't resolved soon, the results could be disastrous. But ranchers are a hardy lot, and the industry may get battered, as it has sometimes in the past, but it will survive.

A retired journalist, Diana has written two books, The Road Runs West, and Ranchland: British Columbia's Cattle Country. She writes a weekly column for the Williams Lake Tribune, chairs the Board of Directors of the Museum of the Cariboo Chilcotin, and is co-chair of the Cariboo Chilcotin Conservation Society.

John and Joyce Holmes, J&J Cattle Company

Katherine Gizikoff, KG Consulting



John and Joyce Holmes, owners of J&J Cattle Company. John and Joyce ranch at Empire Valley in the Churn Creek Protected Area. PHOTO BY BEV RAMSTAD, NEIGHBOUR FROM GANG RANCH

John and Joyce Holmes, J&J Cattle Company, have a unique opportunity. They are leasing the historic Empire Valley Ranch, now known as the Churn Creek Protected Area (CCPA). With its 30,000 acres of beautiful, roaming bunchgrass landscape, this is a southern BC ranching experience that few young cattlemen can venture into except through family inheritance.

At the recent GCC tour of the CCPA, Joyce provided the attendees with a description of their ventures, challenges and rewards. Their passion for the grasslands was an inspiration to the tour participants. Joyce emphasized that ranchers are stewards of the land. As well, she demonstrated how the rancher can work with livestock's natural grazing pattern to utilize the grassy slopes that vary in topography, distance from water and conditions throughout the year.

The ranch historically ran somewhere between 1000 to 2000 head. The CCPA management plan objective is to re-invigorate the plant communities and improve the grassland health. J&J currently hold a grazing lease for 500 head (cow/calf). Grass is left over, and pastures are rested through a rotation system. "Visitors comment on all the grass...we like that!" said Joyce.

The rewards of operating a ranch in this magnificent landscape are not without their challenges. Apart from being rugged and wild, the home place is very remote, being two hours from Williams Lake, 100 Mile House or Clinton. With grizzlies and wolves on the range and occasional cougars in the barn, there are dangers to their livestock and family that few in urban life can imagine. In this remote area, hired help is difficult to find; therefore, most of the haying, weed management, and riding is done by John and Joyce themselves.

It is their love for the ranch and its grasslands that motivate them beyond the heavy workload and the political aspects involved with leasing the first Crown-owned ranch. "It is in our best interest to be flexible and cooperate; however, we voice our concerns," says Joyce. In addition, they hospitably accommodate numerous govern-

ment employees and grassland consultants in their home throughout the year.

John and Joyce are individuals capable of rising to these challenges. John was raised in the Nicola Valley. As a youngster he began working on ranches as a farmhand, then as a horse wrangler for guiding outfits and rider for large cattle ranches throughout BC. Joyce was born on a ranch in Wyoming and later moved with her family to a ranch in Big Creek, BC. Her horse handling capabilities and cattle experience rival John's. While working together riding for the Gang Ranch, they would gaze across Churn Creek at Empire Valley. John remembers, "We would talk about someday starting our own cattle operation, but only dream of something like Empire Valley."

Their dreams came true in 1998 after BC Parks announced that they had purchased Empire Valley Ranch. They submitted a letter of interest to BC Parks, which started the public request for ranch operation proposals. J&J were the successful proponents and began with a cooperative lease with the local First Nation Bands—J&J held the grazing tenure while First Nations worked the hay fields. "Looking back...those were our easiest years," said John. In 2001, J&J were issued a ten-year lease for the CCPA.

BC's grassland conservationists are fortunate to have John and Joyce as stewards of the Churn Creek grasslands. They have a rare combination of youthful strength, ranching experience, and tolerance of government bureaucracy to rise to the challenge of running a successful operation in the CCPA. These modern day pioneers are truly grassland aficionados within the ranching sector.

Katherine was raised in Vancouver and escaped to BC's Interior after obtaining a BSc in Agriculture from UBC in 1981. She fell in love with the Nicola Valley grasslands while working as a range agrologist for the Ministry of Forests. After leaving the Forest Service, she entered into the land reclamation field. With a MSc degree in Resource Management, Katherine relocated to Alberta and worked for a large coal company re-establishing wildlife, grazing and waterfowl habitat values on mined lands throughout the western provinces. She moved back to the Nicola Valley in 1992 and has since been the principal of KG Consulting working throughout southern BC, specializing in land restoration. Along with her husband, she currently resides on a small acreage with their two children, several horses, pony, donkey, cats, dogs...

BSE, fire and drought: A rancher's perspective

Duncan Barnett, Rancher and Consultant

For BC's cattle ranchers, 2003 began with no indication of the turmoil that was to come. The finding of Bovine Spongiform Encephalopathy (BSE) in an Alberta cow was the beginning of a summer that saw severe drought and the most devastating fires in the province's recent history. As summer draws to a close, many ranchers find themselves backed into a corner.

No doubt grassland conservationists have several questions. How do these pressures affect management decisions that in turn directly affect Crown range resources? What do all these issues mean for grassland health? What are ranchers grappling with when trying to run an economically viable operation and manage their land in a sustainable way? While the impacts have not yet been fully assessed, some are obvious.

BSE

Bovine Spongiform Encephalopathy

Called the worst crisis in Canadian agricultural history, the discovery of BSE in a single Alberta cow shut down export markets for the beef cattle industry on May 20. A partial lifting of the export ban by the US on September 1 allowed restricted trade to resume in boneless beef under 30 months of age. This product is proven safe from risk of BSE.

Unfortunately for BC producers, the border remains closed for trade in live animals. The loss of the live animal export market has resulted in reduced demand for BC cattle, lowering prices dramatically, especially for older animals. The lack of slaughter facilities in BC further compounds the problem, as domestic processing is not a ready option.

Ranchers find themselves caught up in a frustrating web of international trade rules, tariffs and quotas, and a complex beef marketing and distribution system very far removed from the farm gate. Consumers continue to ask "if you are not getting anything why am I paying so much?" The lesson is that ranchers need to learn where their product goes and consumers need to find out where their beef comes from.

The BC Cattlemen's Association, working with government and other industry stakeholders, is investigating options to displace offshore imports, expand processing capabilities in BC, identify cold storage options, and create new

product and market opportunities by taking advantage of the expected excess supply and lower market value of cull animals.

Drought

BSE was about the only dark cloud that many ranchers saw through the record breaking hot, dry months of July and August. Drought has been particularly acute in the Southern Interior, impacting forage and water resources.

Forage production on hayfields, pastures and rangelands has been well below average across most of British Columbia. Reduced forage production has meant decreased weight gains for cattle. Livestock and wildlife have had to travel further to obtain adequate nutrition. In many cases, ranchers have had to reduce cattle numbers on the range, using up limited and valuable winter feed supplies ahead of time, or incurring the additional expense of shipping cattle to private pastures. The usual option of sending cattle to market early has not been available, and the extra cattle held back due to lack of marketing opportunities has compounded the problem.

Indeed, some upland areas too far from water were left untouched. Livestock have gone through fences in search of water, making livestock management difficult and grazing rotation plans redundant. Ranchers have hauled water to cattle and developed new stock watering sources on an emergency basis. No doubt, riparian areas have been hit hard this year by livestock and wildlife.

Although parched grasslands may look overused this year, a single stressful event should not have long-term impacts on the ecosystem. As advocates of the resource and not the industry, the Ministry of Forests allocates grazing rights conservatively for just this reason.

Weather itself is one of the variables that ranchers are used to dealing with and have developed various management strategies to cope with.

Fire

Bad things come in threes. Sure enough, the effects of this year's BSE crisis and drought have been magnified by fire. Wildfires throughout the province have been devastating and dangerous.

Damage assessments must be completed and reclamation undertaken, but it is obvious that the many interface fires have impacted sensitive

grasslands and transition forest types.

Preliminary assessments on the Kamloops area fires indicate that six to seven thousand Animal Unit Months (AUMs) have been lost for the near future. 150 kilometers of Crown range fencing is gone, along with many natural barriers to cattle movement. More than 100 cattle have been killed or put down. Often nothing remains but a powdery carcass. Like wildlife, cattle have traveled far outside traditional range areas to escape fire and smoke. Fire displacement puts additional pressure on remaining range areas.

The catastrophic fire season has pointed to the need for a review of provincial wildfire policy. To date, the emphasis has been to prevent fires and preserve timber. From a range perspective, the result has been encroachment and ingrowth of timber into grasslands.

Ecological restoration should be the new direction. Prescribed burning needs to be used as a management tool to restore ecosystems. Along with grazing, prescribed burning can also reduce the buildup of dry understorey fuels in the interface zone, limiting the potential for high intensity wildfires.

As we have seen, high intensity wildfires burn longer and hotter, destroying soils. Revegetation becomes an issue. Seeding may need to be undertaken for purposes of erosion control and forage production. Concerns about the potential for seeding to change native plant communities will need to be dealt with.

As fall rains arrive, pressures have eased a bit for some 1,500 ranchers who rely on Crown range and water resources. There may be some tough times ahead, but BC's ranches will survive and continue to contribute to the economy and stability of rural BC. Ranchers will continue their role as stewards of the land, protecting grasslands from developers and subdivision through beneficial use.

Duncan Barnett divides his time between family, ranching, consulting and local government duties. Duncan and his wife, Jane, along with their three daughters, own and operate the family ranch at Miocene, near Williams Lake, BC.

