

BC

Grasslands

"The voice for grasslands in British Columbia"

MARCH 2004



Grassland Monitoring: From Theory to Practice



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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LARGE COVER PHOTO:

Salt Lake in the Okanagan by

Larry Halverson

INSET LEFT: Paul Sanborn

INSET RIGHT: Bruno Delesalle

Message from the Chair

Maurice Hansen



As I write this it is a dreary day here in the Rocky Mountain Trench. We're in the winter doldrums. A grey sky, temperature kind of neutral, no whisper of a breeze. My preference is sunshine and that has been in short supply for a few days. The gloominess was getting me down. But I got cheered up last night. I talked with a rancher friend and the conversation came around to the weather, especially the recent cold spell that lasted all of five days. "A lot of people talk and complain about the weather," he said, "but the way I look at it the weather is always good." And that is indeed a good way to look at weather and a lot of other things besides.

So with some renewed energy I tackled a question that had also been getting me down: How does a conservationist, and I include myself in that group, construct a life in today's world without losing heart? The one thing above all else that appeals to me about British Columbia and the West in general is space: wide open landscapes. I want that space for myself and I want it for future generations. Find me large, intact pieces of open country and I'm in heaven. Is this something that speaks to our inherited memory, our instincts; or is it simply something I picked up from reading *Away In the Wilderness* when I was a kid? If it was the latter then I guess I haven't grown up yet, but I think most of us have a longing to be, at least once in awhile, in a place where we can feel like the first person in the middle of creation, preferably a grassland.

Message from the Executive Director

Bruno Delesalle



This has been an incredible year for the GCC. We started the year by presenting an ambitious five-year vision and strategic plan. The 2003–2008 Strategic Plan presents clear goals and objectives for GCC activities while establishing the means for the GCC to evaluate its progress at the end of five years. Within the first year of this plan, the GCC has taken some bold steps. I would like to profile two key initiatives for you.

Significant changes have transpired in BC regarding the management of the province's natural resources. There is no question that business and profit are driving land use planning and decision-making in BC; this policy stems from a "what is good for business and development is good for BC" motto. The GCC and other conser-

vation organizations must take action now to mitigate future loss and degradation of BC's endangered grasslands. Although there are regional efforts to protect grassland landscapes and endangered habitats, British Columbia needs a strategy that will ensure the conservation of grasslands throughout the province.

But if we look at the range of issues that put BC's grasslands and those open spaces at risk and if we are sensible about what we can do to change that, it is a given that the totality of grasslands in the province will be less at the end of 2004 than at the beginning. It's hard to imagine a different outcome. For example, the human population in the Okanagan Basin is predicted to double in the next fifty years and that growth is underway now. I wonder what the municipal officials there have in their minds as they contemplate this. My guess is there is some rejoicing at the perceived benefits of this kind of "growth." I'd like to be able to say to those communities: "Fine, grow another hundred thousand but you can't grow beyond existing boundaries because you will be depleting grassland capital assets from the provincial account." This is a kind of dream I have once in awhile, a great gesture to mock conventional ideas of inevitability. It is hard to accept, but BC's grasslands are still in retreat.

The response to the question I posed at the beginning is action, and as the Council moves into the new year, action is precisely what the GCC's attention will be focused on. Pursuing our vision is a great challenge but I take inspiration from J. Goethe: "Whatever you can do or dream you can, begin it. Boldness has genius, power and magic in it. Begin it now." And I am going to keep my friend's outlook in mind as the winter slides away. The weather is always good.

Identifying Priority Grasslands—Working Towards a Provincial Grasslands Conservation Strategy

Identifying Priority Grasslands—Working Towards a Provincial Grasslands Conservation Strategy

Over the past four years, the GCC completed a comprehensive provincial Geographic Information System (GIS) that identifies the abundance, distribution and status of British Columbia's grasslands. We have taken an important step in establishing the most thorough source of information and data, including maps, for all grasslands in BC. However, we are still a step away from being able

to inform government on priority grasslands for conservation and stewardship.

Building on the provincial grasslands GIS, the GCC is initiating a process that will identify high value, priority grassland areas across the province. This process will be based on value criteria such as ecological condition, integrity of ecosystems, species diversity, connectivity, and threats to the ecosystem. The criteria will be used to identify important grassland sites in each region.

Based on this collaborative process, the GCC will recommend appropriate conservation action for high priority areas, including designation of protected areas, special management zones on provincial Crown and federal land, acquisition of properties, establishment of covenants on private land, and priority areas for stewardship on private and First Nations lands. The identification of priority grasslands and 'core' conservation areas is a critical step towards developing and implementing a provincial grassland conservation strategy.

Mitigating Fragmentation and Development of BC's Grasslands

The second initiative I would like to profile dovetails with the priority grasslands process. Over the past two years, it has become increasingly apparent that fragmentation, urbanization and development of grasslands throughout the Central and Southern Interior are one of the most significant threats to BC's grasslands. Consider the following:

- Over 55% of the native grasslands in the Central Okanagan and 40% in the Southern Okanagan Highland (Boundary Country) have been lost.
- An additional 70,000 people will move into the Central Okanagan over the next 20 years.
- Steady growth is predicted for the North Okanagan, Thompson and Nicola regions as well.

Cities such as Vernon, Kamloops and Penticton will continue to grow, expanding their boundaries into the grasslands and further encroaching on already endangered habitat.

Urban sprawl is only part of the problem. Incremental fragmentation of grasslands for the development of recreational properties, ranchettes, resorts or other tourism developments, and roads will continue to impact grasslands. Significant portions of our grasslands are privately owned; for example, 58% of the grasslands in the North Okanagan and 71% of the grasslands in Nicola Valley–Douglas Plateau region are held privately. Now consider that most of this area is ranchland. Combine this fact with the reality that many ranchers are reaching the age of retirement, and that younger generations are not necessarily interested in ranching. Add to this that the value of land for development in the Central and Southern Interior has increased to the point where it exceeds the agricultural production value of the land. In the USA, there are examples where land values for development exceed the agricultural values by 30 to 100 times. British Columbia is not far behind this trend. These factors in combination do not paint a promising picture for BC's grasslands.

This province presently has few widely accepted tools, incentives, or programs that will ensure that working ranches are kept intact and that existing grasslands are not lost to other forms of land use. Current government policy and simple economics will suggest that other forms of land use are more profitable, and consequently more appealing, to development interests.

Clearly, these are complex issues. The lack of information and the inability to strategically and collaboratively develop solutions to address the fragmentation and development issue has motivated the GCC to take a leadership role.

Mitigating the Fragmentation and Development of BC's Grasslands is a two-year initiative that will bring stakeholders to the table in order to develop a strategy and forge solutions to this complex problem. The GCC will:

- Plan and organize a workshop to scope and prioritize the issues;

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BC Grasslands Reflections: 1920 to 2004

Dr. Bert Brink, Federation of British Columbia Naturalists

My first awareness of grasslands came about the time the 1914–1918 war was ending; it is a bit fuzzy. My mother, I recall, was driving a one-horse buckboard and we were passing a field being ploughed and a slough from which waterfowl were rising. With emotion she said, “Where will the birds go and what will the Indians do?” I recall that she fed starving Indians who came to our back door. She had lived to see the great ploughing of the grasslands and the advent of barbed wire. Some years later I realized that she was echoing the sadness portrayed in Charlie Russell’s famous pencil sketch of a cowboy mounted on a horse with drooping head standing on prairie sod criss-crossed with trails, looking at a ploughed grassland. So little natural grassland remains today and all of it is fenced.

In the early 1930’s I took a course in paleontology from Dr. M.Y. Williams at UBC. He spoke of the extinction of the dinosaurs in the late Cretaceous period, the elevation of the continents and the evolution of the world’s grasslands. Coincidentally Professor John Davidson gave me free rein of his herbarium and asked me to construct a key for the identification of BC grasses. And I read essays by the geographer Carl Sauer about the world’s grasslands, their great magnitude and significance.

In 1935 I was offered a graduate position at the newly formed Kamloops range station. T.P. Mackenzie was the “super” and E.W. Tisdale, to whom I was assigned, was the botanist. Ranchers, along with interest from the

Dominion and provincial governments and from the Faculty of Agriculture at UBC, had urged the establishment of the station. With few exceptions, the grasslands of BC were in terrible shape. The war had brought high prices for horses, red meat and cereals. After the war the overstocked grasslands were plagued by droughts, grasshoppers, and

cropland with cereal rusts and smuts. There is no exaggeration: in summer the grasslands about Lac du Bois, Riske Creek, and the Nicola Commonages were so much dust. Hardin’s “Tragedy of the Commons” was being enacted before our eyes.

The programs and impacts of the first range station were vast: to show the value of reducing rancher

dependence on low elevation grassland in favour of more use of open forest and alpine meadow, and to encourage growth of remnant perennial grasses on abused grasslands by rest, rotation, and avoidance of continuous grazing. There were reseeding trials; crested wheatgrass was first introduced for dryland seeding in Saskatchewan and BC. Weight gains and losses for cattle on different kinds of range were determined; methods to assess carrying capacity of different range classes were given consideration; economic surveys were undertaken to assess operation costs such as fencing. Sounds familiar, but not so then. Ranchers themselves became the best advocates of range management.

Putting the work done in the 1920s and 1930s into context is important for today. Interior forestry had barely started and much of our work was done from horseback. The highways of today did not exist or were simply gravel or soil. Plant identifications were made from the inadequate Henry’s *Flora of BC* and Rydberg’s *Flora of the Rocky Mountains* (from Utah). We charted hundreds or thousands of so-called metre square quadracts; on our knees we came to know the grasslands of BC very well.

Well before the clouds of war gathered over Europe in 1939 the first range station closed, leaving a firm footprint on BC’s grasslands.

Very soon after the war, ranchers, scientists and technicians recognized a need for a technical organization that would foster better management of rangelands and grasslands. Americans and Canadians initiated the organization. Subsequently it was joined by others from many countries and international congresses have been held. The significance of world and regional grasslands began to be appreciated. Today there are few countries without vibrant organizations addressing problems of the world’s ranges.

Universities and colleges in many countries offer courses, and some have entire departments teaching management of rangelands and grasslands. On my return as an instructor to UBC in 1939, I was asked to start a course in plant ecology, given the designation of “Range Management” or “Range Ecology.” The course recognized the diversity of wildlife as well as domestic animal users of grasslands. The only other courses of similar content were those taught by Dr. Sampson in California and Dr. Stoddart in Utah.

Out of the Navy after the war, Wilf Pendray returned to head up the Grazing Division of the BC Forest Service. Among many items, he addressed “the tragedy of the

The author at a range survey camp at Pass Lake, 1936. PHOTO COURTESY OF THE AUTHOR





Nicola Commons” by assigning welfare of their parts to individual ranches. He reduced the number of semi-feral horses and introduced new techniques in assessing the carrying capacity of crown ranges. Tom (T.W.) Willis re-established the Canada Range Research Station in Kamloops with buildings, a field facility and a laboratory facility, this despite post-war shortages; I once found him retrieving nails from old planks so that a building could proceed.

When I was young most people in Canada could fairly be termed rural. Today, depending on definition, probably less than five percent, or by some definitions only two percent, are rural. Through 1950 into the present there has been rapid population growth; and with it a loss of grassland and farmland, variously estimated but probably over 50%, in favour of housing, industry, transportation, and communication facilities. By 1972 arable land was being alienated by about 10,000 acres per annum.

How little remains of BC’s natural grasslands! That is a retrospection of a life of more than 90 years, born in Alberta but lived in BC. The retrospection is paralleled by an awareness of the rapidly growing population, largely of newcomers urban and suburban, with an insatiable demand for accommodation and the facilities of infrastructure; a population not antagonistic to, but largely unaware of, the significance of open grassland to them and to the well-being of our province. It is not easy to convey to them the values of the open space, the diversity of plants, animals and soils it contains, its climates and recreational features, or of the nature and character of the ranching community it supports. So much of the value is intangible; political decision-makers burdened with problems they deem to be larger pay scant attention to those of the grasslands.

What are the policies that might support grasslands and

The author working on a tree reproduction study at Watching Creek in 1935.

their communities? To this point the community has prided its independence but can that position be maintained? Europe subsidizes its agriculture, no matter how you read it, with subsidies three times those of Canada, America by at least twice. Is the field of play level? That is questionable. There are some pluses: Land and Resource Management Plan processes provide some useful boundaries. The Nature Trust of BC has purchased grasslands and, working with local ranchers, established two sizeable, biodiversity-producing ranches. The Land Conservancy of British Columbia and the Nature Conservancy of Canada have purchased significant grasslands. Good enough, but not enough.

One thing that is very clear to this elderly aficionado of

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That is a retrospection of a life of more than 90 years.

BC grasslands—all environmentalists, wildlife harvesters, recreationists, ranchers, and local politicians must work in concert to inform the larger community of BC of the values of our grasslands. We must continue in as many ways as we can to devise our own stewardship of a most precious asset.