Longhorns pose for the camera at Alkali Lake Ranch
PHOTO BY LIZ TWAN



Grazing and healthy grasslands: Perspectives from the Society for Range Management

Mike Dedels, President, BC Chapter of the Pacific Northwest Section of SRM

When asked to write on the above topic for this issue of *BC Grasslands* I thought that I would start by reading back over a few issues of *Rangelands*, the non-technical publication of the Society for Range Management. I found that the Society has been struggling with the perception that range management is the same as grazing management for a number of years now. It is true that the science of range management developed in the early twentieth century largely due to pressures put on the land by grazing. Today the Society for Range Management (SRM) is dealing with many of the same issues as the GCC: Rangeland monitoring, noxious weeds, forest encroachment, development and recreational use to name a few. These issues are not isolated to BC, but are common throughout the west and other parts of the world. Those involved with grasslands in British Columbia need to remember to use the knowledge and experience gathered elsewhere and the Society for Range Management provides that opportunity.

SRM has developed a number of position statements regarding issues vital to healthy grasslands. These include, among others: biological diversity, carrying capacity, fire management, noxious and invasive weeds, off-road vehicle use, riparian values, and use of native and introduced plant species. These can be found at the Society website, www.srm.org

The following is SRM's policy on Management of Rangeland Ecosystems: "The Society believes that rangeland ecosystems should be managed to provide optimum sustained yield of tangible and intangible products and benefits for human welfare. This can only be achieved through the sound use of ecological and economic principles. The use of valid resource inventories and monitoring are basic requirements for planning and management of rangeland resources. Other manipulative management practices, including fire and integrated pest management may be employed to create positive changes in the landscape through development of sustainable, desired plant communities." Livestock grazing is one of the tools for managing rangelands and providing a tangible product from the range. "The Society supports appropriately planned and monitored livestock grazing based on scientific

principles that meet management goals and societal needs."

One of the terms used commonly with regard to range is "the science and art of range management." There is a lot of science out there, and the art seems to be picking the right science to apply to the situation. For the livestock manager on the ground, the art is balancing all of the science with economics. On topics such as range readiness, utilization, grazing rotations and monitoring methods there are varied schools of thought, each generally with science to back them up. I think that most of us would agree that appropriately planned and managed livestock grazing is a good thing, but we seem to have some problem deciding what appropriate is! That does not mean that we should end the discussion, but through groups such as SRM and the GCC we should expose our members and the ranching community to the broad base of knowledge that exists.

A key objective of SRM is to "assist all who work with range resources to keep abreast of new findings and techniques in the science and art of range management." In my role with the Forest Service we are working with ranchers on managing Crown range. As a whole they have a good understanding of their livestock and the way they use the range, but a pretty varied understanding of what a healthy grassland is. Government, resource societies, and the cattlemen themselves all have some responsibility to improve this knowledge. As we move to an era where ranchers are going to be expected to do more monitoring and planning, rather than government, the level of knowledge at the producer level will need to increase. Even when we come to agreement between government, GCC and SRM regarding grazing systems, rangeland monitoring, etc. and their role in achieving healthy grasslands, we will have accomplished little if we cannot transfer this knowledge to the owners and/or managers of BC's grasslands: The ranchers. We will also need to better include First Nations in the discussion, both for management of Reserve areas and areas with Aboriginal interest.

The goal of healthy grasslands is supported by both the
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Fall Grazing, Alkali Lake Ranch
PHOTO BY LIZ TWAN

Grazing and grassland vegetation

Peggy Broad, Instructor, University College of the Cariboo

Many people consider BC's ranching legacy to be negative in terms of its impacts on native grassland species. This has been the source of many debates between ranchers and environmentalists. My question would be: "Is this really the case?" My typical response would be the one of most avid ecologists, and I would most likely use that all encompassing statement "it depends." Some species in many areas within BC's grasslands were historically overgrazed, no doubt about it, but what we have learned from this has made many of today's grazing practices within BC quite stellar.

Some of the same species that declined in the past due to overgrazing can actually benefit from grazing today—the key is in the approach. Let's use our old grassland friend bluebunch wheatgrass as an example. This species is often termed a decreaser and if improper grazing does occur the overall population of this species tends to decline within the area. Many individuals regard this species as being rather "delicate and susceptible to harm" once they hear the term decreaser associated with it.

Okay, if we follow the line of thinking that decreasers are so delicate, could we then assume that if bluebunch wheatgrass was placed in an enclosure and kept away from all grazing pressure and fire that it would thrive? Not quite. Many of the province's older enclosures that have followed this very approach have some rather sad looking bluebunch wheatgrass specimens within their walls. They no longer have defined individual clumps but rather a maze of plants that emerge when the hearts of the plants die off.

Some believe that the decline in various

bunchgrass species populations under these older enclosure conditions may be due to the fact that grass bunches start to grow together and lack of air circulation around plant bases sets up an ideal habitat for disease. The lack of removal of old vegetation no doubt can also play a role in creating an ideal situation for disease establishment. Whatever the cause of bunchgrass decline in this environment, bunchgrass species tend to do better when there is a little space around the individual plants and older foliage is removed by animals or fire.

Grazing can help to maintain plant vigor when implemented according to the plant's requirements. In the case of bluebunch wheatgrass there are numerous opinions as to which approach is best. From this plant's ecological and physiological perspectives it benefits from a break in the spring and again in the fall to allow it to uptake moisture while it is available for growth. Grazing in winter, summer, and/or fall (but allowing for fall re-growth) may have a beneficial effect on bluebunch wheatgrass.

Using grazing patterns that follow the plants growth cycles gives the plant an opportunity to grow when moisture is available—a key factor for many bunchgrass species which live in our dry grassland areas. Bunchgrass species such as *Festuca scabrella* (rough fescue) respond in the same way as bluebunch wheatgrass within older enclosures, and grazing to remove excess and older foliage between growth periods is just as beneficial for this species. Removal of old or excess foliage may play a role in decreasing disease prospects for bunchgrass species and increasing plant vigor.

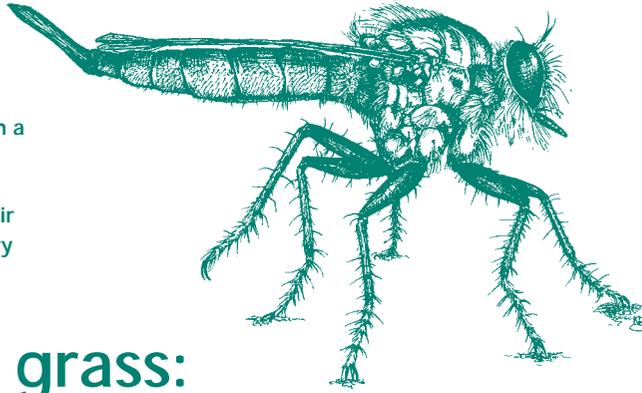
Now back to "it depends." We need to think

more closely about the overall picture created when we graze our grasslands with domestic livestock species. We can't simply assume that cows eat grass and this is bad. Grazing livestock is an important part of the grassland legacy throughout North America. With what we have learned throughout the many years of grazing practices and what we have learned in terms of plant physiology, we now have the power to graze in an effective manner to improve native bunchgrass health or graze in a manner that can cause decreasers like bluebunch wheatgrass to decline. It is definitely an interesting balance, a challenge, and a concept that requires thought and planning from many perspectives, but decreaser species can be grazed in a way that can actually help to improve plant vigor and reduce disease potential.

So enjoy BC's grasslands and look more closely at bluebunch wheatgrass, rough fescue and other native bunchgrass species that you encounter. Have they been grazed or not? Do they appear healthy or are they burdened with clumps of old rotting foliage that may set up a potential for future disease problems? And when you see the cows in the hills, don't just assume that they are out to cause harm, even cows can be beneficial in the preservation of our grasslands when managed appropriately!

Peggy graduated from UBC in Forest Sciences, becoming interested in grasslands through her infatuation with plants and ecology. She is a laboratory demonstrator and instructor in the Department of Natural Resource Sciences at the University College of the Cariboo in Kamloops. You can reach Peggy at pbroad@cariboo.bc.ca

Efferia benedicti: There is no common name for this robber fly, an abundant species in many grasslands in southern BC. This is a female, with a sword-like egg-laying organ at the end of the abdomen; the sharp feeding proboscis projects below the head. Robber flies are named for their hunting style—like muggers, they attack unwary victims. ILLUSTRATION BY NICOLE M. BRAND



Assassins in the grass: Robber flies of British Columbia's grasslands

Rob Cannings, Curator of Entymology, Royal BC Museum

At Chopaka, not far from where the Similkameen River crosses into the United States, dusty sagebrush shimmers in the July heat.

Grasshoppers with red or yellow wings crackle among the bunchgrass. Birders come here in the cool early morning to see the rare sage thrasher and maybe a grasshopper sparrow. I come here for the robber flies, but I don't arrive until the sun beats down mercilessly.

Many robber flies are hard to find, but here they are abundant and diverse. As I sit quietly, a giant grey *Proctacanthus occidentalis*, the province's largest fly (almost 5 cm long), pounces on an unwary grasshopper. A bit smaller, but just as aggressive, a *Stenopogon inquinatus* bumbles by carrying the impaled corpse of a clearwing moth. The prey is at least twice as heavy as the fly, but somehow this fierce predator has managed to get airborne with its catch. Once I saw this species pin and kill a clubtail dragonfly, many times its size, sunning on the ground. Robber flies are named for their hunting style—like muggers they attack unwary victims. The fly grabs its insect prey with bristly legs then kills it with an injection of neurotoxic saliva from its sharp proboscis—the fluid dissolves muscles and organs and the fly sucks the prey dry just like you'd devour a milkshake.

Here, only a few hundred metres from the international boundary, is the only known site in British Columbia for *Megaphorus willistoni*—a truly rare animal in a rare habitat. At least 18 species of robber flies are considered potentially rare and threatened in British Columbia, and almost all are restricted to either these dry lowlands of the Okanagan and Similkameen or to the small islands of Garry oak meadow around

Victoria. The elimination of grasslands for agriculture and housing, particularly at low and medium elevations in the southern valleys, has probably reduced populations of some flies. Overgrazing by cattle, disturbance by vehicles, and introduced weeds in many remaining grasslands may have a negative effect on populations, but no studies have been undertaken to show this. Some overgrazed sites, such as this one at Chopaka, seem to support dense and healthy populations of certain species.

Megaphorus is a fuzzy, yellow little fly; it looks just like a leaf-cutter bee as it hovers around the grassland flowers. This mimicry of bees and wasps is not unusual in robber flies. Some entomologists believe that a resemblance to its prey might allow such a robber fly to approach its dinner without warning it off; indeed, *Megaphorus* usually attacks small bees and wasps. But there is little evidence for this theory; most robber flies eat a wide variety of prey that doesn't resemble them in the least. Most people think that this mimicry of stinging insects (which is found in many different orders of insects) protects the copy-cat from other predators who recognize that bees, wasps and their kin can be dangerous. In the pines and firs just above the grasslands here live several species of robber flies called *Laphria*—frequently they wander out into the grassland. It takes practice to tell them from bumble bees, because many are big, fat, and densely clothed in various combinations of black, yellow and red hair.

Several species of white-tailed *Efferia* buzz everywhere. A couple even land on my leg—not to worry... despite their fierceness to other

insects, robber flies are harmless to humans, although you can get jabbed if you grab one. Females probe cracks in the soil with sword-like abdomens, searching for the best places to lay eggs; others insert eggs in the dried flower heads of grasses. Robber flies develop in the soil or in rotting wood, where larvae eat the immature stages of other insects.

In the huge insect order Diptera (true flies), the family Asilidae contains over 6700 described species worldwide. Although in North America robber flies are predominantly southern in distribution, especially diverse in dry environments, British Columbia has its share. From seashores to grasslands to subalpine forests and meadows, the province's myriad of habitats support about 120 species, nearly 60% of the Canadian fauna. About 40 species live in British Columbia grasslands and more wander in from nearby woods.

Like other organisms, some robber flies prefer specific grassland habitats with a particular combination of elevation, soil type and vegetation composition and structure; others are more widespread across different grassland types. For example, *Myelaphus lobicornis* is known from only two places in the province, one at Penticton, the other at Dutch Creek in the Rocky Mountain Trench. At these spots it flies only around common rabbit-brush (*Chrysothamnus nauseosus*) in June. With its almost hairless body, dark head, thorax and wings, elongate antennae, red abdomen and yellow legs, it really resembles a wasp. Much more common, *Cyrtopogon willistoni* flies abundantly among the blooming balsamroot in mesic grasslands. The male dances

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Extension note—the effects of defoliation

Wendy Gardner, Professor of Range Ecology, University College of the Cariboo

One of the challenges of managing grasslands is understanding the basic principles of grass growth and plant response to grazing (defoliation), and applying these concepts to the bigger picture of range management. Unfortunately this is not a straightforward topic as the effects of defoliation are complex and do not only involve individual plant responses but also responses on a grassland community level. This article summarizes some of the key points in terms of grass response to grazing and shows how we can link these to management practices.

To understand how defoliation impacts grass growth we must first understand how grasses grow. The basic unit of a grass plant is a phytomer, which consists of a blade, sheath, node, internode, and axillary bud. A series of phytomers make up a tiller, and an assemblage of tillers make up a grass plant.

The stage of growth that a grass is in also impacts how it will respond to defoliation. When a grass is in the vegetative state (has not yet headed out or set seed) there is no true stem, it is instead a collection of leaf blades and sheaths rolled together. At the base of each tiller is a growing point referred to as the apical meristem (or apical dome) and new leaf growth occurs on opposite sides of this point. At the base of each leaf is also a bud (axillary bud) that may grow into a new tiller. These points are all close to the ground and are usually not disturbed by normal grazing. When a grass becomes reproductive the apical meristem converts from forming new leaves to forming floral structures. When this change occurs the apical meristem

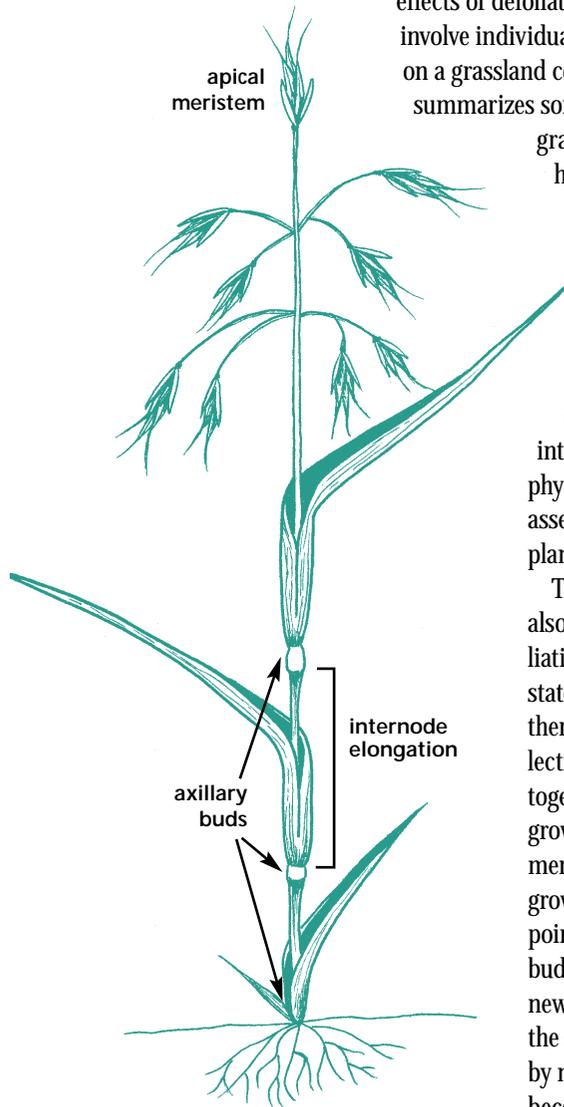
becomes elevated, the internodes elongate to form a true stem, and no new leaves can be formed on that tiller. So to simplify this, if a grass is grazed while it is vegetative it can grow new material from the axillary buds at the base of each leaf, but if it is grazed once it is reproductive it will no longer produce new material from these buds.

Another factor that impacts how grass plants respond

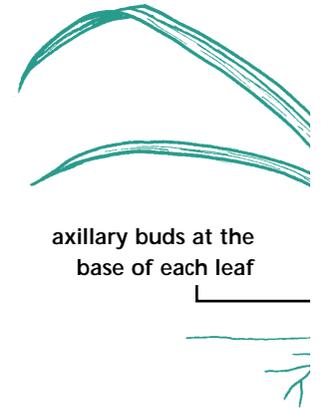
to grazing is how they store and use carbohydrates. Plants are able to photosynthesize and convert energy from the sunlight and store this as carbohydrates, which they can then access for continued growth. If a plant is defoliated it can draw on these carbohydrate reserves to help support new growth. In order to photosynthesize, plants need green leaf material and grazing can remove some of this material. Also, to regrow after grazing the plant must draw on carbohydrate reserves, and continued grazing without giving the plant a chance to restore these reserves through photosynthesis can stress the plant. You can think of this as a battery: if the battery is continually drained without being given an opportunity to recharge, it will eventually go dead.

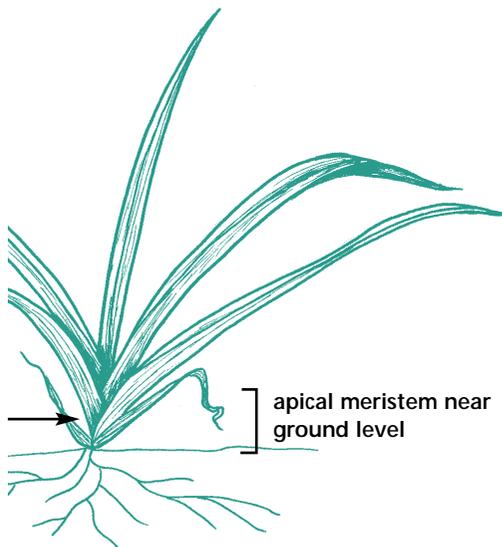
Now that we have covered how grasses grow and how they store energy, we can tie this back into our original question of how grasses respond to defoliation. In a nutshell, grass plants are well designed to deal with defoliation because the location of their growing points close to the ground means that they can continue to grow leaves if upper leaf material is removed. As well, their ability to store carbohydrates also helps to give the plant energy to grow new leaves if defoliation occurs. Grass plants may also have different avoidance and tolerance mechanisms that help them to deal with defoliation. Avoidance mechanisms, such as spikes and awns, help to reduce the probability of grazing while tolerance mechanisms, such as carbon allocation and leaf replacement potential, help to increase growth following grazing. Some plants may exhibit both avoidance and tolerance mechanisms and this can give them a competitive advantage in the plant community when it comes to defoliation.

So what does all of this mean in terms of range management? Knowing how a grass responds to grazing can help us to minimize any negative impacts by adjusting the intensity (amount of vegetation removed), frequency (how often the plant is defoliated), timing (when in the season the plant is defoliated) and duration (how long animals are left in an area) of grazing. For example, if both the grazing intensity and frequency are high we could have the draining of the battery analogy occurring. One other factor to keep in mind is the type of ani-



Grass Tiller—Reproductive
ILLUSTRATIONS BY PEGGY BROAD





Grass Tiller—Vegetative

mal that is being managed as plant selection and grazing impacts vary by species.