Signing off with my family cattle brand assigned in 1885 under Northwest Territories of Canada. **Ⓔ**

Dr. Bert Brink is a long time grassland enthusiast, and has been a respected member of the Grasslands Conservation Council since its inception at Big Bar Ranch in 1996.



Grassland monitoring: The great adventure

Don Gayton, M.Sc., P.Ag., Forest Research Extension Partnership

The time: seven am on a lovely July morning. The place: a native grassland in the Southern Interior. The purpose: to remeasure a vegetation monitoring plot I had put in five years before. Now fast-forward to late afternoon; it hasn't been a good day. The metal plot marker pins I put in five years ago are now impossibly hard to find, buried by overactive pocket gophers. Fortunately, I had put wooden stakes next to the metal pins to make them easier to find. Unfortunately, cows and deer have knocked most of the stakes over.

Then to top it off, the little aluminum tags used to number the plots have been stolen by magpies. After painfully reconstructing the plots from my notes, I begin to rack my brain: did I start monitoring on the left side, or the right side of the plot? Is my ability to estimate plant cover similar to what it was then? Is the Columbia needlegrass I identified then actually the annoyingly similar stiff needlegrass I am looking at, or has the one dropped out and the other taken its place? After a full day of those kinds of questions, the hot summer sun takes its toll. Drops of sweat fall on my data recording sheet, smearing the numbers. I keep losing my pencil in the tall grass, and my water bottle is empty. There is no rhyme or reason to the vegetation; it varies every metre. I have no idea if the plant community changes I'm seeing over the span of five years are due to weather, management, measurement error, or space aliens.

Relax, this story is fictitious. All of these things have happened to me in twenty years of grassland monitoring; they just haven't all happened at the same place and time. But the story does serve as a good introduction to the challenging but fascinating task of monitoring BC grasslands.

I start from the premise that we can't manage ecosystems or natural resources unless we monitor them. With grasslands, this is a statement of faith, since we know so little about how grassland ecosystems work, and how to monitor them effectively. But, rather than wringing our hands in despair over our ignorance, we can all bravely say, "There's no time like the present," and "Learn by doing," and blunder cheerfully into the swamp.

I'm going to talk about vegetation monitoring.

Certainly there are a host of other grassland organisms worthy of monitoring, from cicadas to Herefords to sage thrashers, but they are all held within – and are totally dependent on – the lovely green matrix of grasses and forbs.

Good inventory and good monitoring go hand-in-hand. Inventory tells you what vegetation is growing where, on a landscape scale. Monitoring chooses one of those vegetation types (which might be contiguous, or more likely, scattered in separate chunks across the landscape) and tells you in detail what's happening within that vegetation type. Baseline monitoring is just that; it's a single snapshot. Condition and trend monitoring, or repeat monitoring, is the moving picture. That's when you go back to your original monitoring site after a season, or a year, or five years, remonitor, and compare the original baseline data to the current data. As you make this comparison you ask, "Is the plant community changing, and if so, what is causing that change? If there are changes, are they positive, negative or neutral, from an ecological standpoint? From an economic standpoint?" At this point you will probably also ask yourself, "O Lord, why me?"

Grassland monitoring has two different tribes; there is the cowboy tribe, and the lab-coat tribe. These tribes are symbolic of a fundamental paradox in the systematic monitoring of grasslands. Observations that are broad enough to have useful application in the management of grasslands (cowboy monitoring) rarely meet the level of statistical validity. Conversely, statistically valid observations of grasslands (lab-coat monitoring) are by their very nature so narrow and site-specific that they have little relevance to the management of grasslands. Within the lab-coat monitoring tribe there are separate clans, which feud mightily over methodology and statistics.

What can I say? Embrace the paradox, the tribes, the feuds and the triangle.

I think of grassland monitoring as a triangle, sitting on a table. The table represents a foundation of good, solid biogeoclimatic inventory. The wide base of the triangle represents a large amount of informal, observational and semi-quantitative monitoring. The middle of the triangle represents a smaller amount of replicated, quantitative monitoring done by observers with some training. The apex of the triangle represents a very small amount of research-grade, heavily replicated monitoring, done by trained researchers at semi-permanent

The author using a
Daubenmire frame.
PHOTO BY DON GAYTON

research sites. The key thing is that each level of the monitoring triangle supports and informs the other. Now if I can take my geometry analogy further and introduce the dimension of time, we transform our triangle into a prism shape, where the same three interrelated levels of monitoring are repeated over time to give us condition and trend data. With this arrangement we now have continuous and reliable data flowing out of the prism like rainbow colors of light, illuminating the lives of grassland users and grassland policymakers. But I digress.

No matter where you go in grasslands, all quantitative monitoring boils down to one or more of four key parameters: floristic composition, plant cover estimates, plant population estimates, or plant weight (dry matter production) estimates. Floristic composition is simply a fancy term for identifying the plants on a site. You might ask where range readiness and grazing utilization checks fit in: they are grass height measurements, but the height measurement is really just a surrogate for plant weight.

A lot of my work has revolved around the use of the Daubenmire frame, a simple, traditional device for estimating plant cover. It is a portable, rectangular metal frame that creates an opening 20 cm by 50 cm wide, which is placed over the grass canopy. The observer then identifies each species within the frame and estimates what percent of the space inside the frame the leaves and stems of those species occupy. “Daubie” frames are simple to make; a welding shop can put one together for a few bucks. I think everyone with even a passing interest in grassland monitoring should spend a few hours looking through Rexford Daubenmire’s little metal window, in the company of someone who knows their plants.

There are several variations of the Daubenmire methodology that one should be aware of before embarking on projects using the device. Point intercept is an alternate plant cover monitoring methodology that in some instances can give more precise, less subjective data. Line intercept is a third variant which works well for grassland shrubs and trees. Plant cover methodologies can also be used to estimate amounts of other grassland elements, such as plant litter, mosses, lichens, bare soil, feces, etc.

Photography is also used extensively in grassland monitoring, but one must remember that photographs are not quantitative, and a photo represents a single replicate. I have taken and retaken close-up grassland photoplots for years and find the photos to be of limited value. I find medium distance and landscape photographs to be more useful, particularly for seeing gross changes in shrub and tree cover. Photographs really come into their own as adjuncts to the presentation of data. A graph, together with a photo, is worth far more than a thousand words.

A typical chunk of British Columbia native grassland will contain 20 to 50 vascular plant species, putting it at the very high end of the BC biodiversity scale. Typical too is the rule of “few common, many rare.” In other words, most

of the plant cover (and biomass) on a grassland site will come from three to six dominant species, while the cover values of all the rest of the species will range from minor to minute. The few common, many rare feature has two implications for us: firstly, it makes it possible to crudely characterize a grassland by simply identifying and ranking those leading species; secondly, if we want to monitor threatened or rare plant species, it means we have to do a lot of observations—many looks through Daubenmire’s window—in order to get reliable data.

One of the real deterrents to grassland monitoring is grass plant identification, which normal people put in the same category as root canal work. Grass identification is difficult, humbling, and necessary. Over time, it comes. British Columbia now has some good grass taxonomy books and, probably more importantly, good grassland taxonomists. Seek them both out.

While on the subject of humbling, seasonal and between-year weather effects on grassland plant cover and biomass will almost always be greater than the effects of our grassland management. Repeat remonitoring a single site can help “smooth out” weather-related variation in our data sets.

For additional detail and monitoring references, my 2003 publication *British Columbia Grasslands: Monitoring Vegetation Change*, is available from the Forest Research Extension Partnership (FORREX), or downloadable from our website (www.forrex.org).

Parting advice? To monitor is good; to remonitor is divine. We are really proficient at establishing new monitoring plots, but not so good at the unromantic grunt work of finding old data sets, relocating the plots they came from, resampling them, and making sense of the trends. There are literally hundreds of existing grassland monitoring plots, transects and exclosures in this province, patiently waiting to confess their ecological secrets to the right person. It could be you.

At the risk of sounding New Age flaky, monitoring native grasslands can be a personal transformative experience. In the process, the grasslands will give far more to you than you will ever give back to them.

Don Gayton, M. Sc, P. Ag, is with the Forest Research Extension Partnership—FORREX, in Nelson. His monitoring experience includes working as range management specialist for the government of Saskatchewan, and participating in the now-cancelled Rangeland Reference Areas program in BC. He nurses an enduring grudge against pocket gophers.

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The Rancher's Role

Duncan Barnett, Rancher and Consultant

The new Forest and Range Practices Act came into force on January 31, 2004. The legislation and regulations are the primary part of a results-based framework, but they are not the only component. Policy, procedures and best management practices—collectively referred to as guidelines—support the legislation and regulations. A well-understood, agreed-upon set of guidelines which includes monitoring details, has yet to be put in place.

The new Act and regulations were developed in order to promote innovation and provide for balance and flexibility in managing the province's forest and range resources. Flexibility is found in the fact that ranchers can choose between a relatively prescriptive Range Use Plan and the innovation enabled by a Range Stewardship Plan. How the new legislation will impact range monitoring for ranchers on the ground will depend on the plan chosen.

Under a basic Range Use Plan, one can expect monitoring to be focused on following the grazing schedule. The schedule should ensure that positive results are achieved. In those plans, where results such as plant community descriptions, range readiness criteria, stubble heights or browse utilization levels are specified, the rancher will want to record some observations and measurements. When thresholds are reached, appropriate action must be taken.

Ranchers with a Range Stewardship Plan are required to develop a process for monitoring and evaluating the consistency of their range

*Like many things in life, range management
is part science and part intuition.
Done well, it becomes an art.*

practices with objectives set by government for soils, forage, water, fish, wildlife and biodiversity. This will necessitate assessments for litter and cover, species composition, productivity, proper functioning condition, and so on. The stewardship plan may also include utilization criteria, either in the form of results specified by the Minister, or alternative results and strategies proposed by the rancher. Monitoring will be necessary in either case, and plans that propose alternatives must contain a process for monitoring and evaluating these results or strategies.

Regardless of the plan chosen, the rancher's role will be to collect credible data and evaluate it accurately. They must do their best to comply with all practice requirements. Monitoring techniques will be more complicated, and the interpretation of findings more complex, for the Range Stewardship Plan than the basic Range Use Plan.

Transition provisions give range tenure holders until December 31, 2005 to move from plans authorized under the old Forest Practices Code to new results-based plans. This means stakeholders have less than two years to agree on what will be monitored, the techniques that may be used, and how findings will be interpreted and applied.

In order to have an effective, comprehensive, province-wide approach to grassland monitoring and range management, all stakeholders must first agree on the purpose. Monitoring solely for the purposes of compli-

ance and enforcement will never get buy-in from the ranching community.

Monitoring should be for the purpose of maintaining or improving rangeland health. As part of the plan-monitor-control-replan adaptive management system, monitoring leads to improved results—both from the perspective of range practices and ranch production.

To be effective, a monitoring program must balance range science with practicality. How large a sample size is needed to measure stubble height? Techniques must be easily accessible to ranchers. Pictures and photo points are a good example. Simple measurements increase the likelihood of getting useful and relevant information. Make it too complicated, and the data may become meaningless. The plant community description for a Chilcotin hay meadow before and after harvesting—"same only shorter"—comes to mind.

A comprehensive monitoring program must encompass not just grasslands, but rangelands in general. Monitoring cannot be limited only to livestock grazing impacts. It must address impacts from wildlife, recreation and invasive plants, forest encroachment and ingrowth, and urban encroachment. The various pressures on resources and the natural diversity of our province make the task of monitoring more complicated in BC than in other jurisdictions.

A province-wide approach to monitoring requires agreement between all stakeholders including ranchers, conservationists, and at least four government ministries. The monitoring program equivalent of Generally Accepted Accounting Principles is needed. Generally accepted monitoring principles should include the what, where, when and how of measurement. Perhaps most importantly, there must be agreement on how to interpret findings. The ranching community is greatly concerned about the effects of uncontrollable variables such as weather, and the use of point-in-time measurements that fail to convey overall trends.

Extension is needed to communicate what is learned through monitoring, as well as through research and inventory activities. An ongoing forum to discuss application of theory to practice, problems with techniques or interpretations, and possible solutions, would be useful. We should also continue to look at examples of monitoring programs from other jurisdictions.

Like many things in life, range management is part science and part intuition. Done well, it becomes an art. The range is the artist's medium. To increase the pleasure derived by creatures great and small who experience this art, we need to ensure that data collected by monitoring provides useful information, which in turn translates into knowledge that improves the skill of our artists.

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.

Excerpts from *Transitions in Rangeland Evaluations*

Pyke, USGS Forest & Rangeland Ecosystem Science Center and Herrick, USDA and New Mexico State University

Concepts and practices of rangeland evaluation have evolved with time. Twenty-five years ago, if evaluations even were mentioned in textbooks, the focus was on upland areas, ignoring wetlands and any transitional areas associated with streams and lakes. Evaluations emphasized inventories of biological and physical characteristics of upland units, and determined status and trends of these characteristics as a surrogate for the status and trends of rangelands as a whole. Evaluations of rangeland status, referred to as rangeland condition, relied heavily on measurements of the variety of vascular plants present, and a comparisons of these measurements against a standard amount or proportion of these plants.