So although this is a complex subject, understanding even some of the basic concepts of grass growth can help us to alter our management and keep our grasslands healthy and productive.

Wendy Gardner is an Assistant Professor in the Natural Resource Science Department at the University College of the Cariboo in Kamloops. She completed her MSc (UBC) in animal nutrition and is currently working on finishing her PhD (U of A) on range use of reclaimed mine tailings areas. You can reach Wendy at wgardner@cariboo.bc.ca

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THE REAL ESTATE
FOUNDATION
OF BRITISH COLUMBIA

Conservation partner profile: The Real Estate Foundation of BC

Celina Owen, Real Estate Foundation of BC

In 2000, the Real Estate Foundation of British Columbia made its first grant to the Grasslands Conservation Council for the Sustaining Healthy Grasslands symposium. From the beginning, it was clear that the GCC and the Foundation shared a similar objective: Involving all interested parties in an important land use issue for the purpose of education and policy reform. More specifically, we liked the fact that the GCC planned to bring together stakeholders to discuss key issues of grassland management, with the ultimate goal of developing a provincial strategy for grassland conservation.

The Foundation has made three grants totaling \$50,000 to the Grasslands Conservation Council. In 2000 and 2001 our Board of Governors approved two grants of \$5,000 each for GCC public education projects (the second was for the “Threats to Grasslands—Subdivision and Development” issue of *BC Grasslands*). Then, in 2002, we made a grant of \$40,000 for the BC Grasslands Mapping Project. This project is larger in scope and has the potential to influence grasslands management far into the future.

The Real Estate Foundation has a broad mandate to support non-profit real estate related research, education, law reform and “good works” projects throughout the province. Our goal is to enable responsible land use and real estate practices for the benefit of all British Columbians. As such, the Foundation makes grants for initiatives related to non-profit housing, community planning, land and water stewardship, buying and selling a home, and many other issues of importance to residents of BC. Our grant making is organized into four themes: Environment & Land Use, Housing & Finance, Real

Estate Industry Excellence, and Real Estate & Land Use Information for Communities.

To date, GCC projects have come under the Environment & Land Use theme. Our funding priority for this theme is projects that emphasize the governance aspects of sustainable land use practices. This means that grant applicants must define the conservation values that their projects address in the context of relevant land use planning, policy and regulation.

Over the past couple of years, the “governance” focus has become the Real Estate Foundation’s niche. We recognize the value of research, education, and restoration. We also know that well thought-out and implemented regulations can go a long way to support enlightened land use decisions. In fact, one without the others will not have lasting effects.

Threatened and endangered ecosystems have gained their status because of the impact of human activities. This is why most Foundation grants are made in areas where property development is adversely affecting the integrity of natural systems. Interior grasslands, coastal Garry oak meadows, deserts of the south Okanagan, and environmentally sensitive areas adjacent to streams in many BC regions all receive Real Estate Foundation support.

We are pleased to be able to partner with organizations that share our interest in enabling more responsible land use, and wish the Grasslands Conservation Council success in its efforts to help landowners and managers, and the general public to become better stewards of the land.

To learn more about the Real Estate Foundation, visit www.realestatefoundation.com

Grassland enthusiasts head back to their “GRASS”roots

Taylor Zeeg, Communication and Extension Co-ordinator, Grasslands Conservation Council of British Columbia

In June, the Grasslands Conservation Council of British Columbia (GCC) headed into Cariboo country for its annual meeting and Healthy Grasslands Workshop.

“Back to our GRASSroots” brought together a wide range of grassland enthusiasts eager to learn more about grassland health and working grasslands, and included representatives from the ranching community, First Nations, government and conservation organizations. The four-day event was hosted out of Big Bar Guest Ranch, just west of Clinton.

After a well-attended annual meeting, the 80 or so workshop participants headed out to the Churn Creek Protected Area. During the morning session, smaller groups partook in three discussion sessions intended to give participants the tools to understand basic grassland ecology. The sessions included grassland wildlife, vegetation and microbiotic communities, and soils and hydrology.

Following the morning session, Joyce Holmes, co-owner of J&J Cattle Company, spoke on ranching history and range management within the protected area.

Joyce and her husband John ranch within the Churn Creek Protected Area at Empire Valley Ranch. It’s a unique situation as they don’t actually own any of the land they graze their cattle on. Empire Valley has a ranching history going back to the 1860s and it was purchased by the provincial government in 1998 for inclusion in Churn Creek PA. Since that time, the Holmes were awarded a 10-year grazing lease to run cattle in the Churn within the guidelines set out in the Churn Creek PA Management Plan.

Joyce says she loves the land in the Cariboo, and ranching within the Protected Area—although posing some unique management challenges—is rewarding and viable.

To round out the morning session and Joyce’s presentation on ranching in the Churn, participants learned about the effects of defoliation from Wendy Gardner, a professor in the Natural Resource Science Program at the University College of the Cariboo. Gardner explained the defoliation process and how grasses respond to grazing. This set the stage for the afternoon interpretive hike where participants were invited to walk the landscape and incorporate what they had learned to assess grassland health.

Friday’s presentations and discussion sessions provided participants with the knowledge and interpretive skills to understand the basic ecology of grasslands in conjunction with cattle grazing and range management.

Saturday morning everyone gathered early for a presentation by Bruno Delesalle, executive director of the GCC. He spoke about the diversity of BC’s grasslands, the importance of grassland stewardship, and some of the key GCC initiatives currently underway to achieve the long-term conservation of our grasslands.

Several GCC board members recounted the beginnings of the GCC at Big Bar in 1996, urging those in attendance to engage in the pursuit to achieve healthy, sustainable grasslands in British Columbia.

Then, it was time to head back onto the range, namely the historic OK Ranch, a large cow-calf operation that encompasses nearly 15,000 acres of deeded land. Owner Lawrence Joiner was a gracious host.

The “working grasslands” tour began with a stop at a range enclosure where recovery rates are being monitored. Here, participants discussed range reference areas, forest encroachment and the impacts of irresponsible off road vehicles.

The site is also home to a badger burrow and ecosystem officer Roger Packham enlightened participants on the emergence of badger burrows in the Cariboo region and the great pressure these red-listed mammals are under for survival.

Following this stop, the group headed over to a biosolids test site. Joiner is currently experimenting with biosolids applications on his deeded grasslands in order to increase yields, boost protein and extend the growing season. Biosolids are produced from five wastewater treatment plants in the Greater Vancouver Regional District. Once produced, the material is shipped to several ranches in BC’s Interior grasslands, including Joiner’s OK Ranch.

In addition to the biosolids test site, workshop participants visited a biosolids research



Rancher Lawrence Joiner had a captive audience when he hosted participants of the GCC’s annual workshop at the historic OK Ranch. PHOTO BY JEN LASHEK

site, one of four sites on OK Ranch that will be monitored over the next five years by Ministry of Forests and Agriculture Canada to address the question of possible plant species shifts associated with one-time biosolids applications.

For lunch, the workshop convoy stopped on an island of Crown range in the midst of Joiner’s deeded land and heard an historical account of OK Ranch by Joiner and a presentation on sharp-tailed grouse and forest encroachment by biologist Ernest Leupin of the Columbian Sharp-tailed Grouse Stewardship Program.

The last stop of the day included an informative presentation on photopoint transects and grassland monitoring by Jim White of Rangeland Associates. Jim walked participants through an example of a less-intensive monitoring method that ranchers could adopt for their own purposes.

The Healthy Grasslands Workshop provided another important opportunity for stakeholders to discuss important grassland issues in the grasslands. It was an opportunity for us to return to the land we care so much about to re-discover our common ground and chart our future for the conservation and stewardship of grasslands in BC.

An educational summary package is now available on the GCC website. It includes speakers’ summaries, maps and general information

on Cariboo grasslands. For information, please visit the Workshop page on the GCC website www.bcgrasslands.org

Taylor Zeeg is the communications and extension co-ordinator with the GCC. You can reach him at taylor.zeeg@bcgrasslands.org or (250) 374-5787.

Thank you to the following sponsors for supporting the June 2003 Healthy Grasslands Workshop:

- Parks Canada
- Canadian Parks and Wilderness Society – BC
- Purity Feed Co. Ltd.
- Dow AgroSciences
- Miller Springs
- Budget Car and Truck Rental

Message from the Executive Director
from page 3

The intent of this process is to build on existing methodologies to provide a tool for ranchers that is consistent with provincial requirements and that allows ranchers to collect information from year to year to assess grassland ecological condition and trend over time. It is also the intent of this project not to replace existing government methodologies for monitoring, or to interfere with existing programs.

The Hamilton Commonage Grassland Monitoring Project is about filling an important provincial need: To test and provide an operationally tested qualitative grassland monitoring tool for ranchers. The end product of this process will be a grassland monitoring manual for British Columbia's ranching community.

As support for this initiative continues to build, we are confident that the GCC is the appropriate organization to complete this collaborative process. We will continue to bring together ranchers, the BC Cattlemen's Association and other organizations—representing a wide variety of expertise and experience—to develop a much-needed consistent approach for monitoring grasslands.

Further to monitoring, the GCC has two other key initiatives under the Grassland Stewardship and Sustainable Ranching Program, namely: Coordinating and facilitating the Off Road Vehicle Management Strategy, and facilitating the development of Best Management Practices for the commercial recreational sector. For more information on these initiatives, please refer to page 25.

There is no doubt the GCC is taking on some important challenges.