In recent times, we continue efforts to determine the status of rangelands and evaluate any changes in a plant community relative to a standard. However, the traditional approaches no longer meet the needs of rangeland managers. New tools are being developed to address three issues: (1) increased demand for indicators that reflect ecosystem function and that are relevant to multiple uses and values in upland systems, (2) increased importance of wetland, riparian, and aquatic communities as integral parts of rangeland ecosystems, and (3) the need for quantitative, consistent national and regional evaluations that effectively address both of the first two issues.

25 Years of Change

An ongoing debate continues about the use of traditional measures of rangeland condition and trend for upland areas. Rangeland managers have noted international examples of the failure of the rangeland succession model used in the traditional condition classification. Often the failures were recorded in arid and semiarid environments. The removal of livestock grazing alone was frequently insufficient to allow vegetation succession to proceed as predicted within typical management time frames.

The use of indicators in rangeland evaluation has been a recurrent theme. The trend has been to move from one or two indicators to a suite of indicators. Pellant and coauthors in 2000 developed a qualitative technique called *Interpreting Indicators of Rangeland Health* that currently is being applied by the Bureau of Land Management and Natural Resources Conservation Service. This approach uses 17 indicators to rate a site in three attributes or criteria, soil and site stability, hydrological function, and biotic integrity. Soil and site stability describes a location's ability to limit soil erosion to the normal amount expected for the location. Hydrologic function is the ability of the location to capture, store, and safely release water while biotic integrity is the capacity of a location to resist the loss of biological functions and be resilient enough for the biological organisms to recover from disturbance. Thus instead of one overall rating of rangeland status, a manager obtains three separate ratings giving a more specific description of the status of the land than a single rating. Pyke and co-authors in 2002 modified the standard for compari-

son by de-emphasizing the need for reference areas and advocating the reliance on a written description of the range of values expected for each indicator on an ecological site. They also proposed a series of quantitative techniques that could be used to monitor many of the indicators, but applications of these techniques have not been formally reported.

Future Rangelands Evaluations

Although remote sensing technology has been with us for the last 25 years, we believe that it has only recently become a useful tool and one that shows additional promise as we learn how to apply it appropriately and how to link it to land-based techniques in a cost-effective manner.

Remote sensing technology combined with Geographic Information Systems (GIS) are providing us with tools to examine how rangelands that are isolated by development, invasive species or changes in land uses may impact wildlife species that requires large expanses of undeveloped land. Pyke and Knick in 2003 discussed how these tools could provide us with a mechanism for prioritizing our restoration and improvement efforts. Using GIS technology, we can simultaneously evaluate soils, potential productivity, climate, and vegetation communities. This improves our ability to develop predictive models useful in designing effective restoration plans and reconnecting fragmented habits.

Future national and international policies may dictate a need for new rangeland evaluations. One function of rangelands that is poised for incorporation in evaluations is carbon storage. If nations begin to negotiate carbon credits, as is currently being discussed, it is within the realm of possibility that management changes will need to be evaluated relative to their impact on carbon storage. This may lead to new techniques for monitoring carbon within ecosystems.

Rest assured, changes in rangeland evaluations will continue. We should not halt or resist this progress, but rather should enthusiastically encourage new developments and thoroughly test them. That said, as evaluation techniques change, we should strive to incorporate and use them along with older techniques to provide some periods of continuity as we adjust to improved methods. We can apply a useful approach from the soil science community. That approach is the understanding that as we learn more and improve methods, we will change how we measure and evaluate rangelands. Thus each new approach becomes a new approximation or versions of our knowledge of rangeland evaluations. We should anticipate at least as many new developments in the next 25 years as we had in the last 25 years.

The above is an excerpt from "Transitions in Rangeland Evaluations, a review of the major transitions in rangeland evaluations during the last 25 years and speculation about future evaluations" by David A. Pyke and Jeffrey E. Herrick, and was reprinted with permission from Rangelands.

The Government's Role in Grassland Monitoring

Fred Marshall, R.P.F., P.Ag.

Discussion and Background

“Utilization of the resources—land, vegetation, animals, water, air—is basic to life itself. There is no alternative to use. Resource conservation, by definition and fact, implies the rational use of resources for man's benefit with a minimum of environmental impairment. Use with preservation, not use versus preservation, is the real challenge. At the same time, natural areas preserved in perpetuity for various valid reasons obviously are needed by today's world.”¹

The government of British Columbia has the responsibility to manage its resources for the long-term benefit of the people of BC and, in a broader perspective, for the benefit of all members of the world society. This responsibility must meet the parameters as stated above; that is, rational use—for man's benefit, with minimal environmental impairment and—use with preservation.

Range management has been the formal responsibility of the provincial government since the first Grazing Act was passed in 1919; the terms and conditions of this responsibility were enhanced on January 1, 1979 with the passage of the Range Act. This act introduced a new form of range tenure, the Grazing License, which complemented the Grazing Permit.² This act formally vested responsibility for range management in the Ministry of Forests. This responsibility was further defined by the Forest Practices Code Act in 1995³, which involved several guidebooks and required the development of a Range Use Plan for both the Grazing Permit and License.

The new Forest and Range Practices Act (FRPA) and accompanying regulations are still under development. Indications are that responsibility for preparation of the Range Use Plans will devolve to the range tenure holder, while the Ministry of Forests will be responsible for approving, monitoring, and enforcing said plans.

The range tenure holder will be expected to develop his respective Range Use Plans at his own expense, as opposed to forest tenure holders who are most often fully compensated for their planning costs under the Timber Appraisal system.



Beautiful Swan Lake in the Princeton Basin. PHOTO BY BRUNO DELESALLE

Although range use and management have been around for a relatively long time, it is only within the past 10 years that the intrinsic, or inherent, values of BC's native grasslands have been more fully recognized and understood. These values recognize not only that the grasslands are essential to the success of the BC cattle industry, but also that the grasslands are incredibly important for many other reasons, some of which we are not yet even aware. Recognition of these different values has engendered the need and responsibility to measure and monitor grasslands and their associated values so that they can be better understood and managed.

Grassland Monitoring

As is obvious by the above discussion, grassland monitoring would appear to be the ultimate responsibility of the Ministry of Forests; and, by their very nature of being government, this responsibility extends to all resource values present on the grasslands. This responsibility also extends beyond BC to the broader global community.

The provincial government has three types of responsibility relative to grasslands monitoring: legal; implied; and moral, ethical, professional and personal.

1. Legal responsibility of the government:

Notwithstanding the above mentioned laws, regulations and guidebooks, there is virtually no legal obligation for the government to undertake or carry out grassland monitoring on BC's range or grasslands and none is expected in the new legislation. This contrasts significantly with timber or forest resources as the government is legally bound to conduct a formal Timber Supply Review of every Timber Supply Area (and Industry for every Tree Farm License) in BC every five years unless formally waived by the Minister of Forests. All forested areas are therefore formally reinventoried every five years and a new annual allowable cut determined for them.

2. Implied:

Under FRPA the licensees will prepare their Range Use Plans; the Ministry of Forests Range Officer will make the decisions whether or not to approve them. The Range Officer must have some range and resource information on which to base this decision. Similarly, when a new Range Tenure becomes available or an old one comes up for renewal, the Range Officer must determine appropriate animal unit months or carrying capacity for the particular range area. Some fairly extensive knowledge about the particular range area must be held by the Range Officer to enable him to

make a responsible decision. Such knowledge can only be gained through some form of range or grasslands monitoring system or protocol.

While there are several ways the Range Officer can do this relative to grasslands, the three most common are:

- A. The use of range reference points with permanent sample plots or areas;
- B. Photo comparisons: comparing old photos versus new photos, particularly with respect to the types and extent of vegetative cover on each;
- C. Field inspections: generally a combination of a drive and walk through the range area with an evaluation being made of the state of the various range areas and associated resources

3. Moral, ethical, professional and personal: The degree to which the implied nature of the government employees' responsibilities is achieved depends on their individual moral, ethical, professional and personal integrity. To measure or fairly evaluate the degree to which these implied responsibilities are achieved is subjective, and, in most instances, virtually impossible.

The provincial government must fully consider all aspects of grassland values. All government employees are bound by their Guiding Principles, which commit them to, "...advocate for the wise and balanced use and protection of all forest values." Again, the only way one can meet such responsibilities is through the gathering of sound resource information and the wise application of same.

Those who belong to professional associations are also bound by their respective Codes of Ethics which commit them to, "manage or perform services consistent with the highest standards of quality, integrity, and with respect for the rangeland plant, soil, water, air and animal resources, the employer, and the public"⁴ or to "discharge any duties and obligations to the public, employers and clients with fidelity, fairness and impartiality"⁵ or to "...advocate and practice good stewardship of forest land based on sound ecological principles to sustain its ability to provide those values that have been assigned by society."⁶

The degree to which resource professionals uphold their respective Codes of Ethics is, for the most part, up to their particular association and the members thereof.

What's expected under FRPA

The Ministry of Forests will develop resource objectives for relatively broad range areas. These objectives will be related to: soil; water; timber; fish and wildlife; biodiversity; resource features; visual quality objectives; forage and associated plant community; and cultural and heritage resources.

The Licensee Responsibility

The licensee will develop Range Use Plans that demonstrate how these objectives will be met, and monitor and report on progress being made on reaching the objectives.

The Government Responsibility

The government will monitor licensee's performance (including livestock numbers, movement, etc.), and evaluate licensee progress towards meeting stated objectives.⁷

Commentary

The provincial government should:

- A. Undertake a provincial grasslands/range inventory. This should be a legal obligation with reinventories required every 10 years.
- B. Develop an appropriate retinue of representative grassland protected areas across BC.
- C. Establish a provincial network of permanent range reference areas so that accurate comparisons of range condition and trend can be made. The requirement to establish, maintain and monitor these areas should be a legal one.
- D. Request the Forest Practices Board to increase its independent audits of range practices throughout BC.
- E. Provide financial assistance to range licensees, both direct payments, for their time and travel expenses (or that of consultants), and indirect, for formal training programs to provide them with the capacity to develop the required Range Use Plans. The forest licensees are funded for such work; the range licensees should be similarly funded.
- F. Provide extensive training to their own staff so that they have the capacity to fulfill their responsibilities to the resources, their clients and the public.
- G. Develop a formal evaluation process to guide its staff to monitor the progress being made by the range licensees at within least two years of initial approval of the Range Use Plans and to regularly monitor this progress at least every five years thereafter.

H. Improve the definitions of "Proper Functioning Condition" and "Potential Natural Community" and include these in the training sessions.

The present and expected FRPA legislative and administrative framework does not provide adequate direction or safeguards to ensure that the grasslands of BC are properly monitored, evaluated, or managed. The recommendations included above address these deficiencies and should be adopted by the provincial government.

Fred Marshall earned a B.Sc. from the University of Idaho and a Master's Degree in Forestry from Yale University. After ten years as Chief Forester at Northwood Mills in BC's Southern Interior, he taught at both Malaspina and Selkirk Colleges. Now an independent consultant, he serves a variety of clients with an emphasis on small woodlands and woodlots. He and his wife own and operate a small cattle ranch and woodlot in the Kettle Valley.

Footnotes

- ¹ *Planning the Use and Management of Renewable Resources*, by E. William Anderson. Rangeman's Journal, Oct. 1977, Pg. 145:
- ² The Grazing Permit has a variable term of 1-5 years; the Grazing License has a 10 year term and is the predominate form of range tenure in BC.
- ³ And subsequent Amendments.
- ⁴ Society for Range Management code of ethics.
- ⁵ British Columbia of Agriculturist code of ethics.
- ⁶ Association of BC Forest Professionals code of ethics.
- ⁷ Some Ministry of Forests personnel believe that under expected staffing levels, they will only be able to monitor such progress for each licensee once every 10 years!

Edwin W. Tisdale

Sarah McNeil, Education and Outreach Co-ordinator, Grasslands Conservation Council of British Columbia

Edwin Tisdale, a legend among the range management community.

PHOTO COURTESY OF AGRICULTURE CANADA



Dr. Edwin W. Tisdale is widely recognized as the pioneer of grassland classification in British Columbia. He was born on March 10, 1910 in Greenway, Manitoba. He went on to study at the University of Manitoba and earned his undergraduate degree in biological sciences in 1930. He later attended the University of Minnesota, where he earned both a master's degree and a doctorate.

While attending the University of Manitoba, Tisdale began working as a summer student at the Dominion Range Experiment Station in Manyberries, Alberta. After graduation in 1930, he entered the Canadian Federal Service and remained with it until 1947. While with the Federal Service, he helped establish the range research programs in Kamloops, British Columbia and Swift Current, Saskatchewan.

Tisdale's contributions to grassland classification and monitoring in BC are undeniable. His seminal work, first published in 1947, defined three basic range types based on elevations and is still valid today for regions such as the Thompson-Nicola, Cariboo, and Okanagan. Tisdale was something of a legend in the ranching community around Kamloops; he would show up in remote grassland areas in his black hat and Model T, clipboard and plant press in hand.

After working as an agrologist for the Canadian Department of Agriculture from 1930 to 1947, he was appointed Associate Professor of Range Management at the University of Idaho in 1947. He became professor and Associate Director of the Idaho Forest, Wildlife and Range Experiment Station, College of Forestry, Wildlife

and Range Sciences, in 1953. He continued to serve in this capacity, combining teaching, research and administration, until his retirement in 1975.

Tisdale, whose areas of specialization included vegetation classification and vegetation habitat relationships, was the author or co-author of many studies of western range vegetation and habitat. He pioneered early studies on the sagebrush regions of Idaho, and had participated in or initiated a number of studies of the canyon grasslands of the middle Snake and lower Salmon River valleys. After retirement, he continued to be actively involved in research and working with graduate students at the University of Idaho.

Tisdale and his wife traveled extensively. In 1966, they spent a sabbatical year in the Middle East, North and East Africa, and Europe, where Tisdale studied range problems and the effects of dryland grazing under the auspices of the Drylands Research Institute, Riverdale, California. They made two trips to Guatemala, where he did consulting work for the Peace Corps in the 1970s. They also traveled extensively in New Zealand, Australia, Mexico, and the United States.

Tisdale's professional memberships included the Society for Range Management, of which he was one of the founding members. He helped found the Idaho section in 1950, served as its president in 1955, and served as vice-president (1956), president (1957), and past president (1958) of the national organization in the United States. He was also a member, consultant, and good friend of the Idaho Field Office of the Nature Conservancy.

Dr. Tisdale passed away on Friday, November 25, 1994, after a long illness; he was 84 years old. Although he is no longer with us, he left an irrefutable mark on BC's grasslands, the way they are studied, and the way they are classified. Beyond his personal contributions, he paved the way for future grassland experts in the province, such as Dr. Bert Brink, who worked under Tisdale at the Range Research Station in Kamloops in 1935. Tisdale was truly a pioneer of BC's grasslands, a genuine grassland aficionado.

Sarah is the new Education and Outreach Co-ordinator for the Grasslands Conservation Council. For more information on Sarah, or the projects on which she is working, turn to page 22.

Photopoint monitoring: A useful tool for ranchers

Jim White, Principal, Rangeland Associates

“Monitoring... who cares? I don't have time for it.” That statement could sum up the feelings of many of us – both rangeland specialists and ranchers. The tyranny of the urgent is a driving force for all of us. We keep financial records, even though it is time consuming, and it may not be our favourite job. However, we do it because it is less painful than the alternative. Perhaps tracking rangeland health should be viewed from a similar perspective.

Monitoring, as I am using the term here, simply means periodically making objective observations on a piece of rangeland, and comparing those observations with previous ones to help determine if the health and productivity of the land is improving, remaining stable, or deteriorating.

“Why would I want to take the time to monitor? Time is money, and I don't have much of either these days.” Good point; however, a few reasons for monitoring might include:

- Because management (riding, salting, fence and water development, maintenance) costs money and time. It would be good to confirm that our investment is paying off.
- Because, as Gerard Guichon so aptly said, “My ranch is my grass.” Grass is what makes a ranch viable. Jack Christian often said, “When those cows are not on the range, they are costing me money.” Both of these ranchers had pretty sharp pencils. If we want good grass production, we want to maintain, or attain, healthy plant communities.
- Because the ‘new’ philosophy of the provincial government is to give users of Crown range much more freedom, but demand more accountability. It appears that ranchers will be required to show that they are doing a good job of grazing management, which is fairly easy to do, but not without some objective information. And future government checks on rangeland use will often be made by compliance and enforcement, and wildlife staff, rather than range staff.
- Because cattle grazing periodically comes under attack—especially grazing on Crown range. Often the attacks are based on bias, emotion, and irrelevant data from somewhere far away. However, defending your management practices is very hard to do without some objective information that puts your attackers information to shame. Most Forest Service offices are no longer staffed to be able to help defend grazing on Crown range.

One might say that it is even more important to determine the direction of trend in rangeland health than it is to quantify the state of health at any given time. If a grassland is currently healthy but deteriorating, it may be a serious issue.

Historically in BC there has been little operational measurement of trend in rangeland health. Objective measurements have usually occurred only where some kind of rangeland research project was being done. Research level, quantifiable (e.g.: using numbers such as percentage cover of certain plants) vegetation measurements repeated over time can be compared, and accurate conclusions drawn as to the trend in rangeland health. However, the techniques used in research tend to be slow (expensive), and require a fair amount of training (intimidating to many of us) both to practice and to interpret.

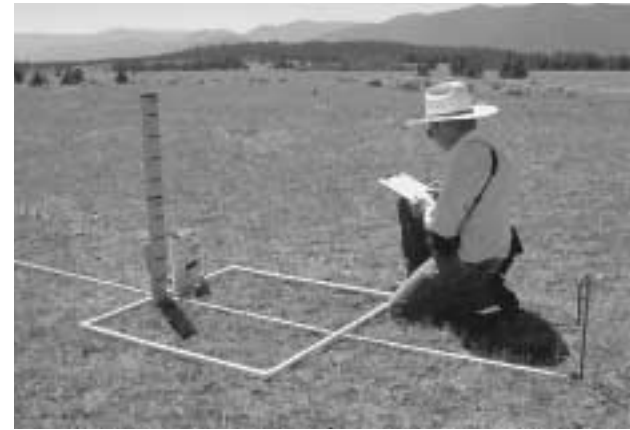
Photopoint monitoring is a useful tool for three reasons:

- It is much quicker, and therefore more affordable, than more detailed methods. It requires less training to get good results.
- It yields photos of your range. In an argument with your local spokesman for the ‘cattlefree’ movement, or even your local Forest Service office, three sets of pictures taken at three to five year intervals that show more desirable plants and fewer undesirable ones, and more ground cover with less bare soil, are very hard to argue with. I have been in meetings where a few pictures brought a long-running argument to a sudden and final halt.
- It documents such things as tree encroachment and impacts of recreation.

Photopoint monitoring yields repeatable photos of a site to track change, at an affordable time and dollar cost.

The objective of photo point monitoring is to visually document the change in the major species and structure of vegetation over time and on sites representative of larger areas.

Doing it consists of establishing permanent markers (often steel pegs of some sort, but it may be a rock or something similar) that will allow taking identical, repeated pictures of the same piece of grassland over time. If pictures from five and ten years ago are com-



The author making notes at a photopoint.

PHOTO BY ROZ KEMPE

...continued on page 27

Alberta implements a new system of rangeland health assessment

Barry W. Adams, Alberta Agriculture, Food and Rural Development

Over the past four years, range managers in Alberta have been developing a new system of range health assessment for use by land management agencies, ranchers, wildlife managers and a wide spectrum of rangeland users. Alberta's first range condition guide was published in 1966. The range condition approach measured the alteration of plant species composition due to grazing or other disturbances relative to the climax plant community (the potential vegetation for the site). The "Stocking Guide" was a very popular tool and widely used. For a given set of soil and climate conditions, range site could be established and range condition applied to estimate an initial stocking rate, an important feature for establishing sustainable grazing levels.

Though the approach worked well in semi-arid grasslands, it had a number of shortcomings. The range condition concept assumed that all declines in range condition were reversible; experience shows that this may not be the case. Stable states in plant succession that are relatively resistant to change, even with decades of rest, may be established. This is particularly true in those plant communities that are invaded by non-native species. Also, the concept of a single climax community does not address the dynamic character of native plant communities where a number of successional outcomes are possible. The debate in the US also identified the need to consider the management needs for soil when management practices lead to accelerated erosion. New range health tools needed to include indicators like site stability to provide a more robust tool. Overall, resource managers needed a more ecologically based approach to address many new issues, such as biodiversity maintenance and watershed protection, that the old approach did not.

In 1999, a provincial working group in Alberta initiated a new system for rating native range and tame pasture health for the province. Provincial specialists and ranchers had followed the debate on approaches to range condition assessment over the previous decade. A number of factors triggered the decision to move forward after considerable procrastination. First, our newfound experience with riparian health assessment illustrated the value of using multiple indicators to key into practical measures of ecosystem functions. From this it was apparent that landowners found the approach to be transparent and useful. Second, Alberta was in the midst of reviewing grazing lease policy and we needed a con-

sistent method to evaluate rangeland stewardship. Prior to this we had multiple approaches depending on the agency and region of the province. Finally, the Natural Resource Conservation Service in the US published the new *Range and Pasture Handbook*. This document provided us the benefit of some new consensus on where the science was going and useful templates for defining our ecological site descriptions, the standards used in range health assessment. Our group experimented with a prototype and then refined the method through field testing and interaction with a host of clients and stakeholders. The results of this process were published in 2003 as a field workbook and three abridged field worksheets, all available on our website at: <http://www3.gov.ab.ca/srd/land/publiclands/rangehealth.html>

We use the term "range health" to mean the ability of rangeland to perform certain functions. These functions include: net primary production, maintenance of soil/site stability, capture and beneficial release of water, nutrient and energy cycling, and plant species functional diversity. The word "health" conveys the impression that things are working well, just as it would in the human body.

What are the main elements of the system and how does it work? The new methodology builds upon the traditional range condition approach and continues to consider ecological status of a plant community, but adds four more indicators of rangeland natural processes and functions. With background knowledge about the local soils and vegetation, range health is rated for an ecological site type by scoring five questions that address selected indicators of range health. These include:

- 1) Integrity and Ecological Status – Is the plant community native or modified to non-natives species, and what is the successional status of the plant community?
- 2) Plant Community Structure – Are the expected plant layers present, or are any missing or significantly reduced?
- 3) Hydrologic Function and Nutrient Cycling – Are the expected amounts of organic residue present to safeguard hydrologic processes and nutrient cycling?
- 4) Site Stability – Is the site subject to accelerated erosion?
- 5) Noxious Weeds – Are noxious weeds present on the site?



LEFT This healthy community of winterfat and northern wheatgrass, and needle and thread grass received a score of 100% under Alberta's new system for assessing rangeland health.

RIGHT This unhealthy community of blue grama received a score of only 36%.

PHOTOS COURTESY OF THE AUTHOR

The five indicators are weighted according to their relative importance to rangeland health. When a site is rated, the combined score of all five indicators are expressed as percent health score so that the site can be ranked as healthy, healthy with problems, or unhealthy. The field workbook is designed for application on native grassland, native forest and tame pasture, as well as modified rangelands where range plant communities have become invaded by non-native species like smooth brome and timothy.

We see the assessment method being applied in at least three ways: as an awareness tool, to tune the ranchers eye to better recognize any key impacts to range health on the land; for rapid assessment purposes with appropriate study and field training; and as a component of a detailed range vegetation inventory carried out by field practitioners.

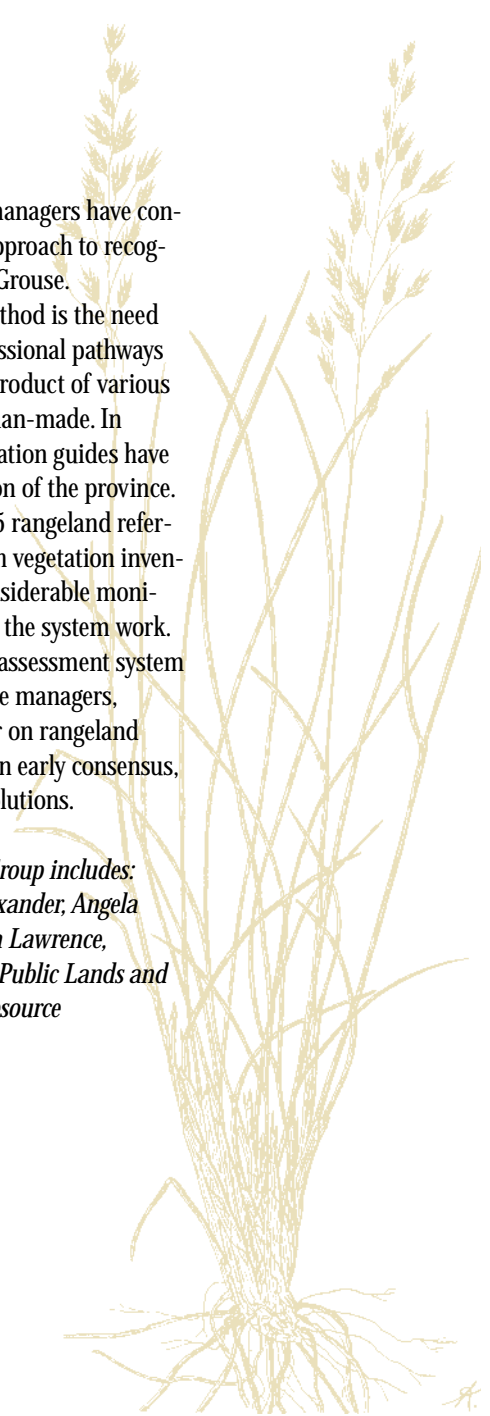
So what has been the uptake of the new system? To date, the response from agency staff, and the consulting and environmental communities has been positive and the new system is being adopted. Most importantly, ranchers have found it to be very accessible, visual and applied. While species composition may take many years to influence, indicators like structure, organic residue and soil exposure are more readily observed, providing managers early warning as to trend in health status. During the recent severe drought conditions, the question on evaluating residue was popular at field days and workshops for monitoring

drought impacts and recovery. Wildlife managers have considered using the tool as a coarse filter approach to recognize habitat quality for species like Sage Grouse.