Other grassland conservation initiatives



Canadian Intermountain Joint Venture

The GCC has full representation on the Board of Directors and Technical Committee levels of the Canadian Intermountain Joint Venture (CIJV). The CIJV is a partnership of government agencies, non-governmental conservation organizations, universities and industry working together to ensure that the Intermountain region continues to be a landscape that supports healthy populations of birds, maintains biodiversity and fosters sustainable resource use. The CIJV is explicitly linked to national and international efforts under the North American Bird Conservation Initiative and the GCC is doing its part to help develop biological objectives for populations and habitats of focal species, particularly grassland bird species. This habitat-based conservation approach will guide the CIJV in managing a landscape that can support entire communities of birds and other organisms. For more information contact Krista De Groot at 604-940-4684 or krista.degroot@ec.gc.ca



South Okanagan Similkameen Conservation Program

As a partner in the South Okanagan Similkameen Conservation Partnership, the GCC has been actively seeking a GCC Director to participate in the partnership. We will continue to seek a representative for this initiative, as well as remain a partner with the SOSCP. The low elevations of the Okanagan and Similkameen river valleys, whose dry climate and desert-like habitats are a northern extension of the western American deserts, exhibit one of Canada's greatest concentrations of species diversity. This national treasure of biodiversity is of international importance and is increasingly being threatened by human-created pressures. This area, with some of the greatest concentrations of species at risk in Canada, is recognized as one of the country's most endangered natural systems. The South Okanagan-Similkameen Conservation Program has been developed to focus conservation efforts to maintain this natural system and the great variety of plant and animal species that exist within it. The Conservation Program seeks strong community support and involvement to help find a balance between wildlife requirements and human needs and aspirations. For more information, contact SOSCP Program Manager Robert Hawes at (250) 490-8225 or SOSCP1@gems3.gov.bc.ca

East Kootenay Conservation Program



The GCC is engaged as a partner in the East Kootenay Conservation Program. The GCC has secured representation by a GCC Director for this important initiative. The GCC will continue to participate in the Partnership. The EKCP was created in response to the need for having better co-ordination and unison on the issues that face the East Kootenay in regard to private land stewardship and conservation. It is the EKCP's vision to have landscapes that sustain biological diversity and ecological processes, support economic and social well being, and have communities that demonstrate the principles of environmental stewardship for future generations in the East Kootenay. The EKCP has developed a prospectus and is hosting a one-day workshop for all those interested in conserving the working landscape in the East Kootenay on November 15, 2003 in Fernie, BC. For more information, contact EKCP Program Manager, Darrell Smith at (250) 342-3655 or ekcp@cyberlink.bc.ca

Columbian Sharp-tailed Grouse Stewardship Program



Columbian Sharp-tailed Grouse Stewardship Program

The Grasslands Conservation Council of BC is an active partner of the Columbian Sharp-tailed Grouse Stewardship Program. This program, sponsored by the Habitat Conservation Trust Fund, has as its main objective the restoration of grassland integrity so that sharptails and other grassland species will continue to persist in one of our most endangered ecosystems. In its first year, this program has thus far restored in excess of 20 hectares of grasslands and has developed trusting relationships with landowners to develop economically and ecologically sustainable management practices that will benefit livestock and wildlife alike.

Fresh faces and old friends on the GCC Board of Directors

Each year in June, GCC staff, members and board members all gather for the annual general meeting to reflect on the past year's success and chart course for the upcoming year. As the guiding body of the GCC, the Board of Directors takes this opportunity to replace departing board members with fresh faces.

Kristi Iverson filled the GCC chair position for one year and is stepping down but remaining on the Executive. Kristi volunteered countless hours as chair and the GCC wouldn't have made near as much progress without her.

Replacing Kristi as chair is Maurice Hansen, a semi-retired cattle rancher and co-ordinator for the Rocky Mountain Trench Natural Resources Society. Maurice, a long-standing board member and past GCC vice-chair, brings a great deal of experience and a fresh, philosophical outlook to the GCC.

Filling Maurice's role as vice-chair is Ordell Steen, a relatively new board member. Ordell spent many years as a research ecologist for Ministry of Forests and brings a lifetime of knowledge of grasslands with him.

Remaining in the treasurer's role is Judy Guichon, a cattle rancher in Quilchena, BC. Judy did a tremendous job as treasurer and Executive board member this past

year and her continued presence is appreciated and necessary.

Nichola Walkden stepped down as secretary, but graciously agreed to remain on the board. Replacing her is Bob Scheer, a long-standing board member and new addition to the GCC Executive.

Remaining on the Executive committee are Dennis Lloyd, Jim White, Cindy Haddow and Kristi Iverson. All of these board members donate an enormous amount of time and energy to making the GCC a successful organization and deserve a most sincere thank you.

Leaving the GCC Executive and Board of Directors are Dr. Michael Pitt and Bill Turner. Both men were founding members of the GCC and assisted greatly throughout the organization's infancy. Thank you Michael and Bill for your hard work and dedication.

New to the Executive committee, but long-standing board members are Ian Barnett and Wendy Gardner, both of Kamloops, BC.

Other remaining Board members include: Katherine Gizikoff, Darrell Smith, Greg Tegart, Bob Peart.

New to the GCC Board of Directors are Leanne Colombo and Mike Duffy. Welcome aboard!

Knutsford landowners offer land for grassland research and stewardship



UCC range ecology students gather around to determine species cover and learn about monitoring techniques at Don and Maureen Bennett's quarter section in Knutsford, BC.

PHOTO BY PEGGY BROAD

The Grassland Conservation Council (GCC), the University College of the Cariboo (UCC), and Don and Maureen Bennett are working together to get students out in the field. Don and Maureen Bennett own a quarter section of land in the Knutsford area and have offered students from the Natural Resource Science program at UCC to use it as a field site for data collection and field trips. All parties are also working towards developing a management plan for the site so that it can be used as a demon-

stration site for different range management practices. The range ecology students from UCC already participated in a field site visit last spring, and plans are in the works to have the students become more involved with other projects on the site in the future. The opportunity for students to collect a long-term data set from one site and also be involved in some of the management planning aspects greatly enhances their learning experience and develops better future resource managers.

Call for Members

As a GCC member, you are the driving force behind much of the Council's success. For this reason, we need your help in attracting new members to our small but growing team so that we can continue to provide a strong voice for grasslands in British Columbia.

Currently, the GCC has more members and donors than we've ever had. We think this is great, but we're setting our sights even higher! Join in the effort to conserve BC's precious grasslands by joining the GCC today.

If you've already joined, pass your membership coupon on to a friend.

UCC Range Club back in the saddle

Students are back in session at the University College of the Cariboo (UCC) and the UCC Range Club is gearing up for another event-filled year.

The Range Club is coordinated by UCC instructors Wendy Gardner and Peggy Broad, both from the Natural Resource Science Program, and is open to all students interested in learning more about range.

This year the students from the Range Club will be studying both plant identification and range management principles to get ready for the plant identification competition and the undergraduate range management exam that will be held as part of the International Society for Range Management meetings.

This year the conference will be held in January in Salt Lake City, Utah. Students are also busy raising funds to help cover trip costs. A fresh batch of "BC Grass is Best" t-shirts will be available this month and anyone interested in ordering one can contact Wendy Gardner at wgardner@cariboo.bc.ca



The UCC Range Club en route to an international plant identification competition at the 56th Annual Society of Range Management Conference held in Casper, Wyoming last February. PHOTO BY PEGGY BROAD

Grassland "treasure" has a new caretaker

Dwayne Geiger



Keira Geiger stands in front of the "biodiversity" panel of the Lac du Bois educational signs. Keira is custodian of the signs, ensuring they are clean and the area is free of weeds and litter.

PHOTO BY DWAYNE GEIGER

Imagine opening the gate to your backyard and having it filled with meadowlarks, mariposa lilies, monarch butterflies, innumerable bugs, and the occasional bear or coyote. Keira Geiger's (age 6) backyard is such a place, as her house sits on the edge of Lac du Bois Grasslands Protected Area in Kamloops.

As with any great treasure, Keira is keen to show her friends. Last year the perfect opportunity presented itself when the Grasslands Conservation Council and partners unveiled a three-panel sign introducing visitors to the park. To ensure that this sign and kiosk continue to present an effective introduction to the

park, Keira has become the sign's caretaker. This entails monthly washings and the occasional clearing away of weeds and debris. It takes her about 15 to 30 minutes each month or as the need arises. The sign is a short five-minute walk for Keira and her dad from their house. Her father strongly believes that this is a "great way for Keira to play a small part in environmental stewardship."

The signs are situated at kilometre zero of Lac du Bois Road in northwest Kamloops where they introduce thousands of people a year to hiking, biking or an incredible drive through a compelling landscape. Visitors travel from open grassland, to aspen stands and end up in dense fir, pine and spruce forests over a short 20 kilometre drive—certainly a short trip that is well worth it when visiting Kamloops.

From the age of 5, when her family moved up to the grasslands, Keira has enjoyed each of the grassland seasons. Meadowlarks in spring; butterflies, bugs and mariposa lilies in early summer; the smell of sage after a rainfall; the vibrant colors of blooming rabbit brush at the end of summer, and the small rodents that make tracks in the winter. According to Keira there is "some pretty cool stuff" to see all year. Her favorites are "finding frogs up at Lac du Bois lake and enjoying the wildflowers and butterflies." She even tells her friends not to pick the mariposa lilies (since it can kill the plant) and that the buttercups can cause allergic reactions. She has learned these little gems from the book *Plants of the Southern Interior*.

Keira enjoys the small part she can play in helping others understand her "backyard." She plans to pass her skills and love for the grasslands on to her younger sister and to all her young friends who come up to her house.

GCC Annual Event – 2004

In keeping with tradition, the GCC will hold its Annual General Meeting and field tour in June. This is a great opportunity for members and grassland enthusiasts to come out and participate in the AGM and then learn about grasslands in the field.

In addition, the GCC will organize a provincial symposium that will focus on the findings of the Subdivision and Development problem analysis currently being developed.