One limiting factor in applying the method is the need for information on ecological sites, successional pathways and the plant communities that are the product of various disturbance regimes, both natural and man-made. In Alberta, range plant community classification guides have been developed for each natural subregion of the province. These are derived from data from the 135 rangeland reference areas in the province combined with vegetation inventory data. There is no question that a considerable monitoring infrastructure is required to make the system work.

Our hope is that the new range health assessment system provides a common language for resource managers, ranchers and the public to come together on rangeland problems and issues. If we can come to an early consensus, more time can be spent on developing solutions.

The Alberta Rangeland Health Working Group includes: Mike Willoughby, Barry Adams, Mike Alexander, Angela Bogen, Gerry Ehlert, Carcey Hincz, Donna Lawrence, Darlene Moisey and Colin Stone with the Public Lands and Forests Division of Alberta Sustainable Resource Development.



Bluebunch Wheatgrass: *Pseudoroegneria spicata*

Pseudo what?

Shawna Sangster, B.Sc. Natural Resource Management

As we speak, plant taxonomists are likely putting a lot of love into the creation of a new tongue twister of a scientific name for this perennial bunchgrass. But wait, one cannot forget the skills of the unknown individual who came up with its most commonly used pseudonym: bluebunch wheatgrass. So I ask, “What’s in a name?”

Can we relate its widely-used common name to the visual, physical, or growth characteristics of this native grass? Is it bluebunch wheatgrass because it bears its seeds singly on opposite sides of the stem, or is it because of its solitary growth habit where individual plants with strong roots and multiple stems hold their ground in a close-knit tuft? Perhaps this important indicator species is aptly named for the faint blue tinge that appears as a dust on the leaf blades and sheaths as the plant matures. Regardless, there is a lot to learn about the ecology and growth of this important forage species and why it is such a hot topic with rangeland managers and grassland enthusiasts today.

How Does your Garden Grow?

Bluebunch wheatgrass is a long-lived, cool season perennial bunchgrass. This plant pays no attention to international borders; it spans north as far as Western Canada and southward through the Central and Western United States. Although bluebunch wheatgrass prefers the dry soils of the grassland regions, it can be found growing in a diversity of habitats ranging from open forests to mountain slopes to stream banks. When looking for bluebunch wheatgrass out in the field, one cannot miss the distinctive bunches of grass spikes. In healthy and mature grasslands dominated by bluebunch, the distinctive distances between the plants’ bunches create a maze or checkerboard of small pathways.

The reproduction of bluebunch wheatgrass is primarily by seed and the production of new vegetative stems (tillers) within the bunch. Under rare conditions, often with higher moisture levels, bluebunch wheatgrass will reproduce via rhizomes, an underground stem that offshoots from the mother cluster to create a new bunch.

Why is bluebunch wheatgrass important to rangeland managers and grassland enthusiasts?

Bluebunch wheatgrass is a key indicator species whose relative abundance in a grassland can help to indicate the current ecosystem condition and health. In turn, knowledge of the current plant community will aid in the development of a management strategy or grazing regime that will improve or maintain ecosystem health. The presence and abundance of bluebunch wheatgrass should be managed for, as it produces high quality forage and provides habitat for a diversity of species. Bluebunch wheatgrass is a decreaser; species classified as decreaseers have a high resource value yet decrease in abundance and cover when exposed to poor management practices, including over-grazing and high disturbance levels. A decrease in desirable species leads to an increase in less productive, undesirable species, including noxious weeds. Poor management of our grasslands can lead to a deterioration of ecosystem health and reduced profit margins for cattle producers.

Monitoring and Managing for Bluebunch Wheatgrass to Sustain Healthy Grasslands

To ensure the long-term sustainability of bluebunch ecosystems we must develop management practices that complement the plant’s natural biology and monitor the changes in the grassland ecosystem. It is important to be patient with new management practices, as one year of a new strategy will not make up for years of overgrazing or unsuccessful management techniques.

Managing for the biological requirements of bluebunch wheatgrass and other indicator species leads to increases in the production and health of all components of a grassland ecosystem. Land managers must therefore understand the growth characteristics of bluebunch wheatgrass and other vegetation to develop a management system that compliments the natural ecology of the desired species. The bluebunch wheatgrass growing season begins in early spring (April) before many other species initiate growth. This early development of foliage makes the plants susceptible to overgrazing by



Bluebunch
Wheatgrass
ILLUSTRATION
BY NICOLE BRAND

cattle. The cattle are eager for the taste of fresh green grass, but can cause significant damage to bunchgrass populations if they graze too early in the growing season. One way of reducing the impact of spring grazing is to keep the cattle off of the range until it has reached “range readiness” (reached when bluebunch wheatgrass has grown to a minimum of 10 cm tall). Other management strategies include rest rotation systems or deferral.

Monitoring a pasture or landbase is as easy as visual inspections of bluebunch wheatgrass plants on a seasonal and annual basis. Other simple methods of monitoring changes in vegetation include photo plots and hoola hoop vegetation plots that record vegetation in the same location over time. Don’t worry: the hoola-hoop is on the ground as a boundary for your vegetation plot, not around your waist! Those intimately familiar with the land will notice subtle changes on a daily basis. Keeping a daily journal of management practices, plant growth, wildlife sightings, and any significant changes to the land will help determine what management changes (if any) should take place. Don’t be blue; remember that positive change through management is a long-term commitment!

Shawna Sangster, who currently resides in Sorrento BC, received a Bachelor of Natural Resource Science from the University College of the Cariboo and a diploma in Ecosystems Management from Sir Sandford Fleming College. Her interests include sharing and gaining information on native plant ecology, and rangeland management.

Curlew and grouse conservation: A dichotomy?

Ernest Leupin, M.Sc., RPBio, Ecoscape Biological Consulting

In recent years, there has been increased interest in BC's grasslands. One reason for this is the fact that over one-third of BC's species at risk rely on grasslands for their survival. As a result, a large number of single-species conservation efforts have emerged.

However, this approach to conservation can often bring confusion and frustration to many. Take for example two of BC's grasslands species at risk: the resident Columbian Sharp-tailed Grouse and the migratory Long-billed Curlew. These two species occur simultaneously in our grasslands during the breeding season but are associated with habitat types at nearly opposite ends of the spectrum. Sharptails require tall and dense grass and shrub cover while curlews are associated mostly with areas dominated by sparse and low vegetation (see August 2002 and February 2003 issues of *BC Grasslands*). With this in mind, imagine a well-intentioned landowner trying to incorporate wildlife habitat needs into their already burdensome grazing plans: graze too little, impact curlews; graze too much, impact sharptails. Enter frustration.

The reality of the matter is that managing for any single species is not desirable (except under exceptional circumstances where a species is highly endangered). Rather, we must strive to develop an ecosystem approach to species conservation. Management should be conducted over sufficiently large areas in order to be effective. Within the identified area, the key is to maintain habitat diversity across time and space. Grasslands are dynamic, and are more than just grass. They are a mosaic of habitats including deciduous and evergreen stands, shrubby areas, wetlands, stream corridors, and of course grass stands of various heights and densities. By maintaining such diversity in grasslands, we can ensure that habitats will be available to Sharp-tailed Grouse, curlews, and other grassland species that depend on one or more grassland habitat types.

With this said, if most conservation biologists recognize the general wisdom of focusing on ecosystem conservation, why is there still a tendency to favour the single species conservation



The at-risk Sharp-tailed Grouse makes its home in BC's grasslands. PHOTO BY BOB SCHEER

approach? The reason is that most people find it much easier to identify with species than with ecosystems. As a result, biologists often use a single species as an umbrella or flagship species to get public support that can be translated into protection for the ecosystem. While it is true that a single species project is likely to place more emphasis on critical habitats that are required by one particular species, collectively these projects have the potential to provide protection of the entire grassland ecosystem.

However, we still have the issue of landowner frustration. Each year, landowners are inundated with requests to participate in wildlife-related projects. In some cases, projects may seem to conflict with one another, while others appear to duplicate efforts. This not only results in landowner frustration and to possible indifference towards important projects, but also leads to a loss of credibility towards the biological field. Given that the success of any project within grasslands relies heavily on landowner participation, there is a great need to develop a clear strategy and plan for coordination, particularly as it pertains to landowner contact programs and implementation of single species projects and recovery efforts.

Ernest completed his MSc (UBC) on songbirds and their responses to alternative harvesting methods and has run a biological consulting business in Kamloops, BC since 1997. He is currently a lead biologist for the Sharp-tailed Grouse Stewardship Program.

Profile of a GCC Director

Jim was raised on a ranch where he first started to develop the interests that came to be a love for grasslands. He is now 'semi-retired,' and lives just south of Kamloops.

Jim continues to spend a lot of time on the grasslands, "on a good horse whenever possible," as principal of Rangelands Associates, a consulting firm in Kamloops that works primarily in the fields of rangeland inventory, monitoring and planning. He presents training workshops on applied grassland ecology, designs grazing systems that meet current environmental specifications, and has prepared prescribed burn plans to restore open forest ecosystems. Jim holds a degree in Rangeland Management, is a Professional Agrologist and Certified Professional in Rangeland Management. Jim has been active with the Grasslands Conservation Council for some years, serving on the Board of Directors and numerous committees, acting as former vice-chair, and often assisting with the organization of field workshops.

"That the GCC has become such a positive and dynamic influence for the integrated, wise

use of our grasslands in such a short time is amazing," says Jim. "Focusing equally on the concerns of ranchers and of conservationists is fundamental to the GCC's strength. 'Keeping Working Ranches Working' remains a key philosophy behind GCC initiatives. Dealing effectively with complex issues such as: the licensing of off-road vehicles, weed invasion, forest ingrowth and encroachment, and especially the conversion of grassland ranches to rural subdivisions are some critical focal points for the Council at present. Unprecedented progress is being made on some of these issues; a solid foundation is being laid to deal with the others. Significant input is being made to high levels of government. These are impressive accomplishments for such a young organization. Such progress has been made possible by the energetic, positive and visionary staff and board members."

Prior to starting Rangelands Associates, Jim's career was with the BC Forest Service. He spent the last 19 years in the Kamloops Forest District as Range Officer. In that position he managed



Jim White working on the range, GPS in hand.
PHOTO BY ROZ KEMPE

four to five staff, interacted with many of the 200 ranchers who grazed about 30,000 cattle on Crown range, and helped ensure integration of grazing with wildlife, silviculture, recreation and natural values.

Jim and his wife Marilyn, who teaches Nursing at the University College of the Cariboo, recently celebrated their 35th anniversary. Jim and Marilyn try to spend a fair amount of time canoe-tripping and enjoying other outdoor activities. They are teaching their grandson about the outdoors and ranching, and enjoy their involvement with the Alpha course in Kamloops.

Call for Members

Happy New Year to all our valued GCC Members! It is to you, the members, we owe much of our success in 2003, and for that we thank you!

A great number of memberships were due for renewal at the start of the New Year, and we are confident that we can rely on your continued assistance in our mission to conserve BC's precious grassland ecosystems. Our membership nearly doubled in 2003, and we hope to continue our relationship with our loyal members, as well as to welcome many new grassland enthusiasts to our growing base of support. Please use the enclosed membership form to support the GCC and do your part to promote the stewardship of BC's grasslands.

GCC welcomes a new Board member



The GCC is happy to welcome Allen Eagle as our newest member of the GCC Board of Directors. Allen joined the GCC Board in October 2003, and brings with him valuable expertise. As the District Manager for Agriculture and Agri-Food Canada in Dawson Creek, Allen has been involved in land stewardship issues for many years. He works in the Prairie Farm Rehabilitation Administration area and develops, implements, and oversees stewardship initiatives in his region. Mr. Eagle is also involved with the BC Institute of Agrologists, as a Professional Agrologist, and the Director for the South Peace River region. The GCC staff and Board of Directors look forward to working the insight he will bring as we look to secure the sustainability of BC's grasslands.

Society for Range Management AGM

The 57th Annual Meeting of the Society for Range Management was held this year in Salt Lake City, Utah, and was attended by several GCC Directors, including Wendy Gardner and Greg Tegart. The focus of this year's meeting was, Rangelands in Transition, a particularly timely topic as population growth, technology, and changes in stewardship philosophies shape the way we manage our rangeland.

For more information on this year's meeting, or on the Society for Range Management, please refer to www.rangelands.org.

UCC Range Club

Greg Hodson

The second annual University College of the Cariboo Range Club has been formed. Its members consist of instructors Wendy Gardner and Peggy Broad and students: Shawna Sangster, Peter Holub, Paul Bray, Allison McDonald and Greg Hodson. The club has been actively involved in fundraising efforts including ongoing t-shirt sales, bottle drives and volunteer work throughout the community. The students raised money to attend the 2004 Society for Range Management Conference in Salt Lake City, Utah at the end of January, where they competed in a plant identification competition, and represented the Kamloops region and BC in general.

Congratulations to the club on their achievements.

Call for Board Members

This year, the GCC will be celebrating its fifth anniversary since inception in 1999. We have many Directors who have been with us since our founding, and whose support has been absolutely invaluable in the development of the GCC. As the Board turns over this year, there will be opportunities for people with a passion for grassland stewardship to take on a leadership role in the conservation of BC's grasslands. The GCC is actively seeking Directors from the business and professional community to assist us in our growth and development. Additionally, the GCC is seeking representation in the South and North Okanagan. If you are interested in joining the GCC Board of Directors, please contact us at gcc@bcgrasslands.org or call (250) 374-5787.

Derek Bostock

Derek Bostock recently passed away in a tragic car accident in Alberta. Derek was one of five students who founded the University College of the Cariboo Range Club in 2002. The club attended the Society of Range Management Conference last February in Casper, Wyoming, setting the stage for future competition to be attended by the club. Derek was actively involved in range and agrology, having recently graduated with his Bachelor of Natural Resource Science degree. Derek will be sadly missed by all who had the pleasure of knowing him. Donations towards a scholarship in Derek's name can be made to the UCC Foundation, Box 3010, Kamloops, BC, V2C 5N3

George Haywood-Farmer

George Haywood-Farmer, who passed away in October of 2003 left behind a legacy, both on the land that he worked and with the people he inspired. Mr. Haywood-Farmer was a pioneer of our local ranching industry. He operated the Indian Gardens Ranch, located in Savona, BC and was also very involved in his community. He was a long-time leader in BC 4-H, and served on the Board of the BC



PHOTO COURTESY OF BC CATTLEMEN'S ASSOCIATION

Cattlemen's Association for many years. Agnes Jackson, president of the BC Cattlemen's Association remembers Mr. Haywood-Farmer as a neighbor and 4-H leader and an original steward of the land. Through his involvement in BC 4-H, he played an important role in the lives of children and youth in his community. "He took this responsibility very seriously," says Jackson, "he was a man with a lot of integrity who believed in leading by example." According to Jackson, "he believed that the better you treat the land, the better it will treat you," and he instilled this value in his own children, and others in the community. Mr. Haywood-Farmer will be sadly missed.

NOTICE

2004 Annual General Meeting and Field Tour

The GCC Annual General Meeting and field tour is being held on June 19, 2004. The GCC AGM, social, and tour will follow the Society for Range Management (SRM) workshop 'An Introduction to Rangeland Health' to be held on June 17 and 18 in Merritt, BC.

GCC EVENT

Evening Social – Friday June 18

AGM and Directors' Meeting – morning of Saturday June 19

Field Tour – afternoon of Saturday June 19

Further details on both the SRM workshop and the GCC AGM and field tour will be sent out in April and posted on the GCC and SRM website.

For more information about the GCC AGM, call Sarah McNeil at 250-374-5787.

For more information about the SRM workshop, call Darren Bruhjell at 250-371-6058.

The GCC would like to acknowledge the support of all our current corporate members for their generous donations:

- Canadian Parks and Wilderness Society – BC Chapter
- Cariboo Chilcotin Conservation Society
- Central Okanagan Naturalists Club
- Chutter Ranch
- City of Kamloops
- Donna M. Iverson Personal Law Corporation
- Douglas Lake Cattle Company
- Ducks Unlimited Canada – Interior Field Office
- Federation of BC Naturalists
- Iverson & MacKenzie Biological Consulting
- Land Conservancy of British Columbia
- Lillooet Livestock Association
- Tembec Industries Inc.
- Terasen Pipelines
- Thompson-Nicola Regional District
- Uplands Birds Society



Conservation partner profile: Habitat Conservation Trust Fund

Brian Spriginotic, Habitat Conservation Trust Fund

Habitat Conservation Trust Fund: Investing in Conservation Across British Columbia

The Habitat Conservation Trust Fund (HCTF) is a rare statutory purpose trust. It was established in 1996 under the authority of the Wildlife Act. The purpose of the HCTF is to invest in scientifically-based enhancement and restoration projects for native fish and wildlife species and their habitats, and to invest in land acquisition and education projects in support of fish and wildlife across BC. Fund revenue comes primarily from surcharges on fishing, hunting, guiding and trapping licenses, as well as from court awards, donations and partnerships with individuals, non-government organizations, and corporations. Since 1981, the Fund has invested over \$70 million in enhancement and education projects and a further \$12 million to acquire key habitats throughout British Columbia. Annual surcharge revenue to the HCTF is approximately \$5 million.

Mission of the Trust Fund

The mission of the Habitat Conservation Trust Fund is to provide funds to proponents to assist in maintaining the health of natural ecosystems and the productivity and richness of species within these ecosystems, by preventing and mitigating the loss of habitat and native species of freshwater fish and wildlife in BC, for the benefits of all.

The Habitat Conservation Trust Fund funds the acquisition of land and water rights, and supports projects not eligible for support from existing research funds or not within routine government responsibilities. Projects supported by the Trust Fund improve the management of

species and habitats by improving knowledge, restoring or managing habitats appropriate to planning and landscape contexts, and enabling stewardship.

The uniqueness of the Habitat Conservation Trust Fund comes from its:

- dedicated funding sources: angling, hunting, trapping and guiding licence surcharge;
- provincial scope;
- accessibility to all committed conservationists in BC;
- ability to fund acquisition of key habitats, and;
- ability to fund up to 100% of the cost of a project.

HCTF and Grasslands

Over the past 15 years, HCTF has invested about \$4.7 million in land acquisition, conservation, restoration and enhancement projects related to grasslands across British Columbia. The Trust Fund was one of the founding partners in the South Okanagan Similkameen Conservation Program as well as one of the founders of the South Okanagan Biodiversity Ranch programs. In addition, the Trust Fund has made significant investments in land acquisition and habitat restoration efforts in the Thompson-Nicola region and the East Kootenay Trench.

Trust Fund investments in grassland related projects in 2003/04 include:

- BC Grasslands Conservation Risk Assessment – Funds to compile existing information from around the province to assess the status of BC's grasslands and their resident wildlife: \$25,300.

- BC Grasslands Communication and Extension Project – Funds to develop several key grassland conservation communication and extension initiatives, such as the GCC website and *BC Grasslands* magazine: \$15,000.
- East Kootenay Grassland Ecosystem Restoration – Support for slashing and prescribed burns in fire-maintained ecosystems in the East Kootenay to enhance ungulate winter range characteristics and restore overall ecosystem function: \$10,000.
- Operation and Maintenance – Continued funding for activities, such as weed control and fencing, on special conservation lands set aside for wildlife in the East Kootenay: \$35,530.
- South Okanagan Ranch Land Conservation Project – Support for implementing management plans on two biodiversity ranches in the south Okanagan near Okanagan Falls: \$12,000.
- South Okanagan Similkameen Conservation Program Habitat Stewardship – Continued support to encourage habitat conservation, restoration, enhancement and securement on private land in the south Okanagan and lower Similkameen area through landowner contact: \$65,000.

Grassland ecosystems play a critical role in maintaining the diversity of wildlife in British Columbia. The Habitat Conservation Trust Fund has a long history of investing in our grasslands, and the Fund will continue to support sound, well planned projects which sustain grassland ecosystems and species.

For more information, visit us on the web at www.hctf.ca or call 1-800-387-9853.

Educational signs
at the Junction
Sheep Range
Provincial Park.

PHOTO BY
WAYNE BIFFERT



South Okanagan

Proposed National Park Reserve in South OK

On October 2, 2003, the federal and provincial government signed a memorandum of understanding (MOU) that paves the way for the creation of a new national park reserve in the South Okanagan. The MOU supports the Government of Canada's Action Plan to create ten new national parks and five new national marine conservation areas by 2008. Under the MOU, Canada and BC have agreed to work cooperatively to assess the feasibility of establishing a new national park reserve in the South Okanagan.

One of the first tasks of the feasibility study will be to define the area of interest for a possible new national park reserve in the South Okanagan, and the study area for the feasibility study. Preliminary discussions between Canada and British Columbia have focussed on the area from the Canada–United States border north to and encompassing the new protected areas established under the Okanagan–Shuswap Land and Resource Management Plan (LRMP), as well as existing protected areas, possibly as far north as Vaseaux Lake.

For more information about the proposed national park reserve, contact: Kevin McNamee, Parks Canada, at (819) 997-4908 or email kevin.mcnamee@pc.gc.ca

The GCC recently held a full day workshop for board members and staff to develop a GCC policy on the proposed national park reserve. The meeting was very successful and a draft position statement was developed. The GCC Board of Directors is currently refining the position and it will be finalized this spring. Upon completion, the position statement will be posted on the GCC website.

Species of the Month Series kicked off in January 2004

A brand new program dedicated to highlighting some of the important species at risk within the South Okanagan & Similkameen started in 2004. The project is called the Species of the Month Series and it will feature different species throughout the year that need the public's help to survive in the wild. More information is available from the ECommunity Network and the South Okanagan Similkameen Conservation Program. You will find us in our upcoming website (www.soscp.org) and refurbished resource centre on Front Street in Penticton.

How can you get involved? For every animal or plant featured, the ECommunity Network will have a host of educational presentations, exhibits, workshops, field trips and fun activities to help you learn more about these endangered and threatened critters and how you can help them. For more information, contact Peter Ord, the ECommunity Co-ordinator, at (250) 490-8286 or email soscp2@gems8.gov.bc.ca

Cariboo

Junction Sheep Range Provincial Park and Area Grasslands

The Cariboo Chilcotin Conservation Society (CCCS), whom the GCC proudly counts as a corporate member, has been actively involved in the Junction Sheep Range Provincial Park (JSRP) management planning process. Originally designated as a Wildlife Management Area (WMA) in 1975, it was created through an exchange of land with Riske Creek Ranching. In 1995 the Junction Sheep Range was legislated as a Class A Provincial Park.

The focus of CCCS is on parks and protected areas, and concerns regarding grasslands have been established as a high priority. With funding set aside for signage the CCCS, in cooperation with the GCC; Upland Birds Society; BC Wildlife Federation; Wilderness Watch; BC Parks; Ministry of Water, Land and Air Protection; Williams Lake Field Naturalists; Wild Sheep Society of BC; Williams Lake Sportsman's Association; Riske Creek Ranching; and Ducks Unlimited Canada, have established a public information site on the JSRP.

A hand out brochure developed by CCCS complements the signage and helps to keep the public informed of the fragility of the grasslands. The CCCS would like to thank all the volunteers from the above groups who distribute brochures at the site. As well, the CCCS produces an annual publication, the *Visitors Guide to BC Parks, Trails & Sites of Interest in the Cariboo Chilcotin and Coast*. Included in this guide is more information on the Junction Sheep Range Provincial Park.

The GCC and CCCS have also collaborated on the following projects: two Arts Council Concerts in Williams Lake; the Williams Lake Public Library Display; Our Parks Our Heritage Art, Photography and Writing Exhibit; and Community Information Session SARA, City Council Chambers. For more information please visit the new CCCS website at www.cconserv.org.

East Kootenay Trench

East Kootenay Conservation Program

The East Kootenay Conservation Program (EKCP) is a partnership-driven private land stewardship initiative that currently has 34 partners. The newest partner is the City of Fernie, welcome aboard!

The EKCP hosted a one-day workshop in Fernie on November 15, 2003; the workshop was a great success as over 60 participants came together in Fernie. The morning speakers showed the attendees what some communities are doing for conservation in and around their towns. William Pearse from the Town of Okotoks, Alberta, gave an eye-opening presentation on how a community embraced conservation and sustainability in 1997 and the results they have achieved seven years

...continued on page 27

GCC Directors take the field in Princeton

The GCC Board of Directors held their fall meeting in Princeton this past October, taking time out to learn about local grassland issues. After business matters had been set aside, the directors and members of the local community dove into discussions on recreational abuse, weeds, and forest encroachment on Princeton grasslands. The afternoon session was dedicated to the role of fire in grassland ecosystems, as the GCC strives toward a consensus-based policy on this issue.

The following day, it was time for the field tours! A beautiful fall morning was spent south of town learning about local ranching culture from the Willis family. What a privilege it was to

have this lesson outside among the towering ponderosa pines and healthy bunchgrasses of the Willis range. Next was a tour of the Swan Lake grasslands guided by the Vermillion Forks Field Naturalists. The Naturalists are working hard to restore this rare and unique grassland, and are making efforts to educate and inform schoolchildren and the local public. Sandwiches and cookies beside the peaceful Swan Lake was certainly a highlight of this tour. To end off the day, the group headed to the upper grasslands of the August Lake area, one of the last sizable pieces of Crown grassland in the Princeton Basin. Here, the Forest Service and other government agencies described their plans to conduct prescribed burns for the benefit of wildlife habitat as well as to gain insight on fire behaviour.