Stay tuned to the GCC website for updates on these events.

For more information contact the GCC at gcc@bcgrasslands.org or phone (250) 374-5787.

Mark your calendar. We look forward to seeing you there!

GCC finalizes strategic vision for next five years

The GCC 2003 to 2008 Strategic Plan is now finalized and available on the GCC website (www.bcgrasslands.org). This strategy document will provide GCC staff and the Board of Directors with direction for the next phase of GCC growth.

At a time when so many issues are facing us in the conservation and stewardship of our grasslands, it is important to have a document that aligns the goals and objectives of the GCC with future and ongoing activities.

The GCC Strategic Plan provides an integrated plan for the following three program areas: Education and Outreach, Grassland Stewardship and Sustainable Ranching, and Conservation of Grassland Ecosystems.

The Education and Outreach Program is intended to increase awareness, understanding and appreciation of the ecological, social, eco-

nomical and cultural importance of British Columbia's grasslands among a wide range of individuals and organizations, and to ensure that this knowledge is applied through behaviour change on the ground.

Grasslands Stewardship is a set of strategies and practices that will be implemented to ensure the long-term health and integrity of the grassland landscape. Stewardship implies understanding, caring for, and maintaining a wide range of values, including those related to grazing. Stewardship is consistent with sustainable use—it does not mean preservation or protection from human use.

Sustainable Ranching involves domestic animal grazing practices that maintain and enhance the economic and social viability of a ranching operation while maintaining the ecological integrity of the grassland landscape on

which these operations depend.

Through the third program area, Conservation of Grassland Ecosystems, the GCC will support the designation and protection or special management of critical and representative grassland ecosystems. The Conservation of Grassland Ecosystems Program supports and strengthens the Grassland Stewardship and Sustainable Ranching Program to ensure the long-term sustainability of grassland ecosystems throughout British Columbia.

The "Project Updates" section of *BC Grasslands* magazine will henceforth be organized around these program areas, with projects categorized in the relevant program area. The section will also include updates and information on GCC capacity building and fundraising efforts. You can view the 2003–2008 Strategic Plan at www.bcgrasslands.org

UPDATE: Education and Outreach Program

BC Grasslands Website growing!

"Understanding Grasslands," an ecological overview of grasslands in BC, and "Where are BC's Grasslands?," the maps of the BC Grasslands Mapping Project and associated statistics, are expected to be on the *BC Grasslands Website* this fall.

These two extension initiatives will help raise the profile of grasslands in BC, educate website visitors about the abundance and diversity of grasslands, and complement the other stewardship components of the *BC Grasslands Website*.

Upcoming this year is the addition of a new component, "Sustainable Range Management," intended to inform and educate visitors about issues pertaining to range management in British Columbia. Keep checking www.bcgrasslands.org for updates and new additions.

Thank you to the following partners for supporting the GCC website development: Beef Cattle Industry Development Fund; Ministry of Water, Land and Air Protection; Ministry of Sustainable Resource Management; Ministry of Forests; Conservation Data Centre; and Habitat Conservation Trust Fund.

GCC working with educators on grassland curriculum

The GCC is assisting a contractor from the BC Conservation Foundation to complete a teachers' resource book on the Interior grasslands that can be used by the elementary schools in Kamloops. The focus will be on providing the teacher with basic information about the grasslands, instructional strategies, student activities and class projects that will promote responsible stewardship of the grasslands. The various activities and resources will be linked to curriculum goals and prescribed learning outcomes. The geographic focus will be on Kenna Cartwright Park, Lac du Bois Grasslands Protected Area and the "wild" areas in the Kamloops valleys.

The GCC, as a partner in this initiative, is providing text from the "Understanding Grasslands" initiative, maps, and expertise as participants on the review panel for the project.

Back to our GRASSroots: Educational summary package

With the many grassland experts speaking at this year's Healthy Grasslands Workshop, we felt it was important to capture their wisdom and

perspectives on grassland management. As proceedings for this year's event, we have developed an educational summary package. The document includes speakers' summaries, maps, and information on Churn Creek Protected Area, OK Ranch and Cariboo grasslands in general.

Visit the GCC website, under Programs and Projects / Workshops to download the Educational Summary for your next trip out to the Cariboo grasslands!

Thank you to the following sponsors of this year's Healthy Grasslands Workshop:

- Parks Canada
- Canadian Parks and Wilderness Society–BC
- Purity Feed Co. Ltd.
- Dow AgroSciences
- Miller Springs
- Budget Car and Truck Rental

GCC Annual Report on line

The April 2002 Annual Report is now available on line at www.bcgrasslands.org. This includes reporting on GCC projects, financial reports, a list of funding organizations and donors (including members) and other general information about the GCC's progress in 2002–2003 fiscal year. Hard copies are also available upon request at gcc@bcgrasslands.org



UPDATE: Grassland Stewardship and Sustainable Ranching Program

Hamilton Commonage: Assessing grassland ecological condition and trend in BC

In 1998 the Hamilton Commonage Demonstration Project was initiated to bring together environmental organizations, government agencies, ranchers and the Guichon Ranch in a joint effort to develop a range management strategy for the northwest quarter of the Hamilton Commonage that would maintain and enhance biological diversity and improve grassland and riparian condition. In addition, the project was to serve as a basis to review the strengths and weaknesses of the *BC Forest Practices Code Seral Stage Targets and Riparian Guidelines*, as well as to review the range use planning process. With the election of the Liberal government and a re-structuring of government, the higher level goals for this project became somewhat invalid.

However, much was accomplished during the first phase of this project. The Hamilton Commonage Demonstration Project completed the following:

- Developed a list of range management concerns and identified management goals and priorities, including: Increasing the abundance and distribution of late successional stages in grassland and riparian systems, improving riparian condition, and establishing a long-term monitoring program.
- Completed inventory and mapping of water availability and quality; infrastructure (fences, water developments, roads, hydro lines, etc.); seral stage distribution; weeds; and recreational use; while partially completing inventory and mapping of wildlife species of concern, riparian areas and assessments, and aspen copse locations and condition.
- Collaborated with the Guichon Ranch to incorporate newly acquired information into the grazing plan for 1999 and 2000.
- Established four new exclosures (80 ha total) with electric fencing to begin addressing some of the biological and habitat concerns around aspen copses, wetlands and riparian areas.
- Established one new pasture with electric fencing east of Rush Lake that will be utilized by cattle at only 20% of normal levels and

Consultant Sandra Wikeem seen here sampling plots at the Hamilton Commonage. Field monitoring can be challenging but luckily Guichon steers are nearby for technical support.

PHOTO BY BRIAN WIKEEM

limited to fall grazing only. This exclosure was established to evaluate rates of recovery from partial grazing in comparison to absolute cattle exclusion. Such a strategy may provide sufficient recovery for the land while maintaining some grazing.

Upon completion of this first phase, the GCC needed to assess the effectiveness of the project and determine whether the changes in management were effectively moving towards better distribution of cattle grazing over the range and improving grassland condition.

Over the past 18 months, the GCC and the project team have re-examined the goals and objectives of this project, launching phase two: The Hamilton Commonage Grassland Monitoring Project. This project has two main goals:

- 1) To complete baseline monitoring on the northwest quarter of the Hamilton Commonage to provide information and guidance for future changes in range management. Establishing a baseline will enable the rancher and the project team to assess current range condition and monitor trends over time. Long-term monitoring of the project site will assist the GCC and its partners to gain knowledge about grassland ecosystems, their ecological succession and long-term successional trends.
- 2) To develop and test a qualitative method for grassland monitoring that is suitable and practical for the ranching community, including a grassland monitoring manual for BC. The methodology will be based on existing monitoring methodologies from BC, Alberta and the USA. The method will be tested operationally by the ranching community and will be tested in different geographic regions of BC.



The objectives of this project are:

- 1) Complete baseline monitoring of new exclosures and continued monitoring of older exclosures for the Hamilton Commonage project site.
- 2) Assess the present ecological condition (or seral stage) of grasslands and grassland-associated ecosystems for the Hamilton Commonage project site.
- 3) Establish a broad technical advisory committee that will guide the development of a qualitative method for grassland monitoring.
- 4) Develop and test a method for grassland monitoring that is suitable and practical for the ranching community.
- 5) Develop two or three pilot project sites in other regions of the province to further develop and test the methodology with ranchers. This will ensure that the methodology is applicable and tested in other grassland types and with other ranchers.
- 6) Develop a qualitative grassland monitoring manual for BC that is based on existing monitoring methodologies, operationally tested by the ranching community and that is tested in different geographic areas of BC.
- 7) Organize a workshop for ranchers and range managers to provide information on the effective use of monitoring and to give training on how to use the monitoring tools developed.

Guided by the Technical Advisory Committee, the project team will develop and field test a selected qualitative model for assessing grassland ecological condition, testing it against a more rigorous Daubenmire, or canopy cover, methodology. As part of the assessment process, the project team will test two well-established methodologies, namely the "Rangeland Health Assessment" from Alberta

(Adams, 2002/2003) and the “Rangeland Health Indicators for Qualitative Assessment” (Pyke 2002). The intent of this process is to build on existing methodologies to provide a tool for ranchers that is consistent with provincial requirements and that will allow ranchers to collect information from year to year to assess grassland ecological condition and trend over time. The project has completed the following:

- A document that evaluates existing monitoring information and methodologies for the northwest quarter of the Hamilton Commonage: “Working Towards a Long Term Monitoring Strategy for the Northwest Quarter of the Hamilton Commonage—Phase One” November 2002;
- A comparison of qualitative methods to evaluate rangeland ecological status;
- A monitoring plan to develop a qualitative approach for assessing grassland ecological condition; and
- Field monitoring, summer 2003

This is a very timely and important collaborative process, bringing a wide variety of organizations and industry together to resolve a critical range management issue: Assessing the ecological condition of BC’s rangelands.