Learning about local issues is important for



GCC Directors in discussion at the Willis Ranch.

PHOTO BRUNO DELESALLE

the GCC as it gives us the opportunity to meet the people, see the grasslands, and most of all, get out of the boardroom!

Thank you to the Willis Family, the Vermillion Forks Field Naturalists, Ministry of Forests, and the Ministry of Water, Land and Air Protection for making this tour possible.

UPDATE: Education and Outreach Program

New Education and Outreach Co-ordinator



Sarah McNeil is the GCC's new Education and Outreach Co-ordinator.

In November 2003, Sarah McNeil joined the GCC team as Education and Outreach Co-ordinator, taking over from Taylor Zeeg who is now heading-up the Grassland Stewardship and Sustainable Ranching Program. Sarah graduated from the University of British Columbia's new Agroecology program, and feels the skills acquired through her education, and later while working at the Ministry of Agriculture, Food and Fisheries, will serve her well at the GCC. Originally from 100 Mile House, Sarah spent five years attending school and working in the Lower Mainland, and is enjoying being back in BC's Interior. We look forward to working with Sarah to develop new ideas and expand on the projects currently underway in the GCC's Education and Outreach Program.

You can reach Sarah at 250-374-5787 or sarah.mcneil@bcgrasslands.org

BC Grasslands Website

The BC Grasslands website is growing! "Understanding Grasslands," an ecological overview of the grasslands of BC designed to educate and inform visitors to the GCC website, is almost complete and will be launched in March. Visitors will find information on the various grasslands communities in BC, the ecological processes that are involved in maintaining their health, and the plants and animals that rely on them for survival. There will be a special section dedicated to species at risk in BC's grasslands, as well as links to other grassland-related sites on the web. Also upcoming on the BC Grasslands website is "Sustainable Range Management," a new area providing information on issues relating to range management in BC. Additionally, "Where are BC's Grasslands?" is being updated and expanded, so keep checking www.bcgrasslands.org for exciting additions.

Thank you to the following partners for supporting the GCC Website development: BC 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.

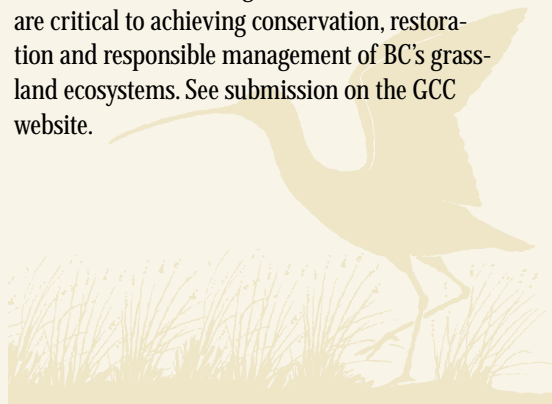
BC Grasslands Public Service Announcements

The Grasslands Conservation Council is currently working to develop public service announcements (PSAs) for airing on televisions across British Columbia. The initial PSA, "A BC Moment" focussing on the beauty and value of BC's grasslands, will air on The Knowledge Network. Also planned is a series of announcements featuring the cow and the curlew, designed to bring to light the ecological and cultural value of BC's grasslands. Tune in to your favourite stations this year to catch a glimpse.

The BC Grasslands PSA project is funded by the Grazing Enhancement Fund.

GCC Submission to Firestorm 2003 Provincial Review

In the wake of last summer's devastating fires, the GCC forged a position on the use of prescribed fire for restoration and maintenance of grasslands, as well as a position on methods used to control fires in grasslands. These issues are critical to achieving conservation, restoration and responsible management of BC's grassland ecosystems. See submission on the GCC website.



UPDATE: Grassland Stewardship and Sustainable Ranching Program

Hamilton Commonage: Great strides for Grassland Monitoring in BC

While many techniques have been used for research, inventory and monitoring of rangelands in British Columbia, none have gained universal acceptance. In addition, virtually all of the monitoring methods previously used in BC were considered unsuitable for operational monitoring because they were complicated, time consuming and not accessible to ranchers.

From a grassland stewardship perspective, this presents a significant problem. British Columbia needs a standardized, qualitative monitoring procedure for ranchers to assess range condition. In recognition of this problem, the GCC initiated a process to bring stakeholders together to develop a qualitative method for assessing grassland ecological condition that will be appropriate for ranchers and consistent with government standards and requirements.

A Technical Advisory Committee was established, holding its first meeting on January 22, 2004. The committee will build on work completed by the GCC over the past 18 months to develop and test a qualitative approach for monitoring ecological condition and trend on grasslands.

Building Consensus

Building consensus on a qualitative approach for grassland monitoring for ranchers may seem daunting. However, the first Technical Advisory Committee meeting yielded very encouraging results. There is general agreement that BC needs a qualitative approach for grassland monitoring. Furthermore, the methodology should:

- Build on the successes of the Alberta “Rangeland Health Assessment for Grassland.”
- Be practical, simple and easy to use in the field by ranchers and range managers.
- Be rigorous enough to evaluate environmental change at an acceptable level of accuracy and be repeatable over time.
- Yield useful results and be relevant to needed management decisions on the range.
- Be based on indicators relevant to BC’s grasslands that enable assessment of condition and trend.
- Be consistent with government standards and requirements.

Developing a Qualitative Monitoring Tool to Assess Grassland Ecological Condition and Trend

Objectives:

- To develop and test a method for grassland monitoring that is suitable and practical for the ranching community, and consistent with government standards.
- To conduct two to three pilot projects to test and refine the methodology further with ranchers, as well as test the methodology in other regions.
- To develop a qualitative grassland-monitoring manual for BC.
- Develop materials for training workshops.
- To develop support materials and conduct training workshops for ranchers and range managers on assessing grassland ecological condition and trend.

Over the past 18 months, some important groundwork was completed. The project team examined and analyzed current approaches to qualitative monitoring, identified some strengths and weaknesses, and determined which approaches were most appropriate for British Columbia. Through this process the project team selected vegetative (biotic), soil and hydrological indicators that are relevant to local ecological conditions on the Hamilton Commonage grasslands, the site where initial testing will be conducted.

Building on the completed analysis, the project team collected information in the field using the selected vegetative (biotic), soil and hydrological indicators (the qualitative approach) and compare this information against the data collected using the canopy coverage method (the quantitative approach) to evaluate relative accuracy in assessing each indicator. The first year of field work and its findings will assist the Technical Advisory Committee in defining a qualitative methodology, as well as assess its ability to describe overall ecological condition and trend over time.

A Learning Process

The learning process is just beginning. We anticipate several months of hard work ahead

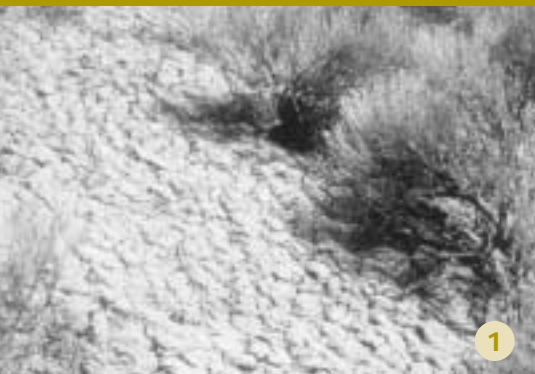
with the newly formed Technical Advisory Committee to select appropriate indicators for the monitoring procedure, define thresholds and benchmarks, and develop or adopt a scoring procedure. This process will rely on the knowledge gained from the work completed to date, and build on the *Rangeland Health Assessment for Grasslands* procedures developed in Alberta. We expect this process to:

- Produce draft monitoring forms.
- Develop a draft monitoring manual that describes basic terminology and methods for conducting qualitative assessments.
- Test the manual and forms with ranchers in the Thompson-Nicola Region (the pilot projects).

The use of pilot projects will allow us to evaluate and adjust the methodology, including indicators, scoring procedures, format and usability of the manual and forms based on rancher input. It is important to note that the Technical Advisory Committee is seeking strong representation from the ranching community to develop the procedures and to test the methodology in the field.

For more information about this project, please refer to: “Developing a Qualitative Approach for Assessing Grassland Ecological





Grassland monitoring is a necessary tool to assess grassland ecological condition and trend, as well as to ensure sustainable range management practices. The above photos illustrate grassland condition ranging from early seral (1), mid seral (2), to late climax condition (3). PHOTOS BY BRIAN WIKEEM

Condition: A Tool for BC Ranchers” January 2004 (Summary Document) on the GCC website: www.bcgrasslands.org

The Hamilton Commonage Grassland Monitoring Project is funded by:

- The McLean Foundation
- Agriculture Environment Initiatives
- BC Ministry of Water, Land and Air Protection
- Grazing Enhancement Program
- The Brink/McLean Grassland Conservation Fund
- Beef Cattle Industry Development Council

A sincere thank you to the Gerard Guichon Ranch for their commitment to this project and for their stewardship ethic.

Coalition for Licensing and Registration of Off Road Vehicles

We are making tremendous progress on this important conservation initiative. The GCC is the co-ordinating organization for the Coalition, yet only one player in a diverse team that is developing a management strategy for off road vehicles (ORVs) that will include vehicle licensing and registration.

The Coalition now has active representation from:

- The Grasslands Conservation Council of BC
- Quad Riders Association of BC
- Federation of BC Naturalists
- Canadian Parks and Wilderness Society – BC
- Ministry of Water, Land and Air Protection
- Ministry of Agriculture, Food and Fisheries
- Ministry of Forests
- Ministry of Sustainable Resource Management
- Outdoor Recreation Council of BC
- Greater Kamloops Motorcycle Association
- BC Cattlemen’s Association
- Trails BC

- Kelowna Dirt Bike Club
- BC Wildlife Federation

Combined, the Coalition membership includes over 150,000 British Columbians and broad representation from all four corners of the province.

Over the next few months, the Coalition will be developing and presenting a draft strategy to government that details options for implementing a management strategy for ORVs, including licensing and registration. The Coalition will continue to garner support from the British Columbia public; municipal, regional and provincial governments; and recreation and conservation groups.

Conservation interests have been calling for licensing and registration of ORVs for over thirty years, so the Coalition’s gains in such a short time are commendable.

Best Management Practices for Recreational Activities on Grasslands in the Thompson and Okanagan Basins

The GCC, in partnership with the Ministry of Water, Land and Air Protection, have developed stewardship guidelines for recreational activities in BC’s interior grasslands. These guidelines—also known as best management practices or BMPs—identify ways in which recreational users can help to sustain healthy grasslands while continuing to enjoy their activities.

The purpose of the BMP document is to provide stewardship guidelines for recreational activities in BC’s interior grasslands so that damage to sensitive grassland habitats, and the species that inhabit them, is minimized or prevented.

The success of the BMPs is dependent on strong partnerships between recreationists and organizations dedicated to promoting conservation and stewardship values. The BMP docu-

ment was developed with input and careful review from over 40 organizations, resulting in a comprehensive code of practice developed by the user, for the user.

Taking ownership of the best management practices document is the starting point. This document is intended to be the backbone of a vision predicated on voluntary stewardship. In order for the BMP document to be effective on the ground, recreation groups and other organizations will voluntarily use this document as a tool to develop more focused information and educational brochures that are activity-specific. The success of the BMP document will require pro-active involvement from the clubs and organizations that participated in its development.

Over the next few months, the GCC intends to fund raise to further develop the BMP document. This will entail working with recreation interests to develop educational pamphlets for each activity type (ie. motorized recreation, mountain biking).

For a downloadable, PDF-version of the BMP document visit <http://www.bcgrasslands.org/conservationcampaigns/bmp.htm> or contact



Consultant Judith Cullington facilitates discussion at the Best Management Practices Workshop held at Quilchena Ranch in September 2003. PHOTO BY BEVERLY FELSKÉ

Taylor Zeeg, Stewardship Program Co-ordinator at taylor.zeeg@bcgrasslands.org.

The GCC appreciates the support from the Ministry of Land, Water and Air Protection for this initiative.

Fragmentation and Development Strategic Directions Project

There is a lack of clear information and knowledge about the social, economic, political, and ecological forces influencing the fragmentation and development of grasslands in BC. This lack of knowledge and information is hindering the ability of government, non-government organizations, and industry to strategically and effectively address this looming threat to BC's grass-

lands. In response to this, the GCC is initiating a provincial analysis based on the consensus amongst many interested parties that there is a need for clarification of information and a need to take action on this emerging and growing problem. The GCC is in a good position to facilitate the process and bring people together to solve the problem of fragmentation and development of BC's grasslands.

The GCC is organizing a stakeholder workshop for early spring 2004. The workshop will bring together experts and key stakeholders to bring clarity to the fragmentation and development issue. Based on the results, the GCC will work with a broad range of interests to develop

strategic recommendations for government and the NGO sector to adopt to mitigate the loss of grasslands to rural fragmentation and urban encroachment. The strategic directions project will culminate in a provincial conference tentatively planned for Fall 2005.