The following organizations support this initiative: Ministry of Forests—Kamloops Region; Nicola Livestock Association; Gerard Guichon Ranch Ltd.; Ministry of Water, Land and Air Protection; Ducks Unlimited Canada; Ministry of Agriculture, Food and Fisheries; Environment Canada; Canadian Parks and Wilderness Society; The Land Conservancy of BC; the University College of the Cariboo; Agriculture and Agri-Food Canada; Rocky Mountain Trench Natural Resources Society and the Society for Range Management.

Funders:

- The McLean Foundation
- The Brink/McLean Grassland Conservation Fund
- Agriculture Environment Partnership Initiative
- The Grazing Enhancement Program
- Ministry of Water, Land and Air Protection

Progress made on drafting province-wide invasive plant strategy

Since May 2003 the Fraser Basin Council and the Technical Working Group have made great progress in developing the first draft “Province-Wide Invasive Plant Strategy.”

Based on the Weeds Know No Boundaries Symposium in May 2002 and subsequent workshops, the Fraser Basin Council is facilitating the development of a province-wide invasive plant strategy for British Columbia.

The current goal is to have a revised draft ready for an Advisory Committee meeting and workshop October 3, 2003 at the Best Western Richmond Hotel & Convention Centre in Richmond.

For more information, contact Gail Wallin, Regional Co-ordinator, Fraser Basin Council at gwallin@fraserbasin.bc.ca

Off Road Vehicle campaign making great gains!

The Coalition for the Licensing and Registration of Off Road Vehicles (ORVs) is now fully engaged in a consultation process that will result in a clear, effective management strategy for ORVs in British Columbia. The Coalition’s goal is to provide the provincial government with a cost effective and sustainable strategy for the licensing and registration of all ORVs in BC and to provide the framework for effective management of off road vehicles. This strategy will form an important building block for ORV associations to work with government, industry, and conservation groups around the province to build a sustainable future for recreation in BC and to protect grassland ecosystems.

The GCC is co-ordinating this effort; the GCC executive director is co-chair of the Coalition, along with the president of ATV/BC, the provincial organization for all terrain vehicles.

Currently, the Coalition is comprised of the following organizations:

- Grasslands Conservation Council of British Columbia
- Quad Riders Association of British Columbia
- Canadian Parks and Wilderness Society – BC
- Federation of BC Naturalists
- Outdoor Recreation Council of British Columbia
- BC Cattlemen’s Association
- Province of British Columbia Ministries of

Sustainable Resource Management; Water, Land and Air Protection; Agriculture, Food and Fisheries; and Forests

- Greater Kamloops Motorcycle Association
- Trails BC

The strategy document is expected to be complete by July 2004, and presented to government in fall 2004 for spring 2005 reading in the BC legislature. For more information about this initiative, contact Taylor Zeeg at (250) 374-5787 or taylor.zeeg@bcgrasslands.org

Establishing strategic directions: Mitigating the subdivision and development of BC’s grasslands

The loss of large natural grassland areas is due largely to two main issues: Urban sprawl and fragmentation of rural landscapes. Urban sprawl has been noticed in cities surrounded by grasslands such as Vernon, Kamloops, Penticton, Osoyoos and Oliver. These cities are continuing to see an influx of people moving there for work, lifestyle and opportunity. City boundaries are encroaching onto grasslands, resulting in an increase in recreation, housing and consequently an alteration of grassland ecosystems.

The GCC is in the process of initiating a problem analysis of this complex issue by working with key stakeholders and conservation interests to define the problem, solutions and potential conservation tools that will assist ranchers, government agencies, non-government organizations, and land managers in responding to this growing threat to grasslands. We have secured some funds for this project and are now in the process of raising more funds and developing terms of reference for a consultant.

The problem analysis will include an efficient and comprehensive consultation process that will culminate in a Sustaining Healthy Grasslands Symposium. The symposium will focus on the role of regional and district-level planners and critically examine the issues surrounding urban and rural development and its effect on grasslands. The symposium is tentatively scheduled for fall 2004.

Thank you to the McLean Foundation and Ministry of Water, Land and Air Protection for providing the seed money to get this project off the ground. Other funders are coming on board!



Best Management Practices for grasslands

The Grasslands Conservation Council of British Columbia and BC Ministry of Water, Land and Air Protection are working with Dovetail Consulting, AXYS Environmental Consulting and Judith Cullington and Associates to develop stewardship guidelines for recreational activities in BC's Interior grasslands. These guidelines—also known as Best Management Practices or BMPs—will identify ways in which recreational users can help to sustain healthy

grasslands while continuing to enjoy their activities.

Our focus is on:

- Grasslands in the Thompson and Okanagan Basins (Interior grasslands),
- Commercial recreational activities (recognizing that many of the ideas will probably also apply to non-commercial activities), and
- Both motorized and non-motorized forms of recreation.

This project fills an important need as it will prepare a set of Best Management Practices that

will provide clear direction to grasslands users, such as individuals, clubs and commercial operators, and habitat managers, on ways to minimize impacts on sensitive grassland ecosystems and the species they support.

The development of BMPs will be largely derived from the stakeholder workshop held in September from which a draft set of Best Management Practices will be developed. A final set of BMPs will be completed in the fall of 2003.

This project is funded by Ministry of Water, Land and Air Protection.

UPDATE: Conservation of Grassland Ecosystems Program

BC Grasslands Mapping Project—A Conservation Risk Assessment

The GIS section of the Grasslands Conservation Council is pressing to complete the key remaining tasks in order to deliver on the BC Grasslands Conservation Risk Assessment by March 2004. Half way through the final year of the project, Ryan Holmes and Bruce Rea are working hard on a number of fronts. A forest encroachment communication tool is being developed to illustrate, with aerial photography, changes in the grassland-forest interface over a 50-year period. The goal of this exercise is to have a snapshot of encroachment in different grassland regions of the province as well as to demonstrate the complexity of the encroachment issue in general. Secondly, a non-native invasive plant mapping pilot is underway in the Kamloops Forest District where the GCC is using a broad, expert-based approach to determine the distribution and extent of weed infestations on grassland and grassland associated habitats. A successful exercise in the Kamloops District will pave the way for mapping in other districts containing grasslands, such as Merritt, Okanagan-Shuswap, Cranbrook, 100 Mile House and the Peace. The GCC is ensuring that communication lines are open for weed mapping and that key organizations, such as the Fraser Basin Council, are aware of the proposed products and their values. Species at risk mapping overlays are also part of the workplan for this fourth and final year of the project. Red- and blue-listed grassland species sightings are being incorporated into the GIS in order for the GCC to demonstrate the value of grasslands for

endangered species. Finally, the GIS section is actively working on the development of a comprehensive extension strategy for BC Grasslands Conservation Risk Assessment. This strategy will identify the issues, audiences and appropriate extension products for GCC partners as we all strive towards grasslands conservation, stewardship and restoration in British Columbia. The extension of GIS products is the most important part of the project as the GCC looks to turn data into action.

Characterization of BC's grasslands

The GCC is working with Solterra Resources Inc. to finalize the report on the characterization of BC's grasslands. A tremendous amount of material has been compiled and synthesized by Solterra in the production of this consolidated ecological description for all the grasslands and grassland-associated communities in British Columbia. Given the intended audience for this report and other considerations, the Characterization Committee chose to revise the format and structure prior to completion of the final draft. With this new direction, Solterra will be producing final drafts for each of the grassland regions covered in the report, such as the East Kootenay Trench, Fraser Basin and Thompson Basin.

The characterization report will be the most up-to-date and comprehensive source for "one-stop" grasslands information in BC and will be a valuable resource for organizations and individuals involved in grasslands education, communications, research, monitoring, conservation and stewardship.

These two projects are funded by:

- Ministry of Forests
- Ministry of Sustainable Resource Management
- Ministry of Water, Land and Air Protection
- Habitat Conservation Trust Fund
- Vancouver Foundation
- Wildlife Habitat Canada
- Columbia Basin Trust
- The Nature Trust of British Columbia
- The Real Estate Foundation of British Columbia
- Lignum

Grassland Research Centre at the University College of the Cariboo

The University College of the Cariboo (UCC) continues discussion with the GCC and other groups about the development of a Grassland Research Centre to be based in Kamloops, BC. Although a proposal was prepared and declined from the Canadian Foundation for Innovation, the group is determined to keep the process going.

The goal is to continue strengthening the existing proposal and to establish strong partnerships with provincial and federal government, industry, First Nations, universities and colleges across BC and Canada. Fundraising has been initiated to raise \$70,000 to hire a full-time person to continue developing the concept and the proposal and to begin establishing key partnerships to ensure this process comes to fruition.

This is an opportunity of a lifetime to build what may become the only research institute of

its kind in Canada and one of the only range research and management centers in the Pacific Northwest.

Building our future

The GCC realizes that building capacity as well as ensuring a diversified and stable source of funding is critical to the continued development of the GCC and for the successful implementation of its programs. Since inauguration in August 1999, the GCC has had very limited core funding. The GCC relies on annual project funding to deliver its programs.

A stable, diversified funding base will enable the GCC to strategically and effectively address grassland issues, build a strong awareness about BC's endangered grasslands and continue to deliver key conservation and stewardship initiatives on the ground. The future of BC's grasslands depends on a strong alliance of organizations and individuals, collaboration, and the capacity to deliver and ensure the conservation of BC's Grasslands.

As part of this process, the GCC is hiring a new Development Officer to build on progress made over the past few months developing a short- and long-term fundraising strategy and building our new donor and funder database. As the GCC initiates its second annual Fall Fundraising Campaign, we are seeking help for this campaign.

If you would like to participate on the fundraising committee or in any other way, please contact Bruno Delesalle at (250) 374-5787 or email bruno.delesalle@bcgrasslands.org.

Your help is not only appreciated, it is critical to the success of the GCC.

This strategic approach to capacity building and fundraising would not be possible without the support of The Bullitt Foundation. Thank you!

East Kootenay Conservation Program

The East Kootenay Conservation Program and partners will be hosting a workshop on November 15, in Fernie, BC, for all partners and any other interested organizations. The intent of the workshop is to provide a venue for partners to come together, share information and further strengthen the collaborative conservation effort underway in the East Kootenay.

The first half of the day will be geared towards updating the partners on the coordination of effort that has occurred to date, followed by a few presentations regarding conservation projects underway in the region.

The second half of the day will focus on part of the EKCP mandate which is supporting communities that demonstrate principles of environmental stewardship. Guest speakers will provide insight into the challenges facing local municipalities in balancing growth and conservation needs, and some possible solutions.

For more information contact Darrell Smith at (250) 342-3655 or ekcp@cyberlink.bc.ca

Columbian Sharp-tailed Grouse Stewardship Program

The Columbian Sharp-tailed Grouse Stewardship Program (see February 2003 issue) has enjoyed overwhelming success during its first two years of existence. Thanks to organizations like the GCC and many landowners, we have improved and protected critical winter habitat for sharptails and other species in grasslands near Kamloops, Merritt and Big Bar. Our next step will be to develop a Best Management Practices handbook that highlights management activities that benefit sharp-tailed grouse, livestock, and of course grassland habitats. For more information about the STG Stewardship program, contact Ernest Leupin at ecoscape@shaw.ca

Gilpin Grasslands Report

Don Gayton, Ecosystem Management Specialist with the Forest Research Extension Partnership, recently completed a comprehensive review of the Gilpin Grasslands area near Grand Forks. Completed on behalf of the Ministry of Water, Land and Air Protection, the report examines a number of issues including grazing, weeds, and changes to the plant community. The Gilpin is a unique grassland that is used by deer, elk and wild sheep as well as by domestic livestock, in addition to being a popular local birding and hiking area. The report is available at <http://www.bcgrasslands.org/library/stewardship.htm>

South Okanagan Similkameen Conservation Program

On September 15th, 16th and 17th the South Okanagan Similkameen Conservation Program held a series of meetings to address the major issues surrounding the conservation work of the program's partners, teams members and recovery groups. The first day was dedicated to dealing with the projects underway within the SOSCP area. The second day focused on the events, plans and strategies of the steering committee members of the SOSCP and was an important chance for the 32 partners to link their work together. The last day was a workshop designed to discuss the Species at Risk Act and the Landscape Recovery strategies for the SOSCP partners to work with and use to access future funding opportunities. For more information, contact Peter Ord, SOSCP Outreach Co-ordinator at soscp2@gems8.gov.bc.ca



Runka
from page 9

infancy in BC and still too often falls between the cracks of government and non-government stewardship initiatives.

Survival of working ranches and grassland biodiversity will depend on the cooperative efforts of all of us. The combination of the 39% of grasslands under private ownership (including almost all home ranches), the 9% on First Nations Reserves, and the 47% under Crown grazing tenure must be considered as a whole and the ecological/biodiversity characteristics of those grasslands understood so that stewardship can be applied in practical and meaningful ways.

Ranchers will need every stewardship tool available to them in order to adapt to the changing economics of the beef industry and the constantly shifting land use change that will shape the future for BC's grasslands. In addition, they will need full stewardship cooperation of their non-ranch grassland-owning neighbours, particularly for such issues as weed control and recreational

trespass.

Nor are those living in urban communities devoid of responsibility. All of us and all levels of governments that represent us and are charged with making decisions in the public interest need to understand and respond to the threats facing BC's grasslands. Here, the Grasslands Conservation Council of BC, with its broad cross-section of interests, is in a position to promote, oversee and coordinate grassland stewardship from a holistic provincial perspective.

A shared grassland future—working ranches and biodiversity conservation—is a must. Grassland interests must walk together to protect each others' interests and the public interest, this generation and future ones.

The way forward will be extremely complicated but working ranches will have to be part of the solution if we are to retain grassland biodiversity.

Dedels
from page 13

Society for Range Management and the Grassland Conservation Council. Both groups have strived to increase involvement from landowners and tenure holders in order to transfer knowledge of grasslands and their management to the end user. We need to improve in this regard. Another objective of the SRM is "to create the public appreciation of the economic and social benefits to be obtained from the range environment." It is my hope that we can work towards that goal in partnership

with the GCC and other grassland groups around the province.

Mike Dedels has been a Range Agrologist at the Kamloops Forest District for over 13 years. He graduated from UBC with a BSc in Agriculture in 1983. Mike is currently President of the BC Chapter of the Pacific Northwest Section of SRM, and can be reached at mike.dedels@gems8.gov.bc.ca

Cannings
from page 15

on the plant's broad leaves, signalling frantically to prospective mates using his silvery front legs and black, paddle-shaped middle ones. Far to the north, in slivers of grassland on scattered south-facing slopes near the Yukon border, a couple of *Beringian* species, *Lasiopogon prima* and *L. hinei*, thrive. These are small grey or brown flies that hunt from the bare ground or from rocks and logs. A close relative, *Stichopogon fragilis*, is a tiny silver species from sandy southern grasslands—the only Canadian specimen is from Osoyoos. At 3 mm long, it is our smallest robber fly.

Sunny and open, grasslands are great places to watch insects. Robber flies are one of the most visible and fascinating groups of large invertebrates living in these beautiful habitats. Watch for them!

Rob Cannings is Curator of Entomology at the Royal BC Museum. He grew up beside a Penticton grassland in a family known across Canada for its contributions to natural history and conservation in BC. He is the author or co-author of five books, including Birds of the Okanagan Valley, British Columbia (1987) and Introducing the Dragonflies of British Columbia and the Yukon (2002) and has written many scientific and popular articles, mostly on insects and birds. Rob studied under Geoff Scudder at the University of BC for his MSc and received his PhD in Insect Systematics from the University of Guelph. He has also worked as a biologist and nature interpreter in BC Parks and a lecturer and museum curator at UBC.

BC Grasslands Magazine

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BC Grasslands is a bi-annual publication of the Grasslands Conservation Council of British Columbia (GCC). *BC Grasslands* is intended to serve as a platform for informing readers about GCC activities and other grassland programs across BC and Canada, as well as providing a forum on grassland ecology, range management, grassland conservation and stewardship.

BC Grasslands and the GCC welcome submissions of letters, articles, story ideas, artwork and photographs for each issue. Articles should be no longer than 600 words (300 words for letters to the editor) and submitted as electronic files (preferably MS Word 95 or newer).

BC Grasslands reserves the right to edit submissions for clarity and length. However, every effort will be made to work with contributors to ensure content remains unchanged. Deadline for submissions for the next issue of *BC Grasslands* is November 30, 2003.

Contributions, comments and inquiries can be made to:

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- Ministry of Water, Land and Air Protection
- Vancouver Foundation
- The Real Estate Foundation of BC
- Ministry of Forests
- Habitat Conservation Trust Fund

Artists' Corner

Nicole M. Brand

Nicole M. Brand is an ecologist who has been working in the Kamloops area since 1994. She has been a part of numerous projects involving ecosystem classification, silviculture research, and various wildlife studies. In her spare time she enjoys dabbling in the arts. "I love to mix the natural world with drawing, painting and pottery. A close look always reveals the incredible detail, diversity and unique beauty that nature has to offer."

Liz Twan

Liz Twan was born and raised a city girl. She met cowboy Bronc Twan and they married in 1978. Liz moved to the country. She has lived on the Alkali Lake Ranch all her married life; husband Bronc is the manager. They have two sons, Willee (21) and Jesse (18), and both are avid rodeo com-

petitors along with their dad. Liz is rarely without a camera, either at home or at the rodeo. Nature provides an endless source of beauty just waiting to be captured in the eye of her camera.

Call for Artists

As the GCC continues to grow, there is an ever-present need for grassland artwork for our publications and communications projects. Images can be drawings, photos or paintings of your favourite grassland landscapes or species. For all you ranchers out there, we'd love to see some of your artwork portraying working grassland landscapes. Please contact our Communications and Extension Co-ordinator with your offerings, ideas and inspiration at (250) 374-5787 or gcc@bcgrasslands.org

In the next issue of BC Grasslands...

Grassland and Range Monitoring: From Theory to Practice

The February 2004 issue is timely as it will examine the necessity of effective range monitoring for maintaining long-term grassland health. This issue will examine the challenges of balancing range science with the need for practical approaches to monitoring grasslands and assessing range health for ranchers, landowners and resource managers. This issue will also explore the current status and future needs for BC's Range Reference Areas and the importance of re-establishing long-term scientific monitoring of BC's grasslands in all regions. This issue will examine the link between an effective range reference areas program and the provincial needs for results based management by operators. We encourage submissions of both articles and photos. The submission deadline is November 30, 2003.

For more information, please contact Taylor Zeeg at taylor.zeeg@bcgrasslands.org

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*Working
together for the
conservation of
BC's grasslands*

Thank You

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- Ducks Unlimited for its generosity in providing affordable office space and giving the GCC an opportunity to continue its growth and development
- Canadian Parks and Wilderness Society for all its support and assistance with GCC programs and fund raising
- Our many dedicated and hardworking volunteers who have donated their time and energy to help the GCC grow and prosper.

Thank you to the following sponsors for helping the GCC deliver this important issue:



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