For more information on the upcoming workshop, or strategy development, please contact Taylor Zeeg, Stewardship Program Co-ordinator at taylor.zeeg@bcgrasslands.org.

Thank you to the following partners for supporting this initiative: McLean Foundation; Ministry of Water, Land and Air Protection; Beef Cattle Industry Development Fund; and Agriculture Environment Initiative.

UPDATE: Development and Capacity Building

A New Development Officer



Jessica Robertson, the GCC's new Development Officer. PHOTO BY BARB DECOOK

The GCC welcomes Jessica Robertson to the team as our new Development Officer. Her goal as part of the GCC team is to increase our funding base to enable effective administration of programs and continued growth. Jessica is a recent graduate of the University of British Columbia's Agroecology program and is currently an Articling Agrologist with the BC Institute of Agrologists. Jessica brings with her a great interest in the growing movement back to sustainable agriculture and feels she has found the perfect place in which to explore her interests and apply her skills. Jessica has been with the GCC since November 2003, and has already run several fundraising campaigns in her role as Development Officer. She looks forward to many challenges and successes in 2004.

Membership

Members form the backbone of our organization. Our members bring to us financial support in the form of donations and, equally important, they bring varied backgrounds, expertise and interest in achieving our common goal of conserving BC's grasslands. We would like to thank all our members for your involvement in 2003 and welcome your continued support and input in 2004. We are confident that the GCC will meet its membership goal – to exceed 300 members – over the coming year, as we continue to serve as the outstanding voice for grassland conservation in BC!

Mitigating the Fragmentation and Development of BC's Grasslands

Many of you will have received, and graciously responded to, an appeal for assistance as we attempt to address the problem of fragmentation and development of BC's grasslands. This pressing issue has become the focus of our fundraising efforts over the last few months. The fragmentation of BC's grasslands is a complex issue that does not have easy solutions. The GCC, in partnership with government, conservation groups and interested individuals, has embarked on a plan to get to the root of the problem. Once the problem is clearly identified, we will collaborate to find practical solutions, with the ultimate goal of preserving the economic, social, and ecological sustainability of grasslands. This on-going campaign has been extremely successful and we thank all of you for your continued support.

Holiday Spirit

The recent holiday season saw the launch of the GCC's annual Christmas Gift Campaign. We would like to thank everyone who bought GCC memberships for loved ones who are interested in our work. We would also like to welcome our new members to the GCC community. Our Christmas campaign this year was a big success and, thanks to your support, exceeded the ambitious campaign goals set out.

Changes to the Website

Over the coming months, keep an eye out for many changes to the GCC website. The educational content of the website continues to grow, but also of note are changes to the "Get Involved" section of the website. We would like to make it as easy as possible for people to get involved with the GCC and are tailoring the website to your needs. We are currently developing a form that will allow you to give gift memberships through the website. We hope that you find the changes easy to navigate and welcome any feedback.

Fundraising committee

The GCC is beginning the process of putting together a fundraising committee for our 2004 campaign. We extend the invitation to grasslands enthusiasts all over BC who would like to learn about fundraising. Bring your energy, optimism and creativity to our team and help the GCC conserve BC's grasslands.

If you are interested in volunteering, please contact Jessica Robertson at jessica.robertson@bcgrasslands.org

UPDATE: Conservation of Grassland Ecosystems Program

BC Grasslands Mapping Project – A Conservation Risk Assessment

The last six months have been incredibly productive as Ryan Holmes and Bruce Rea have completed a number of key GIS deliverables for the project. The most notable of these deliverables are the weed, fragmentation, and species at risk maps.

With guidance from the Technical Review Committee and regional weed experts, the GCC has mapped grassland areas at low, medium and high risk to heavy infestations of Diffuse Knapweed, Spotted Knapweed, Sulphur Cinquefoil, Leafy Spurge, Dalmatian Toadflax and Hound's-tongue. These GIS layers are important in understanding the threat posed by different weeds in different grassland areas of the province.

The fragmentation maps, which identify linear developments, industrial sites and built-up areas, serve a dual purpose. First, they help to define where human activities are disturbing the landscape; areas where weeds often crop up and spread to surrounding grasslands. Let's face it, everywhere there are people, there are weeds. Mapping of roads, railways, urban areas and industrial sites serves the second purpose of evaluating the degree of fragmentation across grassland landscapes. For example, the degree of grassland fragmentation in the Okanagan is many times greater than the degree of fragmentation in the Cariboo. This has implications for priority grassland area planning in terms of mitigating the threat posed by human disturbance and development.

Grassland species at risk mapping represents the third key GIS deliverable completed by the program. Nearly 10,000 rare and endangered species locations have been compiled from the Conservation Data Centre and various other accredited sources in the development of a "grassland species sightings" dataset. This comprehensive dataset will prove highly valuable as the GCC identifies priority habitat areas for species at risk and continues to draw the link between BC's grasslands and imperilled creatures.

In addition to completing GCC deliverables, the GIS section has also assisted partner organizations, such as the Ministry of Water, Land and Air Protection, in their operations. The GCC

has supplied each ministry region with maps of small wetlands less than 3 hectares in size completely surrounded by native grasslands. The Ministry used these maps to conduct range compliance monitoring on specific wetlands under Crown control. This is just one of the many examples where grassland ecosystem mapping and land statusing have proven effective for planning and operations on the ground.

Another important product of the program is the communication tool that describes forest encroachment, forest ingrowth and other changes in the grassland-forest interface. The report is a compilation and synthesis of existing mapping and forest encroachment research, complete with aerial photo comparisons that illustrate changes in the interface over time. With encroachment and ingrowth being such complex issues, this report clarifies the threat to grasslands and provides some important recommendations.

For the months ahead, the main focus is on the development of the priority grasslands mapping procedure. The ultimate goal here is to have a process that identifies high value grassland conservation areas in each region. Using all layers of the grasslands GIS in conjunction with expert knowledge, the plan is to pinpoint the "jewels" of the landscape that are highly valued, yet highly threatened. Identifying these jewels, or core conservation areas, is but one component of an overall grassland ecosystem management plan. To complete the plan, the GCC and its partners must design a system of core buffer zones, special management areas and landscape linkages in a Biosphere Reserve Model that will achieve regional and provincial goals of grasslands conservation.

Employing Strategic Tools for Grasslands Conservation and Sustainable Land Use

Employing the GIS tools and associated products of the Risk Assessment is a primary goal of this program. Equipped with the grasslands database, maps, information, analyses and reports, the GCC is now in a solid position to provide direction on land-use planning, decision making processes and policy initiatives on grassland. The GCC proposes to strategically extend products, information, knowledge, and recommendations derived from the Risk

Assessment to key government agencies, crown corporations, and non government organizations that have jurisdiction over critically threatened grassland areas. The effective extension of mapping and associated products to target organizations will ensure that the GCC realizes the full potential of the BC Grasslands Conservation Risk Assessment.

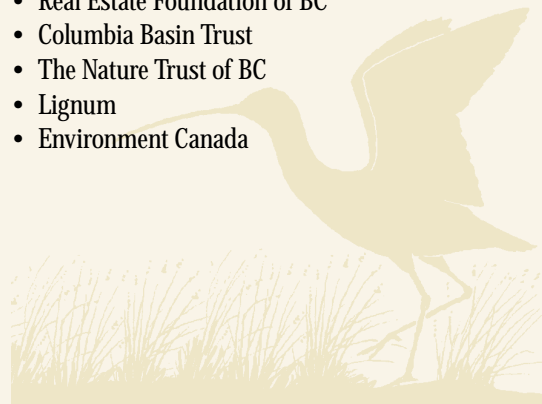
In addition to reaching planners and decision makers, extension will also focus on the general public, with detailed maps and information available on the GCC website (www.bcgrasslands.org) as well as the BC Grasslands Atlas on the Community Mapping Network (www.cmmbc.ca). The Education and Outreach and Conservation program areas will work together to deliver user friendly products to landowners, educators, grassland enthusiasts, and the general public.

Characterization of BC's Grasslands

The comprehensive report characterizing the grasslands of British Columbia is in the final stages of review and will be complete by March 2004. A consolidated ecological description for all the grasslands and associated communities of the province, this 400 page report is the culmination of a tremendous amount of work by Brian and Sandra Wikeem of Solterra Resources Inc. The characterization report is the "one-stop" source for grasslands information in BC.

The GCC would like to thank the following partners for their support of the Conservation of Grassland Ecosystems Program:

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



Executive Director

from page 3

- Complete an analysis and strategic document that will provide clear recommendations for action for NGOs, government and industry; and
 - Plan and organize a provincial conference that will focus on implementation and action plans for the strategy.
- Identifying priority grasslands and mitigating fragmentation and development of grasslands are important initiatives that the GCC will spearhead over the next two years; both are bold steps towards developing a provincial grassland conservation strategy and ensuring healthy grasslands into the future.

White

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pared with the current photos, one can get a very good impression of changes that are occurring on the landscape. The value of the photos is increased by a brief write-up made when the pictures are taken. A useful write-up lists:

- the major plants
- relevant information about the site ('has been grazed every fall since 1996; prior to that was used for breeding in June')
- current conditions ('last year was the hottest, driest growing season I can remember, followed by little snow; but there were two really good rains this year in May')
- specifics about the camera, film, etc. ('pictures were taken with Kodak 400 Max film, in a camera with a 55mm lens').

Ideally the only variable you want to capture on successive sets of photos is the change in the plant community and soils—not changes in film characteristics, or stage of plant growth. The number of photos taken on a given site may vary from one to eight. Three pictures,

one up close, one a bit further away, and one more distant, is often a good starting point.

Photopoints are not the only tool that can be used for monitoring changes in rangeland health. But they are one of the most time (dollar) efficient, both for learning the technique and using it. And they yield very 'visible' results—both to the land user and to potential antagonists. "A picture is worth a thousand words" is so very true.

The downside of monitoring trend of rangeland health is one of timing: when one has a specific need for information, the process needs to have begun five or ten years earlier. I've never heard anyone say, "I wish I had never bothered putting in those photopoints." Conversely, many times it has been said, "I sure wish we had started photopoints 10 years ago." In times such as these, maybe we need to "just do it."

Jim White can be contacted at 250-372-5349, or JimWhite@telus.net

Across the Province

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later—it was almost unbelievable but it did show how achievable this goal is. The afternoon speakers focused on wildfires and interface concerns. The speakers were very passionate about this topic and Bob Mutch from Missoula, Montana gave us Canadians some good ideas to ponder from his experiences in the United States and Australia. The end result of the workshop was the formation of a small EKCP working group that will put together a synopsis of the current status in the East Kootenay with respect to minimizing fire risk.

The EKCP partners are actively working together on many securement and stewardship initiatives and projects.

- **Nature Trust of BC** has purchased almost 5,000

hectares of exceptional wildlife habitat south of Invermere.

- **Nature Conservancy of Canada and Tembec**, have signed a landmark conservation agreement covering almost 40,000 hectares in the Elk Valley.
- **The Land Conservancy of BC** has completed Phase 3 of the Wycliffe purchase, near Kimberley, home to one of the best examples of grasslands in the East Kootenay.

Stay tuned as more great results come in from the East Kootenay! For more information on the EKCP, please contact Darrell Smith, Program Manager, at 250-342-3655 or at ekcp@cyberlink.bc.ca

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 May 31, 2004.

Contributions, comments and inquiries can be made to: *BC Grasslands*
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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."

Larry Halverson

Larry Halverson is a Naturalist who has been working in Kootenay National Park since 1972. He sits on a number of education and conservation boards including the Canadian Intermountain Joint Venture, and the IUCN Grassland Protected Areas Task

Force. Larry has always liked the outdoors and is often found with binoculars and camera in hand. His photographs have appeared in numerous national and international publications.

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 Sarah McNeil, our Education and Outreach Co-ordinator, with your offerings, ideas and inspiration at (250) 374-5787 or gcc@bcgrasslands.org

In the next issue of BC Grasslands...

Finding Common Ground: The Role of Fire in Managing Healthy Grasslands

The August 2004 issue is especially timely in the wake of the 2003 summer fires. This issue will examine the role of fire in sustaining grasslands and ecological integrity.

There is no question that this issue is polarized and, at times, contentious. The goal of this issue is to tease out the issues and arguments about the role of fire in sustaining healthy grasslands. This issue of *BC Grasslands* will touch on such issues as prescribed burns, monitoring, re-seeding versus natural recovery, fire research, fire ecology, and community safety. We encourage submissions of both articles and photos.

The submissions deadline is May 31, 2004.

For more information, please contact Sarah McNeil at sarah.mcneil@bcgrasslands.org

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

Thank You

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* All grants and project sponsors over \$1000.

And Special Thanks to...

- All GCC members and donors, whose continued support has helped make our programs a success
- Ducks Unlimited for its generosity in providing affordable office space and giving the GCC an opportunity to continue its growth and development
- 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:

