

DR. ROGER GIBBINS: DOING WHAT COMES NATURALLY

# Dialogues

A Canada West Foundation Publication

Winter 2005

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Welcome to our first edition of *Dialogues*. As the name suggests, *Dialogues* is a forum in which experts and stakeholders present their insights and ideas on key public policy issues.

This format fits nicely with the Canada West Foundation's mandate to introduce western perspectives into current Canadian public policy debates. Given this mandate, the topics and writers in *Dialogues* will be drawn mostly from the western Canadian experience. With that said, there is often a very fine line separating western issues from national issues, and indeed separating western perspectives from national perspectives. We are hopeful, therefore, that *Dialogues* will find both regional and national audiences.

In this issue, the theme of natural capital is discussed from a broad range of perspectives. This will be the model for future issues as we cover topics such as the urban West, a western Canadian energy strategy, youth, and democratic reform.

If you would like to join the discussion, please send a brief letter via email to [communications@cwf.ca](mailto:communications@cwf.ca). Subsequent issues will include a letters page and we will print as many letters as space permits.

We trust that you will enjoy this issue of our new magazine, and we look forward to hearing from you as future issues are put together.

# Having Our Cake and Eating It Too: Investing in Natural Capital

*“Natural capital includes resources such as minerals, timber, and oil and gas which provide the raw materials used in the production of manufactured goods. It also includes the land and water resources that anchor our quality of life and support economic activity such as agriculture, forestry, tourism, and recreation.*

*Furthermore, natural capital includes living ecosystems – grasslands, oceans and forests – that cleanse fouled air and water, reinvigorate soil, and contribute to a predictable, stable climate. Wetland systems, for example, provide water storage, flood control and filtration.”*

*from the Canada West Foundation report Western Canada's Natural Capital*

The concept of natural capital provides a different way of thinking about the environment that focuses on its importance to both our economic prosperity and our overall quality of life. The concept points to the dynamic qualities of our land, air and water rather than defining them as passive things to be protected simply for their own sakes.

This concept is useful in part because it helps close the counterproductive gap that exists between environmental interests on the one hand and business interests on the other. There is a misperception out there that investing in the environment (i.e., natural capital) does not make economic sense and that growing the economy inevitably means harming the environment. Contrary to this line of reasoning, our natural capital is the basis of our short- and long-term economic prosperity.

Can you imagine western Canada without its farms and ranches? How would our tourism industry fare without the beautiful mountains and lakes that dominate the western landscape? How would our cities and towns prosper and grow without clean water? How much more would our health care costs be if the air was heavy with pollution?

Natural capital is not a luxury but a primary economic input. At the same time, economic activity and growth are not the necessary enemies of natural capital. There are all sorts of ways to grow the economy and maintain and build our portfolio of natural capital – especially since it makes economic sense to do so. We can have our cake and eat it too!

Progress has been made in western Canada: there are lots of examples of innovative business practices in play; urbanites are starting to see the value of a tighter fit between the urban landscape and nature; ranchers are taking steps to preserve valuable rangeland; and governments are looking for ways to improve public policy.

Public policy, because it links and affects the actions of stakeholders from natural resource companies and farmers to urban residents and biological scientists, is absolutely critical to the future of western Canada's natural capital. Despite the progress noted above, public policy is simply not where it needs to be. The business sector, environmental groups, researchers, and the public are all calling for a new and better public policy framework. The call for change is not coming solely from the green movement; it is coming from industry, hardnosed ranchers and farmers, private land owners, and others with a stake in better land and water management.

To stimulate the creation of this new framework and channel the ideas and aspirations of a variety of stakeholders, the Canada West Foundation had the foresight two years ago to launch its Natural Capital Project. The project started from the assumption that a vibrant and healthy environment is not at odds with economic growth. The trick is to recognize and understand the role played by natural capital and marry this with creative public policy.

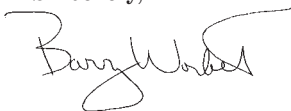
The second phase of the Natural Capital Project is called Alberta's Second Century and, as the name suggests, is focused on improving natural capital policy in Alberta. However, as the articles in this magazine demonstrate, investing in natural capital, learning from others and trying out new ideas, and identifying and testing alternatives to current public policy is something that spans the western region, the country, the continent and the globe. Hence, the Alberta's Second Century Project will draw from this wider sphere of information and inspiration and, in turn, its findings will be useful to other jurisdictions.

As someone who was born in the West and worked in the natural resource sector since the early 1970s, and has a passion for the breathtaking beauty and benefits of the West's natural assets, I have seen first hand the negative consequences of the false divide between the economy and the environment. I have also seen the potential for closing this divide and doing so in a way that will satisfy the diverse set of stakeholders involved. Creating a new public policy framework will be instrumental in this regard.

It is a complex and daunting task and one that requires the energy and expertise of literally thousands of individuals. Luckily, the energy and expertise is out there as is the public support. We all stand to benefit – in our pocketbooks and in terms of the quality of our lives and those of future generations – and this is a great basis from which to work.

I look forward to hearing your thoughts and ideas on the articles in this magazine and on natural capital issues in general.

Sincerely,



Barry Worbets  
Senior Fellow  
Canada West Foundation  
worbets@cwf.ca



# Putting our environmental house in order

# Measuring success

By Elaine McCoy

As Yogi Berra once said, “The future ain’t what it used to be.” No truer words could be used to describe the challenges Alberta faces heading into its second century. Two decades ago, one of the most important issues emerging on the horizon of public policy was fiscal responsibility. Today, natural capital is the issue on the horizon and should take a priority position on the list of issues facing policy-makers. Responsible management is once again on the agenda, but this time the focus must be on how wisely we manage our land and water resources as well as how we manage our finances.

There is no question that the Alberta government has successfully dealt with fiscal responsibility by moving from a position of monumental government deficits and debt to a position of surplus, balanced budget legislation, and the

elimination of the debt. Credit for this not inconsiderable achievement has properly been given to the Klein Government. They addressed the issue head on and laid a strong foundation for responsible fiscal management that succeeding governments will ignore at their peril.

What lessons can be learned from this legacy of dealing wisely with public revenues?

Several factors contributed to the Alberta government's success in overcoming deficits – political will, a supportive voting public, new administrative processes and (in the past few years) high oil and gas prices. Of these, perhaps the least well-known factor, certainly the least debated, is the new administrative processes that were brought into play.

A fundamental change was



introduced in 1994. To get the government's house in order, every department was required to produce a three-year business plan complete with vision and mission statements, as well as goals, strategies and measures for each identified core business. This new approach adopted the practice I had introduced in 1986 when I first became a cabinet minister – an approach that had proved effective in reducing both management and expenditures by 30 to 50% in the two departments I led. As Mark Lisac

says in *The Klein Revolution*, this “turned the budget into a collection of individual policy statements.” More importantly, he points out that now “the government could manage and measure.”

The beauty of the business plans is that they forced policy-makers to focus on what outcomes they most wanted to achieve. Yogi Berra said it well once again: “If you don’t know where you’re going, you’ll wind up somewhere else.” The business plans concentrated everyone’s attention on the main goal, and that was the first major step toward reducing the deficit.

The business plans also gave government a way to track success (or the lack of it). Performance measures were introduced so that managers could systematically monitor the effects of their policies, programs and actions. Like other enterprises, it was decided that departments should be able to assess

our obligations as stewards for future generations.”

Natural capital and responsible management are therefore poised to move to the top of the public policy agenda as Alberta begins its second century. Will the government be as successful in dealing with this issue as it was in reducing the deficit? One is tempted to quote Yogi once more (“this is like *deja vu* all over again”) except that this decade’s task is more complex and requires even more innovation than balancing the budget.

The fact is that we are far more practised in the skill of stipulating financial capital performance measures and outcomes than we are with natural capital goals and yardsticks. The challenge going forward is that we have yet to find a way to express clear outcomes - in actionable terms - for Alberta’s natural capital. We also don’t have a general agreement on what

to preserve the lake for its economic benefits, but recognized that its ecological values underpinned such benefits. It therefore concluded that feeder stream habitat was one area needing attention, established a results-based outcome (75 miles of stream habitat rated excellent), and then declared that “unnatural blockages and other impediments to fish movement are prohibited.” The Lake Tahoe Region has integrated this approach to responsible management of natural capital across all departments by aligning outcomes and performance measures at every level including by-laws that define municipal land use zones.

The bottom line is this: we need to unleash innovation at an administrative process level before we can hope to make progress in achieving our natural capital goals and vision. The government’s business plans help to focus us on the very important public policy

**As Yogi Berra once said,  
“The future ain’t what it used to be.”**

how far they had moved along the path to their desired goal.

In 2004, the province went one step further. In a budget entitled “On Route, On Course,” the government presented a 20-year strategic business plan that aligns each departmental plan with the overall goal of a “vibrant and prosperous province where Albertans enjoy a superior quality of life and are confident about the future for themselves and their children.” Unleashing innovation, the first of four ways the government proposes to achieve its vision, is focused on the wise use of resources and a long-term land use policy “that ensures the most appropriate use of these basic resources, while recognizing

indicators should be used so that the government, as well as other stakeholders, can track success in achieving their desired goals.

The first thing that needs to be done is to articulate concrete, results-based objectives or outcomes for the province’s natural capital so that departments across government can begin to work collaboratively towards achieving common goals. Secondly, relatively simple but quantifiable standards and performance measures must be devised so that progress can be monitored and measured.

The new standards and performance measures do not have to be overly complex. The Lake Tahoe Region, for example, wanted

issues associated with land and water use and the many competing interests that deserve access to our land and water base. But “it ain’t over ‘til it’s over.” For responsible management of our natural capital during Alberta’s second century, the tools the government has used in the past ten years will be effective only if we succeed in tying them more securely to real-world results. Alberta, like other jurisdictions, needs to measure its natural capital, the benefits it produces, and how its policies affect both.

*Ms. McCoy is a lawyer and former Alberta cabinet minister who led the Alberta government in the use of business plans. She is currently the President of the Macleod Institute at the University of Calgary.*

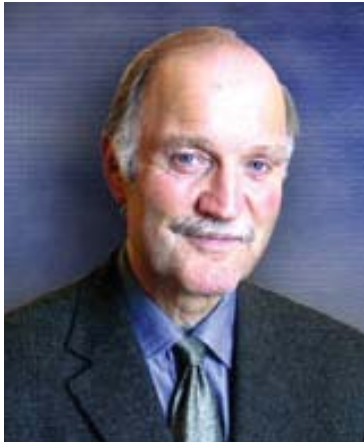
A scenic landscape of a valley with a red barn, a large tree, and snow-capped mountains. The foreground features a green field with a fence and a large, leafless tree on the left. In the middle ground, a red barn is visible. The background shows a valley with forested hills and snow-capped mountains under a cloudy sky.

# *Protecting* **Natural Capital** *in British Columbia*

*The Role of Land and Resource  
Management Planning*

*Fernie Valley, BC*





*By Dr. Jon O'Riordan*

British Columbia contains some of the most diverse natural capital in the country. With a land base of 95 million hectares (94% of which is still owned by the Crown) the province provides habitat for two-thirds of Canada's mammal species (24 of which are found nowhere else in the country). The iconic species of grizzly bear, mountain caribou, salmon and spotted owl are just some examples of the province's rich biodiversity. The intact areas of old growth temperate forests on the coast are of global significance, as are the big game species in the western slopes of the Rockies from the Muskwa-Ketchika in the north to the Flathead valley in the southeast. In addition, BC contains a rich diversity of marine ecological systems stretching along tens of thousands of kilometres of shoreline.

Protecting this abundant natural heritage has not been easy. During the middle decades of the 20th Century, there was rapid growth of resource-based industries and associated infrastructure. Major hydro power projects were developed on the Peace and Columbia rivers, forest and industrial mills spread along the coast, and in the interior of the province, mining flourished and road and rail corridors threaded their way into many of the pristine valleys. By the end of the 1980s,

there was growing public concern about the loss of natural capital associated with these developments. This concern culminated in a massive protest against logging practices in Clayoquot Sound on the west coast of Vancouver Island in 1994 where over 300 citizens were arrested.

The provincial government began to formally consider protecting BC's natural capital in 1985 with the establishment of the BC Wilderness Committee. The committee recommended the establishment of a new suite of parks and protected areas as well as a more in-depth review of the province's biodiversity under the Protected Areas Strategy. A new provincial government in 1991 set a formal target of doubling the area of parks from 6% of the Crown land base to 12%.

The vehicle to accomplish this goal was the Commission for Resources and the Environment (CORE) created in 1992. The Commission completed three regional Land and Resource

industries about the expansion of parks and loss of resource-based employment opportunities.

Nevertheless, the government approved the plans and, in 1994, replaced CORE with a more permanent bureaucracy called the Land Use Coordination Office (LUCO). This entity provided a focus for resolving mandate conflicts across various resource agencies.

The province was divided into 26 LRMP areas and plans were completed for 17 of the areas by the end of the decade.

These plans were supposed to balance the needs of the resource-based industries with the establishment of parks and protected areas but there was growing concern in the mining sector that too much land had been rendered inaccessible for exploration. Part of the issue was the creation of Special Resource Management Zones adjacent to the new parks. Although the exploration was allowed within the zones, the investment community



Management Plans (LRMPs) for Vancouver Island, the Caribou-Chilcotin region, and the Kootenays. Although these plans were developed with round table forums containing representatives from all resource sectors, there were considerable protests from the resource-based communities and

was not prepared to take the risk and resource exploration decreased.

The Liberal government elected in 2001 brought a new organization to the completion of the LRMPs to ensure a better balance between protecting biodiversity and stimulating resource development. A new Ministry of Sustainable



*The Monashees, BC*

Resource Management was created to bring land-use planning expertise and the data and information systems from across the resource agencies together into one ministry. This move made completing the LRMPs the responsibility of a single ministry with only a co-coordinating mandate. This greatly reduced internal conflicts among agencies with different resource mandates.

Integration of resource information systems brought standardization to both the quality of data and to the systems used to access and disseminate information to the public and private sectors under the banner of Land Information BC. More progress has been made in information system integration in the past three years than in the previous ten as a result of this consolidation. The ministry, moreover, established a Client Council with representatives from all resource agencies to ensure that key priorities for providing information to fulfill other ministry mandates are met.

The government also reorganized the political system to integrate environmental and land use policies with economic and resource development policies by creating a Cabinet Committee on Environment and Resource Development

(CCERD). A parallel committee of deputies was also established to align policy reviews prior to CCERD deliberation. The Premier's Office appointed a deputy minister position to chair the Deputies Committee and work with CCERD on a strategic agenda to ensure that environmental and land use policies were integrated into the economic agenda.

Six remaining priority LRMPs were developed with fixed time frames and planning tables that contained not only the broad range of resource interests but also representatives of the First Nations communities affected by the plans. With the change in law requiring formal consultation and accommodation of First Nation interests, the government will not approve the plans until there have been formal government-to-government discussions. For four of the plans completed since 2001, there was a broad consensus at the planning tables.

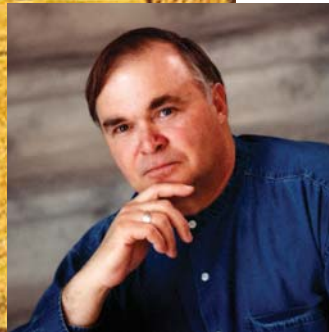
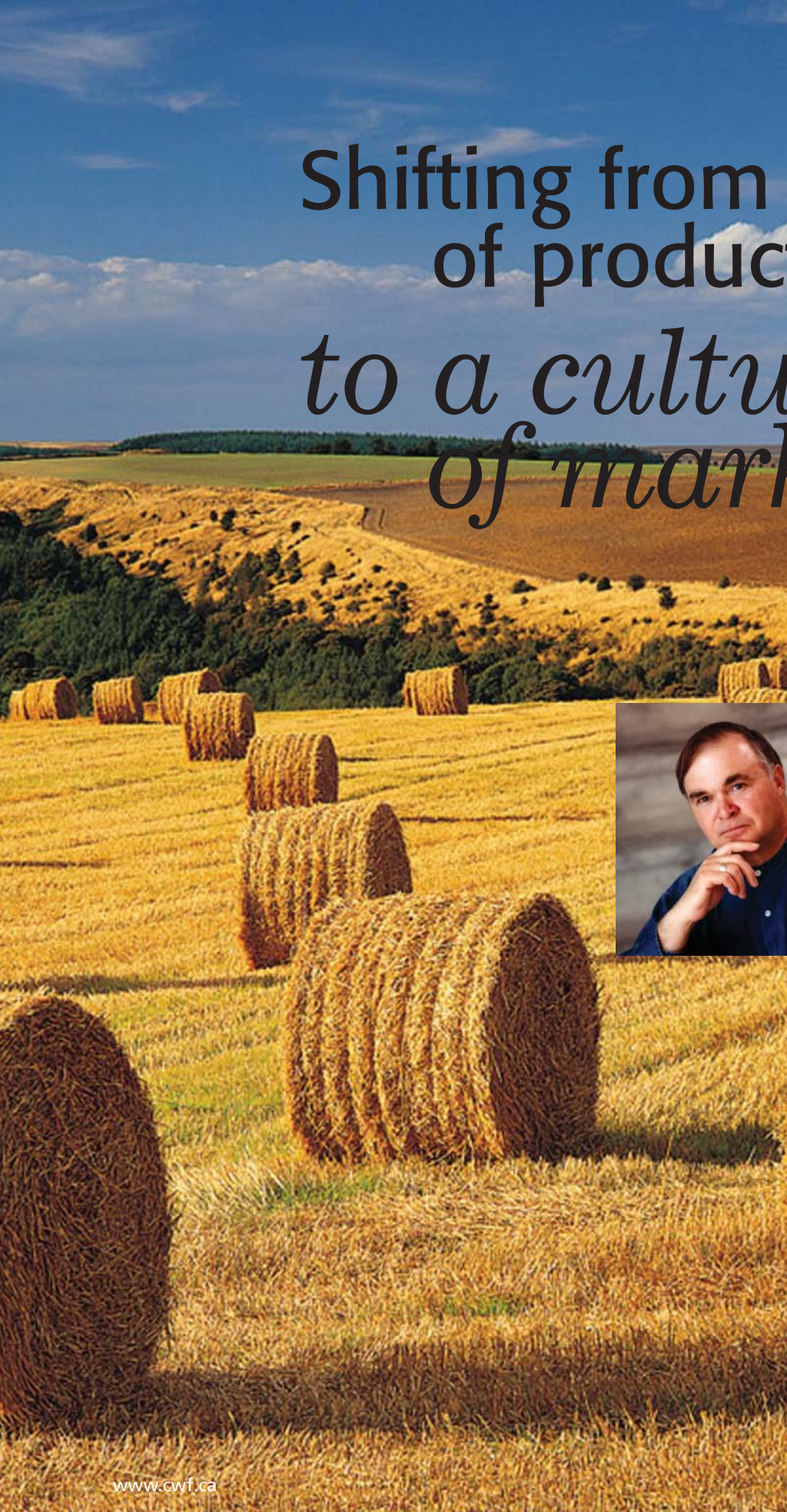
The LRMPs and Parks and Protected Areas are land use zoning tools that establish where resource-based industries can access Crown land. In addition, legislation such as the Forest and Range Practices Act set out performance-based regulations for how industry

operates to protect natural capital. These collaborative governance models are both internal to government through CCERD and external to government through multi-sector planning tables and advisory boards such as the Muskwa-Ketchika Management Board. The collaborative approach improves decision-making and public acceptance of the implementation of LRMPs.

The land use planning experience in BC points to the need for, and value of, integrating information systems and planning and embracing approaches that involve consultation and collaboration. The BC experience also highlights the tremendous complexity of natural capital issues, the wide variety of stakeholders that must be part of the policy process, and the importance of getting public policy right in this area. As BC continues to wrestle with these issues and as other jurisdictions do the same, lessons can and should be gleaned from what has taken place in BC.

*Dr. O'Riordan, a former Deputy Minister of the BC Ministry of Sustainable Resource Management, recently retired from 35 years of public service. He led numerous regional land and resource management plans and led the development of Land Information BC.*

# Shifting from a culture of production *to a culture of marketing*



*By Les Brost and Brian Heidecker*

Alberta's primary agricultural production sector is in crisis. The farm and ranch community is reeling from a devil's cocktail of drought and frost, blended with global commodity oversupply and escalating energy costs, and shaken with BSE and other livestock diseases. It is a crisis that challenges the coping ability of even the royalty-rich Alberta government.

Can any good come out of primary agriculture's bleak economic predicament? Might we find the sweet wine of opportunity at the bottom of the dark chalice of crisis? Could our agricultural industry be in a position where it is ready to rethink some of its old alliances and

fundamental operating assumptions?

There is an opportunity for renewal and reinvention of a significant slice of Alberta's agricultural community rooted in the importance and value of the land and of the people who live and work on that land. The idea here is to recognize, celebrate and invest in the working landscapes formed by Alberta's farms and ranches and create new revenue streams for agriculture aside from ad hoc government subsidies and bailouts.

Recasting these working landscapes as natural capital assets is congruent with a revolution underway in our primary agriculture industry. The shift from the culture of production to the culture of marketing is creating new approaches to primary agricultural production. Leaders of this revolution are taking their cues from their customers rather than their suppliers. A growing move to value-

agriculture and environment ministries. The agriculture department would accelerate its departure from the production support arena and move toward the support of an agri-food industry solidly based on triple bottom line principles. The environment department might move from its traditional watchdog position to become a collaborative partner in sustainable growth.

Governments at all levels will have to carefully examine their policies, regulations, budgets and guidelines to identify and remove perverse disincentives to environmental sustainability. Silos of influence and interest must be replaced by horizons of innovation and opportunity.

There will also be a short-term need for government to play a role in facilitating rural-urban understanding and communication regarding the value of our landscape.

mother duck scurrying her young into the water ahead of the coyote does not run back to bring all her young to safety. She recognizes the importance of setting the course and surviving for the greater good of her remaining flock.

There will also be challenges for academia. The concept of natural capital does not seem to be congruent with the production culture entrenched in the agriculture faculties of some of our universities and colleges. Some may have difficulty seeing an intact wetland as having economic value beyond its potential value for traditional commodity production. Universities will be challenged to provide the intellectual horsepower required to quantify the value of our natural capital.

Even progressive land managers might find themselves in surprising situations. The crusty old rancher in the foothills, known to comment to

*“Silos of influence and interest must be replaced by horizons of innovation and opportunity.”*

added production and direct marketing is creating a new generation of marketing-savvy entrepreneurs. These same operators will be quick to seize business opportunities created by marketing the natural capital benefits of agricultural land.

What would be the implications for government's role if a natural capital approach was adopted? To answer this question, we need to break government into its constituent parts: the administrative and the political.

From an administrative perspective, we suspect that it would force a closer alignment between the

A society that has become used to freely enjoying Alberta's natural capital will need to understand its interests in investing in that natural capital. Land managers who believe in the sanctity of property rights will need to understand the benefits of investing in and marketing natural capital.

The challenge for government – particularly on the political side – will be to recognize the nature of change. Meaningful change will never happen if it is paced to the comfort zone of those most resistant to that change. Even the most paternalistic of governments can learn the lessons of nature. The

his sidekicks about “damn longhaired environmentalists,” might find himself being a business partner with those very same “longhaired tree huggers.” A sportsmen's club that had blasted “redneck ranchers” might find themselves as business partners with ranchers. The glue of common interest may bind together some unlikely partnerships.

What needs to happen for natural capital approaches within the agricultural sector to work? Above all, governments, academia and industry must create an environment where change can happen. We know that moving away from the comfort of the status quo is very difficult in a

province as rich as Alberta where mistakes can be buried under mounds of crisp new petrodollars. And, once that environment is created, a wise government will get

managers could be given a mandate to maximize natural capital growth, and the dividends in societal satisfaction would be paid to future generations. A board of directors,

continues to yield benefits.

Does this natural capital stuff sound like a lot of addle-headed dreaming? Consider this: We are not proposing the creation of any new products. Everything we require already exists, and our asset base is as solid as the Rockies. All we need to do is to quantify, value and build on assets we already own. Our customer base will grow as fast as our ability to absorb them. Addle-headed or farsighted? Agriculture crisis or new opportunities for the industry? Think it over.

*“A society that has become used to freely enjoying natural capital will need to understand its interests in investing in that natural capital.”*

*Mr. Brost is an Alberta Agriculture and Food Council member, chairman of the Alberta Ag Summit and Agrivantage Strategic Initiative Committee Chair.*

out of the way of the ensuing innovation.

Perhaps we need to create a new Heritage Fund where the primary assets are the riches contained in Alberta's natural capital. Fund

composed of a mix of Alberta's best and brightest leaders and high-level national and international representation, could direct this new Heritage Fund and ensure that our stock of natural capital grows and

*Mr Heidecker is Chairman of the Alberta Agriculture and Food Council and Co-chair of the Alberta Ag Summit. He is the founder of Drylander Ranch Ltd, is a member of the Alberta Treasury Branches Board and the University of Alberta Board of Governors.*



*Highway 22 near Maycroft, AB*

# EVERY DROP COUNTS:

## *A New Way* of **Managing Water** in the **West**



*Oldman River near Letbridge, AB*

*By R.W. Sandford,  
Dr. Dennis Fitzpatrick  
and David Hill*

### **The Myth of Abundant Canadian Fresh Water Dispelled**

Water availability, supply and quality are fast becoming important public policy issues in Canada. In only a generation, Canada has gone from being a nation that was internationally proud of the belief

that one could drink from any of its sparkling streams, rivers and lakes to being a country that is genuinely and legitimately concerned about water quality and availability now and in the future. Nowhere is this truer than in the Canadian West.

Through the United Nations Year of Fresh Water and other initiatives, it has become clear that to be effective at watershed management, governments need to engage all

interests that use or impact water resources. As a result of the development of the Water For Life strategy in Alberta, and related programs in other provinces, the need to link the activities and focus the collective energies of the widest possible range of stakeholders has been identified. Much excellent work has already been done and many great examples exist to guide us toward sustainable water use in the future.

It is now possible to imagine revolutionary new ways to employ

technology and collaboration to manage watersheds far more comprehensively and, in turn, far more effectively, than we do today. One of the best examples of this can be found in the South Saskatchewan River Basin.

### The South Saskatchewan River Basin and What We Can Learn From It

The South Saskatchewan has its origins in a number of tributary rivers that flow from headwaters in the Rocky Mountains. Agriculture makes the most intensive use of this mountain water as vast areas in southern Alberta are under irrigation. In order to examine the additional demands irrigation expansion could place on water resources and the environment of southern Alberta, an important study of irrigation district water requirements and opportunities was undertaken in 1996.

One of the most important products of this study was the development of specialized irrigation water demand computer modeling and data handling tools. Though these tools are remarkable in their own right, they point to future innovations in water management and a possible revolution in how Canadians might work together to address water availability issues.

To understand the nature and potential of the suite of computer modeling and data handling tools used to increase irrigation efficiency in the South Saskatchewan River Basin requires viewing the world from the perspective of a plant in a farmer's field. Imagine a southern Alberta farm located on the Prairies with the Rocky Mountains in the distance. Imagine a plant in that field. Imagine knowing that individual plant's every nutrient need. Imagine being able to continuously anticipate exact parameters of soil moisture, temperature and evapotranspiration (the water that is evaporated and transpired by plants as a part of their metabolic processes). Imagine

being able to supply exactly enough water at precisely the right time to maximize growth. Now imagine being able to do this for every plant in that farmer's field. Then imagine being able to do this just as effectively and just as selectively for every plant of a different crop in an adjacent field.

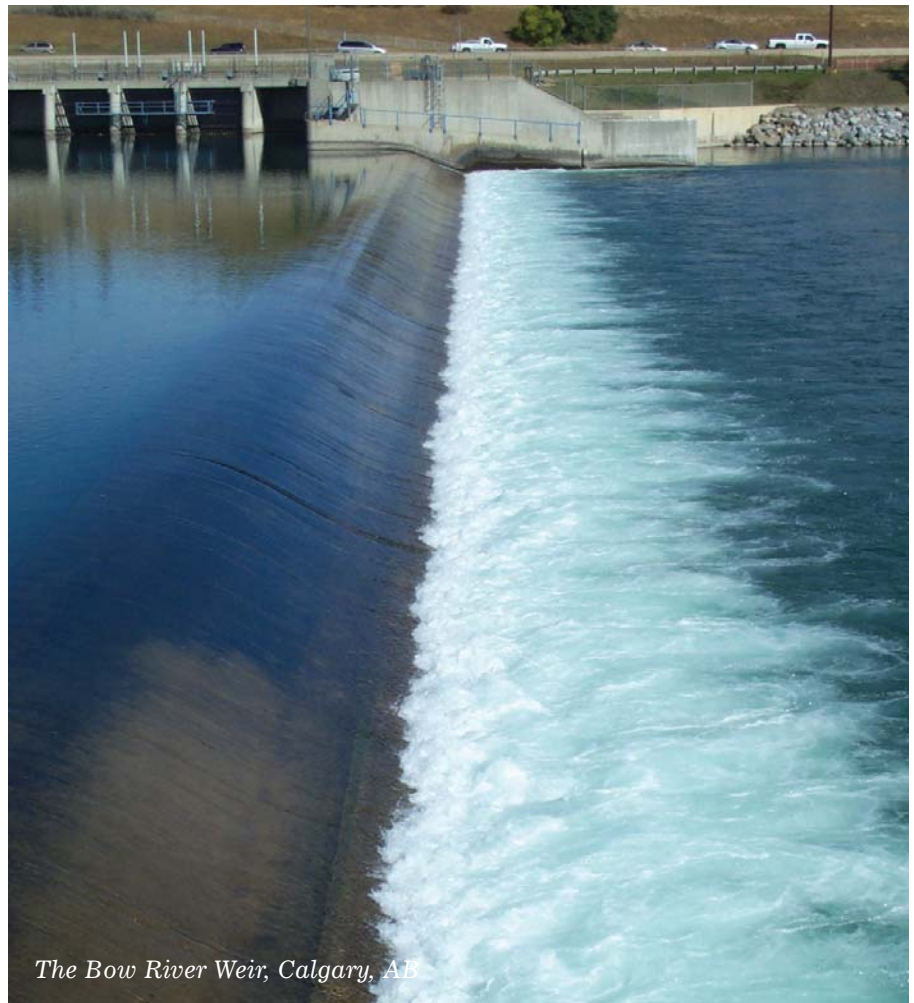
Imagine being able to do this over an area of 1.3 million acres in thirteen irrigation districts that span the width of an entire province.

Now think on an even larger scale. Imagine knowing where all the water available to you comes from, how much is in each stream and river, how much is diverted for irrigation, how much is used in any given irrigation channel, including how much is being lost to evaporation, how much enters and leaves each water pipeline and each earthen irrigation ditch, and how

much is absorbed into the earth as opposed to reaching each plant. Imagine knowing what each plant does with the water it gets in terms of the proportion incorporated into living tissues as opposed to the amount that passes through the plant by way of evapotranspiration.

Imagine knowing exactly how much water evaporates into the air and exactly how much returns to each stream and river, the quality and nature of that water, and what kind of in-stream ecosystem circumstances might be created with the volumes available at any given time.

Imagine what you could do if you had such a system. You could literally start with a plant in a field and trace that plant's water needs upstream past every community and industry drawing from that source to



*The Bow River Weir, Calgary, AB*

the headwaters of each stream and river in the watershed and determine how much water is available.

Imagine being able to assign a precise value to the economic benefit derived from any given kind and level of water use. Though there are some limitations, technological advancements are making it possible to monitor an ever broader spectrum of variables, including water quality at any stage in the irrigation process and aquatic ecosystem health at any point downstream.

While this is impressive in its own right, the implications of what is currently being done in irrigation agriculture are profound especially in terms of what they suggest may be possible in the larger watershed and general ecosystem. The next step may be to expand existing processes to water availability and use patterns in urban, rural, and wilderness areas outside irrigation districts. This would make it possible to integrate water management goals throughout an entire watershed in a manner as precise as what has been done in irrigation districts and in some urban centres.

Through application of leading edge monitoring and modeling tools, it may be possible to create monitoring networks that track water use within a watershed to the point where we would know where the water is, how much there is, what it is used for, and if and when it is lost or polluted. If this were done in each of the major watersheds and the results extrapolated, it would be possible to manage water in a way that will ensure water quality, preserve aquatic ecosystem health, save billions of dollars in unneeded infrastructure costs, and maximize the economic development potential of the West for decades to come.

Such a system could be made predictive and adaptive so that it could respond to concerns such as climate change and variability and glacial recession. Such a system could also be made truly collaborative by expanding the watershed management decision-

making process to include the widest range of informed stakeholders. By allowing the widest range of bona fide interests to employ these leading edge monitoring and modeling tools to input and manipulate actual and potential variables, we could create a new foundation for effective watershed management.

### The Western Watersheds Partnership

With this vision clearly in mind, a consortium of organizations has committed to working together to advance the processes, tools and efforts that will be needed for a western Canadian water strategy to emerge. They are creating the Western Watersheds Partnership. The Partnership is an independent, not-for-profit western Canadian umbrella organization intended to orchestrate and promote optimal water management in Canada by finding ways to use the suite of tools agriculture has developed to manage water and, thus, pave the way to a more sustainable and prosperous future.

Arrangements are already being made to locate the Western Watersheds Partnership at the University of Lethbridge where it will work in close association with the Alberta Irrigation Projects Association, Alberta Environment, Agriculture and Agri-Food Canada, Environment Canada, Climate Change Central, Fisheries and Oceans Canada, the Water Institute For Semi-Arid Ecosystems, the newly developing Alberta Ingenuity Centre for Water Research organization, as well as a growing number of other partnerships that the institute will cultivate.

The Western Watershed Partnership will help Canadians to once again see the West in terms of watersheds rather than as a series of separate and divided jurisdictions. In so doing, it will provide leadership in using water to encourage the sense of community, civility, and empowerment essential for communities in Canada to succeed socially, economically and

environmentally in the 21st century.

As the importance of water to our economy and quality of life becomes clearer to more and more people, modernizing the way we manage this invaluable resource will become a priority. There is a lot we can learn from the irrigation sector in this regard and the Western Watershed Partnership is poised to bring this information forward and help maintain and build the West's stock of natural capital. When it come to water, every drop counts.

*Bob Sandford is the chair of the United Nations International Year of Fresh Water and Wonder of Water Initiative in Canada.*

*Dr. Fitzpatrick is the Associate Vice-President (Research) at the University of Lethbridge and Board Chair of the Water Institute for Semi-Arid Ecosystems.*

*Mr. Hill is the Executive Director of the Alberta Irrigation Projects Association with over 30 years of experience in water management and irrigated agriculture.*





# KNOWLEDGE OF OUR NATURAL CAPITAL:

## Are we Penny Wise but Pound Foolish?



*By Les Wetter*

A society looking for a surefire investment tip for years to come would be wise to invest in an inventory and analysis of its natural capital. This is a more prudent investment strategy than continuing to make uninformed withdrawals on accounts which are certain to

provide more future value if left intact.

Land and water use change is inevitable, especially in a growing economy. Allowing for growth, but preserving natural capital and continuing to enjoy its benefits depends on having the knowledge to make wise decisions about land and water use policy and management. Without knowledge, individuals, governments and industries make

land and water use decisions that unnecessarily decrease our stock of natural capital. With knowledge, our individual decisions will build and increase it.

Wetlands are a good example of natural capital. Wetlands provide habitat for about 600 species of plants and animals, including waterfowl, shorebirds and other wildlife. They are repositories for native plants and provide water

storage, flood protection, groundwater recharge, carbon sequestration and nutrient assimilation as well as pathogen and contaminant removal. A decision to drain or impair the functioning of a single wetland may have no immediately visible negative consequences. Yet, when the individual losses are added together, we find that Alberta for example has lost or degraded over 70% of its prairie potholes. Often, the common denominator of loss is the lack of understanding on how individual decisions affect natural capital on a large scale.



Our situation is similar to the one our forefathers faced a century ago. At that time, transportation depended on prairie and forest trails. Our society decided that, for the public good, the government would manage or coordinate a road infrastructure. Our productive provincial economy is a testament to the wisdom of that decision. Will our grandchildren credit us with the same foresight in creating the 21st century infrastructure of knowledge needed to protect the natural capital their economies will depend on? The Alberta provincial government has established “knowledge” as a high priority and has taken remarkable strides to implement this priority. A similar “knowledge” commitment is needed to create an inventory and analysis of our stock of natural capital.

The tools to implement such a commitment exist. In the 1970s, a revolutionary science was introduced called Geographic Information Systems (GIS). GIS is a

computer-based mapping tool. A GIS can display and categorize multiple layers of land information in a visual format. GIS provides decision-makers and the general public with a tool to “see” the state of land use, how it has changed, and what it may look like in the future.

GIS technology is complex, but the output is simple. Ducks Unlimited Canada (DUC) works with many small local watershed groups comprised of citizens from various walks of life. When these groups see the power of GIS applied to their own watershed, GIS support becomes the most desired assistance DUC

provides. It allows them to analyze watershed problems, prepare funding submissions and reports, and implement better management practices on the ground. Presenting complex data in an understandable, visual manner leads to improved public understanding and enhanced democratic decision-making.

Knowledge infrastructure is expensive but the costs can be shared. DUC is willing to participate in and share the costs of such an endeavour. The real cost of GIS technology is not in computer systems, software or staff, but in capturing the data or the “knowledge” to feed the system. At present, some industries, governments and non-governmental agencies are spending money to capture the same information rather than sharing it.

However, the benefits of cooperation among stakeholders such as governments, industry and conservation organizations is being demonstrated. For example, DUC

has used remote sensing, aerial photography and ground investigations to locate existing and drained wetlands. This information was coupled with data from agricultural agencies such as the Prairie Farm Rehabilitation Administration and forestry companies such as Alberta-Pacific Forest Industries Inc. (ALPAC). The expanded collaboration within the GIS environment allowed DUC to model, prioritize and plan for the retention and restoration of wetlands. As a result, pilot inventory and planning projects now exist in sub basins of the North Saskatchewan River and ALPAC forestry management areas.

Cooperation among industries is essential, but a central manager is needed. In this regard, provincial governments could help organize and coordinate data that is often scattered and fragmented. Central repositories exist, such as those maintained by the Alberta department of Sustainable Resource Development, and this sort of initiative need to be given a higher priority, expanded, and linked. Above all they must be accessible to all, at no cost.

In summary, well-funded natural capital data gathering systems and inventories are needed. The advantage of developing and utilizing knowledge in a format understandable to the public will aid consultative democratic decision-making. It will improve efficiencies for governments and industries operating in an increasingly crowded physical landscape. It will help us all as we strive to make choices that will help to conserve and protect the natural capital that will increasingly become a source of our economic well-being. To take land and water management into the 21st century we, as a society, must spend some of our “pennies” now to ensure we reap “pounds” in the future.

*Mr. Wetter, the current Government and Industry Liaison for Ducks Unlimited Canada, has worked in various capacities for DUC for 15 years on issues surrounding land use.*



# Shell's Commitment to the Waterton-Castle Region

*by Laurieanne Lynne*

**Editor's Note:** There is no denying the challenge that exists in trying to reconcile resource development with the protection of natural capital. Nowhere is that challenge more acute than in the southwest corner of Alberta, an ecological sensitive area of great physical quality. The following article describes the efforts of Shell Canada to reconcile resource development and natural capital in this location.

In 1957 Shell Canada discovered the Waterton gas field – one of the largest in Canada. The Waterton gas plant south of Pincher Creek opened in 1962.

Between Shell and other companies, there are now 75 producing wells in the Waterton gas field, as well as a network of pipelines.

Shell's Waterton operation is in an area of great natural beauty that hosts a diversity of plants and animals. Bighorn sheep, elk, mule deer, grizzly bears, black bears, cougars, mountain goats, and wolves are some of the many species that live there, and it's important to Shell to respect the ecological values of the region.

The area has seen many activities over the past 100 years – logging, mining, grazing, recreation, oil and gas, and more.

“The oil and gas industry came to the Waterton area in the early 1900s, and Shell has operated there since the late 1950s. Some wells and pipelines are in areas identified as environmentally sensitive, such as the Castle region and certain canyons.

“We know we have an important role to play in the development of natural gas in environmentally sensitive parts of the Waterton area,” says Rob Symonds, Vice President of Shell’s Foothills operations. This includes finding remaining reserves, reducing the impact of our activities, then reclaiming well sites and roads when the wells reach the end of their productive lives.

Shell believes resource development can be compatible with environmental protection when the principles of sustainable development, coupled with modern technology and techniques, are applied. Sustainable development integrates economic, environmental and social elements, and “We work to incorporate these principles into our day-to-day business in the Waterton field,” says Symonds.

The company believes that all stakeholders involved in the Waterton-Castle area have a role to play in preserving its natural beauty. “Besides Alberta Sustainable Resource Development (ASRD – the manager of the lands), we consult with ranchers, farmers, acreage owners and residential developers to address concerns about our operations,” says Symonds.

Environmental groups, Aboriginal people, recreational users, outfitters and guides, the forestry industry and other oil and gas companies are stakeholders.

They look to Shell to constantly

raise the bar when it comes to environmental protection, and we’re proud of the numerous examples where we have done so. For example, in consultation with stakeholders, we voluntarily reduced our activities in some environmentally sensitive areas in an effort to respect and protect these lands. In 1988, we withdrew from the South Castle (Jutland) area and we have not sought further exploration rights there.

In 1999, we agreed to phase out, over a 10-year period, new drilling in Zone 1 prime protection areas of the Castle region. Then in 2003 we furthered that commitment by restricting any future drilling on Zone 1 lands in the Waterton field to existing well sites only. “We will not build any new well sites or new roads on any Waterton Zone 1 lands,” Symonds said.

In addition, the company will not drill any more wells in the Prairie Bluff area, including on the two existing well sites located there. Also off limits for Shell is the Mill Creek area as well as the most westerly portions of the front canyons.

Since 2001, Shell has partnered with ASRD to help remediate and restore wildlife habitat in the Castle region, and to help reinforce the Castle Access Management Plan, which is designed to prevent motor vehicle access into sensitive areas that most stakeholders agreed should be protected.

“We recognize that new motorized access into undeveloped areas can have significant effects on wildlife, and we wanted to address the environmental effects of our activities,” says Shell Ecosystem Manager Roger Creasey. “That’s why we set a goal of no net increase in vehicle access caused by our operations. It means that for any new motorized access we cause, we now close at least an equal amount of existing access, creating a net



*Waterton - Castle region*

positive impact in the Castle region. We work with ASRD to close old seismic lines, mining trails, and other access routes into sensitive areas.”

After installing gates and signs on selected roads, Shell used existing deadfall, brush, local vegetation and rock barriers to block off, and in some cases reclaim, old roads. Eventually, with natural regrowth of native vegetation, only traces of these access routes will remain.

Shell also works with local conservation organizations and supports regional environmental studies of plants and wildlife. With help from Shell, wildlife experts conducted a bighorn sheep monitoring study in the Prairie Bluff area from 1986 to 1990. The study found that bighorn sheep there were not significantly affected by Shell’s activities if proper procedures and conditions were applied, “Nonetheless,” Creasey notes, “we’re participating in an ongoing study to monitor the sheep population to ensure it remains stable.”

Shell has also supported elk studies in the Castle region that show that the quality of elk habitat has declined over the last 40 to 50 years due to a variety of human activities. Certain areas are now restricted from oil and gas activity during the critical elk wintering season. Work is being done with local conservation organizations to restore elk habitat and help maintain a stable elk population.

Other studies show that habitat effectiveness for grizzly bears has declined in the Castle region with increased human activity; although most grizzly bear habitat is still intact, grizzlies no longer use some of their former habitat, or use it less, because of human presence.

Current estimates indicate that numbers of grizzly bears may be stable, but there’s a need to provide

secure habitat wherever possible.

The front canyons in the Waterton field have been identified as environmentally sensitive, and Shell has committed to eventually withdraw from them. Once the existing wells reach the end of their productive lives, Shell plans to reclaim the well sites and roads, and eventually return them to a natural state.

“Reclamation is significant in planning the life cycle of a well or other facility,” Creasey said.

Low-impact, heli-portable seismic surveys are a good example of how resource development can be compatible with environmental protection when modern technology and techniques are applied. “Seismic surveys increase the likelihood of finding reserves, drilling a successful well, and limiting surface disturbance.

Before starting its recent survey, which included some sensitive areas of the Waterton region, Shell collected baseline data on birds, plants and wildlife and prepared an environmental protection plan. To minimize its footprint on the land, a special pattern and careful modelling were used to reduce the density of source and receiver lines.

During that survey, no land vehicles were used. No new roads or other access were created. Helicopters transported people and equipment to minimize impact on wildlife and the environment. Flights were planned to minimize disturbance to wildlife and to avoid water features.

Field biologists monitored wildlife to ensure seismic activity remained a sufficient distance from them. They trained workers to recognize and avoid rare or endangered plants and animals. Work was done on foot and no trees were cut – only branches trimmed or dead trees removed to create the least visible path and to allow quick

re-growth. Vegetable oil was used in the equipment and absorbent was used to catch oil drips.

Biodegradable survey material marked sites, and foreign material was removed when the survey was finished. The program was carefully designed to leave few traces.

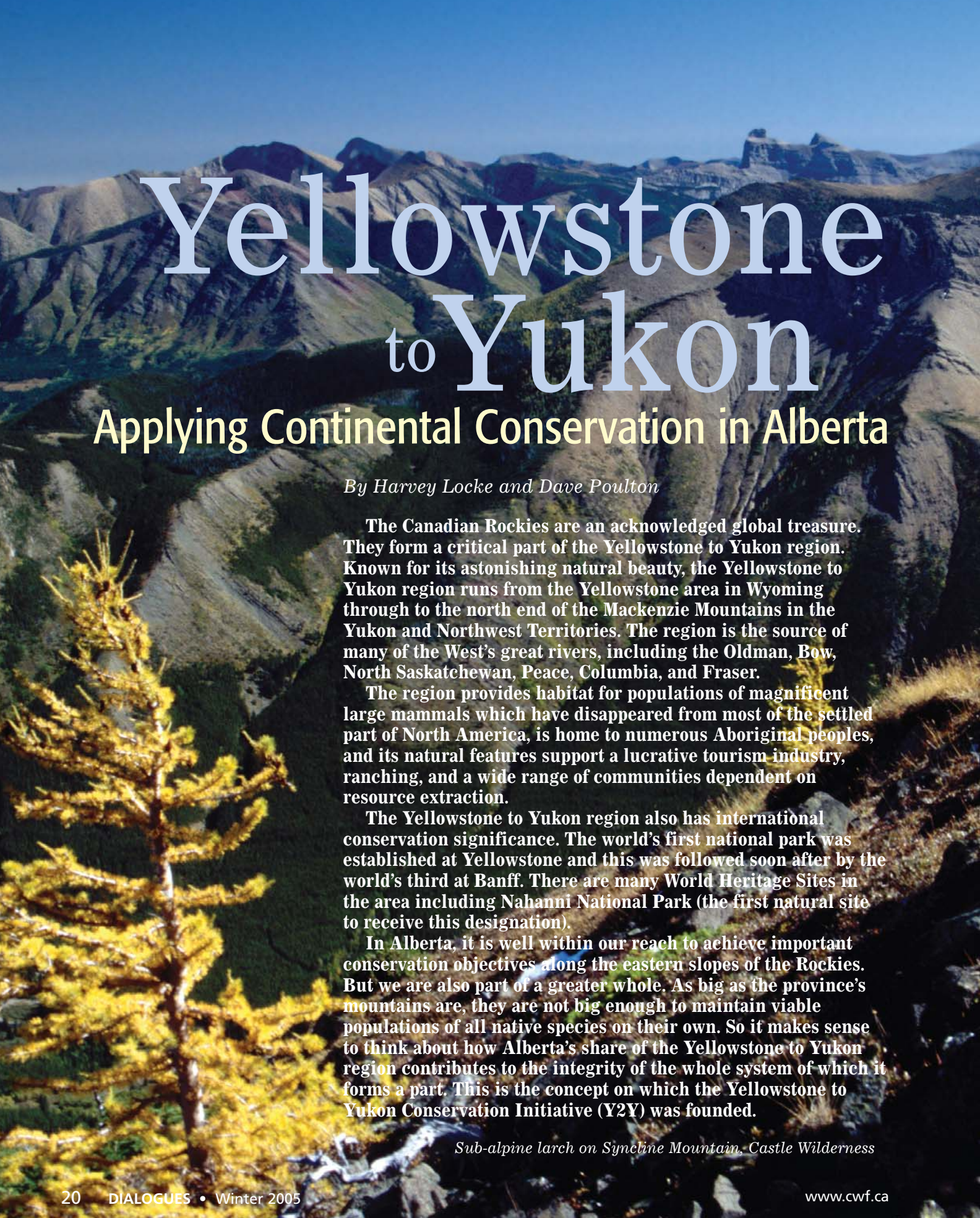
“We only included Waterton Zone 1 lands that were needed to provide a clear image of the subsurface geology of the region,” Symonds said. “We will build no new well sites or roads on Zone 1 lands in the Waterton field.”

When drilling wells, Shell respects ecological values by looking for opportunities to directionally drill multiple wells from existing well sites rather than creating new leases. This decreases environmental disturbance and further reduces the need for new roads.

Shell also sizes and designs drill sites to reduce surface disturbance, avoids drilling during critical wildlife wintering seasons, uses new techniques to reduce waste fluids, make drilling fluids safer for the environment, and safely dispose of waste fluids.

Shell also applies strict environmental standards when constructing and operating pipelines. “For example, we can avoid pipeline activity during the elk wintering season. We look for opportunities to re-use existing right of way to minimize surface disturbance. Layers of soil from trenches are carefully set aside and then replaced over the pipe. Once the pipeline is in place, we can reclaim the surface to reduce visibility. Regrowth of native vegetation can be encouraged through natural recovery, reseeding and/or planting seedlings where appropriate,” Creasey said.

*Ms. Lynn is Exploration and Production Public Affairs Representative for Shell Canada Limited.*

A scenic view of a mountain range with a sub-alpine larch tree in the foreground. The mountains are rugged and rocky, with some green vegetation. The sky is clear and blue. The text is overlaid on the image.

# Yellowstone to Yukon

## Applying Continental Conservation in Alberta

*By Harvey Locke and Dave Poulton*

The Canadian Rockies are an acknowledged global treasure. They form a critical part of the Yellowstone to Yukon region. Known for its astonishing natural beauty, the Yellowstone to Yukon region runs from the Yellowstone area in Wyoming through to the north end of the Mackenzie Mountains in the Yukon and Northwest Territories. The region is the source of many of the West's great rivers, including the Oldman, Bow, North Saskatchewan, Peace, Columbia, and Fraser.

The region provides habitat for populations of magnificent large mammals which have disappeared from most of the settled part of North America, is home to numerous Aboriginal peoples, and its natural features support a lucrative tourism industry, ranching, and a wide range of communities dependent on resource extraction.

The Yellowstone to Yukon region also has international conservation significance. The world's first national park was established at Yellowstone and this was followed soon after by the world's third at Banff. There are many World Heritage Sites in the area including Nahanni National Park (the first natural site to receive this designation).

In Alberta, it is well within our reach to achieve important conservation objectives along the eastern slopes of the Rockies. But we are also part of a greater whole. As big as the province's mountains are, they are not big enough to maintain viable populations of all native species on their own. So it makes sense to think about how Alberta's share of the Yellowstone to Yukon region contributes to the integrity of the whole system of which it forms a part. This is the concept on which the Yellowstone to Yukon Conservation Initiative (Y2Y) was founded.

*Sub-alpine larch on Syncline Mountain, Castle Wilderness*

Y2Y is both a concept and an organization. The organization was formed in 1993 specifically to promote the concept. It has its head office in Canmore, Alberta and works with conservation-oriented organizations throughout the region.

Y2Y is a leader in the family of trans-boundary conservation initiatives in mountainous regions around the world. Similar efforts to protect viable populations of rhinos, tigers and elephants are underway in the Terai Arc in the Himalayan Foothills of India and Nepal. In the Andes of South America, efforts are underway to link habitat patches for Andean bears. The Cantabric-Pyrenees-Alps initiative in Spain and France seeks to support the restoration of large carnivores that are coming back naturally to that area.



Harvey Locke

Like Y2Y, these initiative all seek to ensure that nature and human communities can thrive together. Large-scale conservation initiatives are happening because modern conservation biology has shown us that, to maintain natural values like wide-ranging grizzly bears, we need to manage the landscape as a whole.

We need to apply an integrated approach that includes a system of core protected areas where nature and visitors who want to experience nature on her own terms come first. Then we need to ensure that there is sufficient habitat between these core areas to allow the animals to move between them to maintain viable populations. This is done through corridors and transition zones where

more intense human land uses like resource extraction are practised in a way that does not obstruct these natural flows.

Traditional uses such as ranching that involves grazing of native grasslands and sharing them with wildlife are entirely consistent with this vision. Protecting the natural capital of the area in this way also supports strong and robust local communities as migrants are attracted to these settings and create new business and employment opportunities.

Perhaps because the Front Range of the Canadian Rockies stands out on our western horizon as a daily reminder of the inspiring beauty of nature, and because of our practical reliance on the water of the rivers it feeds, Albertans have a special relationship to this place. Through

“The Canadian Rockies are an acknowledged global treasure.”

the establishment of the national parks at Banff and Jasper and protection of key areas that abut them like Kananaskis Country and the Willmore Wilderness Park, we have made major strides in protecting the extraordinary values found in these mountains.

Despite these past accomplishments, there has been little recognition of this world class area and the natural capital benefits it produces in most areas under provincial jurisdiction. The problem has been an absence of focus on the big picture and strong focus on short-term gain.

With a booming provincial economy fuelled primarily by resource extraction, a particular

challenge has been the proliferation of industrial roads through the forests of the eastern slopes. Road density has been consistently identified by Alberta biologists as a significant threat to sensitive species such as grizzly bears and woodland caribou. The limited jurisdiction and fragmentation of regulatory bodies in Alberta, however, means that each new road proposal is reviewed in isolation, with no real attempt to look at cumulative impacts or patterns of expansion. As a result, there has been no effective consideration of the impact of these individual activities on populations of wide-ranging sensitive species nor any meaningful plan to ensure those species will persist on the landscape.

Roads are a visible manifestation of a basic structural problem in land management in Alberta: lack of co-



Dave Poulton

ordination and integration. There is little communication among the government departments and agencies responsible for the regulation of different economic activities. Energy regulators, forestry regulators, and agencies responsible for building and upgrading highways typically consider proposals for the same piece of land completely oblivious to each other's goals or the collective impact of their decisions. The result is both conflict between land users and patterns of development which are steadily degrading a world-class landscape.

Often, as well, the mandate of the individual regulators prevents them from looking at the bigger picture. For example, the Alberta Energy and



*Castle Peak was named by Lt. Lewis Blakiston in 1858.  
The region has been identified with the name Castle ever since.*

Utilities Board generally considers well-licenses one by one. Their consideration of ecological impacts is restricted to the impact of the particular project before them at any one time. The impact of any single well is usually marginal. The potentially devastating cumulative impact of the 22,000 well licenses expected to be issued in Alberta in 2004 is never before the regulator. Likewise, the only competing interest to energy with standing before the EUB is that of neighbouring property owners. Albertans with broader public concerns, such as those who would speak for the integrity of the whole system, are almost never granted standing.

It would not take much to turn this situation around. Greatness is within Alberta's grasp. We need to conduct a comprehensive review of how the eastern slopes, including the foothills, are managed to ensure the protection of our wildlife and watersheds. There is a wide body of scientific knowledge that can be brought to bear. Only an integrated management regime that applies such knowledge will ensure the natural values Albertan's cherish are protected and the full benefits of its natural capital are available to future generations.

If Albertans are to continue to reap the benefits that the natural capital found in the Yellowstone to Yukon region yields – benefits as fundamental as the water supply, tourism industry, recreation opportunities, and the biodiversity that underpins all three – an integrated approach to public policy in this area must be adopted. Natural capital, like any other form of capital, needs careful management that sees the portfolio as a whole rather than as isolated bits and pieces.

*Mr. Locke is the Vice President of Conservation for the Canadian Parks and Wilderness Society and a founder of the Yellowstone to Yukon Conservation Initiative.*

*Mr. Poulton, a lawyer and native Calgarian, is the current Executive Director for the Canadian Parks and Wilderness Society Calgary/Banff Chapter.*





# GOOD

*neighbours*

**Editor's Note:** The reconciliation of resource development with the preservation of natural capital often depends on effective community consultation and engagement. The following article by Florence Murphy describes the approach taken by EnCana to stakeholder involvement in the Fort Nelson area in northeastern British Columbia.

we believe it is good for everybody



By Florence Murphy

At EnCana, we recognize our neighbours truly grant us our license to operate. That licence is based on trust – trust in the way we do business, in the way we stay true to our word and in the way we conduct ourselves in an open and honest manner.

Timely communication is the key to building respect and trust with our neighbours. We believe that people need to know about activities that will affect them. Starting at the planning stage, we ensure that community consultation will be a collaborative process. We strive to take our consultation activities a step further and form meaningful partnerships with our stakeholders. To do this, we conduct public consultation above and beyond industry and regulatory standards.

Our process involves hosting open houses, tours and other community-based activities to increase community awareness; and we invite input into our development plans. We also consult individually with landowners or residents who may have specific questions about our proposed or existing activities.

A prime example of our approach is our community involvement in the town of Fort Nelson, British

Columbia, the gateway to EnCana's Greater Sierra lands which we believe may contain the largest regional gas play discovered in western Canada in the past decade.

The long-term commitment EnCana has made to this northeast BC town has helped create a strong, healthy, vibrant and prosperous community.

Our belief in employing local goods and services providers and encouraging the creation of small business has fostered the establishment and growth of Fort Nelson-based companies involved in oilfield services, and lease and road construction.

From our meetings with the Fort Nelson First Nation, we helped to create an innovative partnership that resulted in the ownership and operation of the first drilling rig by a BC First Nation. According to Chief Liz Logan of the Fort Nelson First Nation, "our whole community will benefit from the revenues generated through this project. These revenues will assist us in achieving our vision of strong, healthy, proud, and self-reliant Fort Nelson First Nation."

BC's new oil and gas strategy, along with new technology such as summer access mats, make it possible to drill year-round instead of only in winter and have helped to smooth out Fort Nelson's economic ups and downs.

"All-season drilling is vital to ensuring our communities have a stable economy," said Bill Streeper of Streeper Contracting Ltd. in Fort Nelson. "We all benefit from industry-government partnerships that create employment opportunities for residents and reduce the effects of the boom and bust cycle."

The youth of Fort Nelson have also benefited from EnCana's community involvement. EnCana is a sponsor of the Youth Education through Sport (Y.E.S.) program which promotes self-esteem, respect, dedication, commitment and belief in one's self. As well, EnCana has created initiatives such as a bursary program aimed at retaining the talent that exists in Northern BC and investing in a skilled workforce.

EnCana has invested in community programs to help support the quality of life for residents of Fort Nelson. These projects include the Fort Nelson Air Show, sound systems for schools, the Fort Nelson Rodeo, Canadian Open Dog Sled Race, Fort Nelson Secondary School Gradfest, hockey school sponsorship, Trappers' Rendezvous and the Fort Nelson Aboriginal Friendship Society.

"Much of what drives EnCana's involvement is the view that what's good for Fort Nelson is good for the company, and we have the utmost



Liz Logan, Chief of Fort Nelson First Nation

respect and appreciation for that position," says Chris Morey, Mayor of Fort Nelson. "They recognize the importance of partnerships, and that is what makes our relationship with this company so effective."

In 2003, the Fort Nelson and District Chamber of Commerce recognized the quality of EnCana's community involvement with its Business of the Year award; this past September, the Canadian Association of Petroleum Producers (CAPP) presented EnCana with a Steward of Excellence Award for Social Performance for our work in Fort Nelson.

"We are delighted to receive this award for our work in Fort Nelson because it recognizes and celebrates the partnerships we share with the BC Government, the Town of Fort Nelson, the Fort Nelson First Nation, industry, the local service sector and the community as a whole," said Mike Graham, President Canadian Foothills and Frontier Region, EnCana. "At EnCana we believe that we are only as successful as the communities in which we are privileged to operate."

In Alberta, the issues are slightly different. Communities are familiar with the oil and gas industry, its operations and the associated economic opportunities. However, as demand for natural gas increases and conventional reserves become more difficult to find, the industry must evaluate the potential of developing unconventional reserves by applying new technologies. It is the development of these unconventional natural gas reserves that can cause concern among some stakeholders. Part of our responsibility is to consult with stakeholders and explain our plans, to share our knowledge of how unconventional resources can be safely tapped.

EnCana is at the forefront of developing unconventional resources as well as the community consultation and information programs needed for unconventional resource development. Take coalbed



*From left: BC Minister Responsible for Treaty Negotiations and Self Government Geoff Plant, EnCana Chief Operating Officer Randy Eresman, BC Minister of Energy and Mines Richard Neufeld, BC Premier Gordon Campbell, Fort Nelson First Nation Chief Liz Logan and Ensign Design Chief Executive Officer Bob Geddes celebrate the first BC First Nation-owned drilling rig.*

methane (CBM) as an example.

While CBM is described as "unconventional natural gas," it is actually conventional natural gas produced from unconventional reservoirs – in this case, coal seams. CBM is one of the cleanest burning fossil fuels. In fact, CBM generally has a higher methane content than conventional natural gas; lower amounts of carbon dioxide, nitrogen and gas liquids; and virtually no hydrogen sulphide.

Concerns arise, however, because of experiences in other jurisdictions where large volumes of produced water and a high number of wells led to significant surface impacts.

To bridge the information gap, EnCana has developed a community consultation process for CBM modelled after its consultation programs for conventional resources. The CBM consultation process includes public information sessions, open houses and facility tours. The goal is to ensure stakeholders understand the key points.

For example, every coal basin is different in terms of geology, topography, water saturation and water chemistry. Therefore, problems encountered in one basin may not repeat in another. For example, many CBM plays in

southern Alberta are "dry" and produce virtually no water.


We have learned from the experience of conventional natural gas development and already have in place regulations for the disposal of saline water, mitigation of noise and protection of potable water aquifers.

Drilling and production of unconventional reservoirs is very similar to development of conventional reservoirs in terms of equipment used, drilling times and land reclamation. The only major difference is that CBM land holdings tend to be considerably larger due to low production rates from individual wells. EnCana's CBM development is designed to minimize surface impact.

Most importantly, EnCana works closely with communities and regulators to tailor our programs to meet the needs of the community. Leading oil and gas companies like EnCana want to be good neighbours.

We're working hard to become the partner of choice for landowners, residents, communities and local governments. It's an approach that's not just good for business - we believe it is good for everybody.

*Ms. Murphy is Vice-President, Community & Public Relations for the EnCana Corporation.*



# Calgary

*at a*

# crossroads



By Druh Farrell

When compared to other cities, Calgary has many advantages.

With its compact, centralized downtown core, extensive and accessible rapid transit system, stunning natural landscapes including two rivers running through it, and lively western heritage, Calgary has the opportunity to be a great city long into the future.

This, combined with a seemingly endless supply of land, water, and

Calgary's water source is actually limited has resulted in a rapid and dramatic shift in the local water conservation strategy. Among the initiatives being taken are mandatory water metering and conservation incentives such as rebates for low flow toilets. As well, the City of Calgary has implemented a new triple bottom line policy to guide decision-making that considers social and environmental costs as well as financial costs.

The City has, in fact, identified sustainable growth as a key priority. Sustainability means meeting the needs of the current generation without jeopardizing the ability of future generations to meet their needs. In this regard, Calgary is participating in the Cities Planning for Long-Term Urban Sustainability – or citiesPLUS – initiative. This is a network of cities from around the world that are exploring ways that large cities can create a sustainable plan within a 100 year timeframe.

As part of this process, Calgarians will help create a 100-year plan for their city. Called Imagine Calgary, this long-term approach will outline the practical, broad, and proactive actions needed to create a sustainable future for Calgary. By

gather dust on the shelf. Proponents, however, believe that if Calgarians are given a glimpse of the future, they will make more sustainable choices in the present and, in turn, build rather than squander their stock of urban and metro-adjacent natural capital.

Chicago is an example of a large North American city – similar to Calgary in that it is encroaching on adjacent farmland – that has seen considerable success in merging sustainable alternatives, economic advantages, and public choice. *The Metropolis Plan: Choices for the Chicago Region* quantifies the costs of continuing to grow in the same way, then shows the dramatic benefits of sustainable growth. The plan explores the various choices for Chicago's future and asks the questions: "Will growth be a source of strength, diversity, opportunity, and economic vitality? Or will it be a source of congestion, pollution, and growing inequality?"

In recognizing that continuing to plan in the same way would be unaffordable, Chicagoans chose the sustainable approach of balancing "beauty with industry, growth with restraint." Showing deference to the future taxpayer, the plan will save

“Sustainability means meeting the needs of the current generation without jeopardizing the ability of future generations to meet their needs.”

energy, has contributed to a tremendous, almost giddy, sense of optimism. On the surface, there seems to be no reason for Calgary to change its course.

Attitudes, however, are changing. For example, the realization that

looking at various scenarios, with their associated choices and consequences, Calgarians will be taking responsibility for the future of their city.

Sceptics argue that any plan that looks 100 years ahead will simply

billions of dollars in infrastructure costs and hundreds of acres of farmland.

A city is built one decision at a time and the effects of each decision can last generations. A great city such as London has some road



systems that were built to accommodate Roman chariots. As a result, many streets in London are still not navigable by vehicles larger than a motorcycle. Good or bad, this reality has had an effect on the way London has grown and functioned for nearly two thousand years.

In the same way, past decisions have made Calgary the city it is today. Refusing to build an expressway into the downtown core 35 years ago, for example, has allowed Chinatown to flourish into one of Calgary's most vibrant communities.

We need to remember that the decisions we are making today affect the city both now and in the future. We need to make certain that the decisions we make today are based on an integrated and forward-looking plan rather than narrow and short-term considerations. We have to remember that if we pave over farmland, wetlands, and streams, these natural assets and the benefits they provide are lost to future

generations. You can't go back in time and reverse these changes. Hence, we need to plan ahead and assess the cumulative impacts of our current actions on the city's future.

How cities are built has an impact on our health, well-being, and overall quality of life. Studies show that building low-density, car-dependent cities with large footprints can contribute to obesity, higher health care costs, greater isolation, and higher crime rates, whereas an effectively designed community can incorporate support systems, increase health and quality of life, and contribute to dignity and social justice. Development that contributes socially, as well as environmentally and economically, is key in our long-term sustainability as a city.

The City of Calgary is taking significant steps towards addressing growth, incorporating sustainable redevelopment, and focusing on the triple bottom line. We want our growth to contribute to a strong

economy, a healthy population, and a high quality of life. It should not be, and need not be, a burden to our communities, environment, and people. Planning for a city's sustainability is more than just conserving energy and reducing consumption. It is also about advancing the health, quality of life, and dignity of citizens, all the while keeping an eye on the bottom line.

Calgary, like many other urban centres, is at a crossroads. Do we make decisions now that we may regret, or do we imagine a city of the future and work backwards from this vision to see what we have to do today to make it a reality? This kind of forward-looking thinking is key to ensuring that urban natural capital is there for future generations.

*Currently serving her second term as a downtown Calgary alderman, Ms. Farrell is determined to fight for a city that is rich in culture, and socially, fiscally and environmentally sustainable.*

# Science-based landscape management



By Shawn Wasel

**Editor's Note:** Forestry operations pose a particularly acute challenge for the preservation of natural capital. In this article Shawn Wasel describes how Alberta-Pacific Forest Products has employed scientific approaches to forest management in order to minimize its impact on natural capital.

Alberta-Pacific has been a leader focused on developing and implementing new approaches to forest management – applying science to ensure that all the values of the landscape are sustained over the long-term. This has meant, for example, studying birds and bugs and toads as well as trees. Our experience has shown that forest

companies need to work with all the users of the landscape, from trappers and hunters to the oil and gas industry, to find mutually acceptable and beneficial ways of doing things. As human activities multiply across the landscape, and as the transforming power of our technologies increases, science-based co-operative approaches will become crucial for all landscape managers.

Key elements of Alberta-Pacific's approach include:

- adaptive management: developing plans on the basis of the best available science, continually evaluating the effectiveness of plans as they are implemented, and incorporating new knowledge as it becomes available
- the “triad” approach: a three-pronged approach to forest lands, in which some lands see little or no human intervention, some are managed for multiple uses such as recreation and energy development as well as forestry and ecological values, and some are managed to

maximize the production of wood fibre: and

- Integrated Landscape Management (ILM): co-operative planning between landscape users (currently forestry and energy companies, but potentially any users) which can dramatically reduce both the economic and ecological costs of activities such as road-building and land-clearing.

These concepts began to emerge soon after Alberta-Pacific was awarded its Forest Management Agreement in 1991. Managing an area of northeastern Alberta about the size of Nova Scotia and supplying one of the world's biggest pulp mills was a huge responsibility. The company commissioned millions of dollars worth of scientific research to ensure its operations would be sound and sustainable. This research, fundamental to adaptive management, led to early adoption of the triad approach and within a few years prompted development of Integrated Landscape Management.

*Athabasca River*

## Adaptive management

As the first wave of research results came in from universities, agencies such as the Alberta Research Council, and collaborations such as the Sustainable Forest Management Network, it became apparent that the boreal forest was a very resilient forest that had been shaped historically by fire. The burning and re-burning of the landscape created the mosaic that existed before logging began. Fires influenced the age, size and shape of the forest stands. Fire intensity influenced the legacy of the former forest retained after the disturbance – the surviving live trees, standing dead trees or snags, and downed logs and debris. In other words, the biodiversity and all the natural processes in the boreal forest were able to persist in a landscape dominated by fire. So, we asked, if logging could be adapted to resemble fire as closely as possible, could all the biodiversity and ecosystem function be retained?

Alberta-Pacific therefore began to implement natural-disturbance-based forestry within the working forest. Logging areas were varied in size and shape, and different amounts of trees retained within harvest boundaries. Plans were developed to ensure that old forest stands would be retained on the landscape through time. These operations and plans have been fine-tuned and modified as experience and knowledge accumulate.

Our ongoing investment in forestry research continues to help us more clearly understand the differences between fire and forestry. Where significant ecological differences are observed, new practices are developed to reduce any ecological consequences of these differences.

## The triad

Based on our research, and the experience of other companies and jurisdictions, we recognized that two other management approaches would

be needed to complement ecologically-based forestry in the FMA area. On the one hand, some lands would need to be set aside for minimal intervention to serve as ecological benchmarks for evaluation in comparison with harvested areas. Meanwhile, intensive management – “tree farms” on agricultural land outside the FMA area – would provide a reliable source of fibre to ensure sustainability of mill operations. These three types of management make up the “triad.”

Benchmark areas vary in size and location, and there is usually some “management” in the form of fire suppression. The intent is to set aside areas that are representative of land subject to industrial activity. In the benchmark areas, the biological processes can function as ecological control groups to provide us with long-term reference points for evaluating how natural forests function and how they change through time.

Implementing natural-disturbance-based forestry in the FMA area and setting aside thousands of hectares in ecological benchmarks represent a cost to forest companies in the form of trees that will not be harvested. Intensively managed hybrid tree farms, producing commercial trees in 20 years instead of 50-60 years in the FMA area, provide an alternative fibre supply and ensure that the mill remains economically viable.

## Integrated Landscape Management

The working forest of the FMA area, which will continue to supply the majority of fibre for the mill, is host to multiple uses and users. In addition to Alberta-Pacific, other forest companies harvest conifers for lumber and plywood. Aboriginal people have economic, social and cultural interests in the landscape. Hunting and fishing are traditional activities. The energy sector – including conventional oil and gas, in-situ and mined oilsands, pipelines

and electrical utilities – is a huge presence. Incorporating these many interests and values adds to the challenge of ecological management and has been an ongoing preoccupation focus in Alberta-Pacific’s planning and operations.

The need to work with oil and gas companies led in the late 1990s to a co-operative approach called Integrated Landscape Management. In simple terms, it means that forestry and energy companies jointly plan operations to minimize costs (both economic and environmental) and maximize benefits. For example, building one road instead of two can save millions of dollars and greatly reduce environmental impacts. This win-win approach has the potential to reduce many types of land-use conflicts.

## Validation and monitoring

Monitoring the effects of forestry on biodiversity remains a challenge. Obviously forestry affects very large areas, and change in forest ecosystems takes place over very long time frames. The challenge will be to develop affordable and effective long-term monitoring programs that allow us to understand how industrial activity in the working forest affects biodiversity and how our practices could be modified to eliminate any negative effects.

The forest in northeastern Alberta is a very busy place these days. Integrating activities to ensure economic benefits are carefully balanced against ecological costs will be an important and urgent challenge in the years ahead. We can have our cake and eat it too if we can effectively consider large landscapes, how we change them over long time frames, and devise plans and practices that allow resource extraction and yet retain all the components and processes of a healthy forest.

*Shawn Wasel is the Director of Environmental Resources at Alberta-Pacific Forest Industries Inc.*



# Seeing Green:

## INTEGRATING NATURE AND THE BUILT ENVIRONMENT



By Robert Roach, and  
Karen Wilkie

At first blush, residential development seems like a very practical enterprise. The demand for new homes is assessed, property is secured, municipal government approval is sought, roads and sewers are planned and built, homes are constructed, sod is laid, people move in and so on. These are all relatively practical matters.

The same holds true for home buying. Despite a strong dose of emotion associated with buying a home, practical decisions regarding things such as price, financing,



possession dates, proximity to schools, square footage, resale, and paint colours, tend to dominate.

Hidden beneath these layers of practicality, however, is a substratum of philosophical decisions about how we view nature and its role in the urban landscape. By far the dominant philosophical position – and the one that is responsible for the type of residential development that is typical in western Canada – is one that sees nature as alien to the urban landscape.

Nature is seen as something to displace, convert and, replace with something better or more useful.

*Alberta Legislative grounds, Edmonton*

Hence, we strip and grade the land, drain wetlands, pave over fields and forests, install pipes to collect and remove precipitation, plant non-native grass, and generally consume nature to create urban spaces suitable to contemporary lifestyles.

This is not all bad! Sleeping under the stars, washing in the river, and walking everywhere are not that appealing to most of us (except when camping for a few days in summer). Built aspects of the urban environment make a lot of sense. Comfortable homes, hockey rinks, movie theatres, places to shop, transportation infrastructure, sewage systems, playgrounds and other urban amenities are valuable components of a high quality of life and competitive economy.

Problems occur when we lose sight of the value of natural spaces and ecological processes (e.g., water filtration and nutrient cycling) and

what they have to offer in both their natural state (conservation) and when they are utilized within the urban environment (integration). It is a question of balance rather than an either/or situation.

At present and notwithstanding the odd exception, current residential development and the homebuyers who demand it greatly under appreciate the value of nature and what it can do for us in the urban context. Philosophically, the default (and often unspoken) position is to view nature as something to consume because it is seen as cheap, plentiful, and largely useless. Natural spaces and processes are of

that recognizes the true value of ecological processes to both our economic bottom line and our quality of life over the long-term.

If a philosophy of this sort was operating in the background, practice would change. For example, if trees were removed to erect a building, they would be planted somewhere else. If green space was destroyed, it would be replaced – perhaps on the roof of the building that displaced it. Instead of installing pipes and diverting water, natural drainage options would be used (where possible). Instead of replacing native vegetation with high-maintenance lawns, yards

addition, nature provides a range of aesthetic, health, and economic benefits that directly and profoundly affect the quality of our lives. The point to stress here is that nature – while valuable in itself – is also extremely valuable to human beings.

Hence, cities should not be seen as disconnected islands that consume nature and merely preserve bits and pieces of it within their borders. If we rethink our approach to the built environment and increase efforts to integrate as well as conserve natural areas and processes, we can have the best of both worlds. If we change our philosophy, the practical aspects will

“Everything horizontal under the sun, under the open sky belongs to nature. Roads and roofs should be planted with trees. It must be possible to breathe forest air in the city again.”

– *Friedensreich Hundertwasser*

secondary importance to buildings and paved surfaces and minimal thought and effort is expended to marry the constructed components with the existing natural elements.

An alternative philosophy does not have to privilege nature over the built environment – we don't have to live in lean-tos or pack ourselves into the smallest amount of urban space possible by erecting one high rise apartment complex after another.

Imagine instead a philosophy that demands greater respect for nature when constructing cities rather than destroying it at will. Imagine a philosophy that requires the replacement of green space used in the construction of the built environment. Imagine a philosophy

would be left in their natural state. Significant wetlands would not be seen as worthless sloughs to be drained but as essential to biodiversity and the availability of abundant clean water.

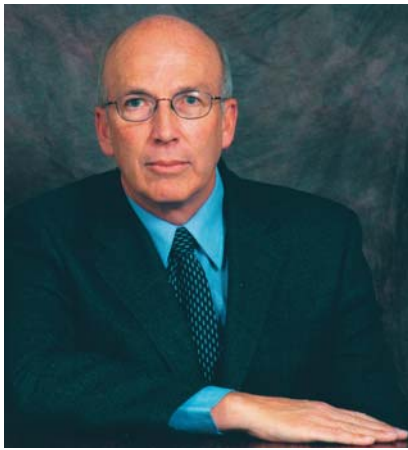
Our approach to buying a home would also change. Consumers would place greater value on the integration of nature and natural processes in residential communities and demand for these features would rise. A wider variety of residential options would soon follow.

At bottom, we need to recognize the benefits of a much tighter fit between the urban landscape and nature. Urban spaces improve our lives, but we also rely on nature for our food, water, and clean air. In

be easy to carry out.

Robert Roach and Karen Wilkie recently completed work on a research project examining residential land use called the Urban Growth and Land Use Initiative. Funded by the Alberta Real Estate Foundation, the initiative's findings are summarized in *Breaking New Ground: Urban Residential Development and the Environment*. The report is available for free on the Canada West Foundation website.

*Mr. Roach is Director of Research at the Canada West Foundation and Ms. Wilkie is a Policy Analyst with the Canada West Foundation.*



# Doing What Comes Naturally

By Dr. Roger Gibbins, President and CEO of the Canada West Foundation

The Canada West Foundation began working with natural capital themes in 2003, and then launched the Alberta's Second Century Project with a specific focus on land and water policy. *Dialogues* casts natural capital themes into bold relief by capturing the complexity of public policy for land and water management, and the progress that has been made in recent years.

Our work and the contributions to this first edition of *Dialogues* are driven less by criticism of existing policy than by future challenges as population growth and economic development continue. They also recognize the rapidity of change with respect to natural capital. As David Hill and Bob Sanford explain, "In only a generation, Canada has gone from being a nation that was internationally proud of the belief that one could drink from any of its sparkling streams, rivers and lakes to being a country that is genuinely and legitimately concerned about water quality and availability now and in the future."

What, then, are the themes that have been cast into bold relief?

First is the abiding belief that the protection of natural capital is a prerequisite for both economic prosperity and quality of life. As EnCana's experience in Fort Nelson illustrates, it is not a case of "them" versus "us" – resource companies versus environmentalists – but rather a case of what we can do better together.

A second theme is the need to account for cumulative effects. Les Wetter points out that although most rural land use decisions are small and site-specific, they may have great effect when added together. Robert Roach and Karen Wilke go on to explain, and Alderman Druh Farrell illustrates in the Calgary context, that this logic can be extended to the urban scene where small changes in the present can add up to major headaches in the future.

The challenge, then, is to develop a planning framework that can encompass the cumulative effects of piecemeal decisions. An example of this is the Imagine Calgary visioning process whereby Calgarians will be asked to "make more sustainable choices in the present and, in turn, build rather than squander their stock of urban and metro-adjacent natural capital."

A third theme is the need for regional rather than simply local frameworks. Watersheds provide such a framework, and the Western Watersheds Partnership illustrates their potential strengths. More generally, John O'Riordan shows how land use planning in British Columbia has successfully moved to a regional level by bridging local concerns with provincial policy objectives.

In some cases, there may even be a need to think beyond provincial boundaries; the Yellowstone to Yukon project illustrates the potential benefits of thinking in trans-boundary terms, and the corresponding opportunity for global leadership.

The lack of policy capacity to address cumulative effects also points to problems with a fragmented jurisdictional and regulatory environment. Thus a fourth theme is the need for integrated thinking. As Harvey Locke and David Poulton note, "Natural capital, like any other form of capital, needs careful management that sees the portfolio as a whole rather than as isolated bits and pieces."

Here the notion of landscapes becomes a powerful organizing device, leading to the integration of thought and action. Indeed, Les Brost points to the "importance and value of the land and of the people who live and work on that land." Public policies framed in terms of landscapes also coincide with the fact that many western Canadians connect to their region and its future through the often breathtaking landscapes they encounter daily.

A fifth theme is the need for economic incentives and new administrative procedures within government, such as the business plans Alberta used to address deficit and debt challenges in the 1990s. Elaine McCoy is blunt and to

the point: "we need to unleash innovation at an administrative process level before we can hope to make progress in achieving our natural capital goals and vision."

A sixth theme is the need for extensive public consultations in the evolution of more comprehensive land use policies. The EnCana experience in Fort Nelson and the Shell Canada experience in southwestern Alberta demonstrate this theme, and throw light on the advantages of mutual cooperation and benefit.

A seventh theme is the need to draw upon the very best of modern technologies, such as the Integrated Landscape Management system employed by Alberta-Pacific. As Les Wetter argues more generally, we need a 21st century "knowledge infrastructure" to protect natural capital, one that will "improve efficiencies for industries operating in an increasingly crowded physical landscape and protect the natural capital that will increasingly become a source of our economic well-being."

This infrastructure must be yoked to public policy frameworks through performance measures. For McCoy, "the challenge going forward is that we have yet to find a way to express clear outcomes, in actionable terms."

Beyond these specific themes lies the confidence that comes from success to date. We have seen a virtual revolution in government management systems for deficit control and debt elimination, and a parallel strategy can be applied to the protection and growth of natural capital. We have also seen tremendous change and innovation within industry. What we now need are public policy frameworks to catch up with private sector innovation.

Although the contributions to this inaugural edition of *Dialogues* have drawn largely from the Alberta experience, the lessons can be applied well beyond the province. Indeed, the authors suggest the value of interprovincial cooperation, as Alberta and B.C. are beginning to find. There is nothing unique about the prize to be won if the protection and enhancement of natural capital can be elevated in the public policy priorities of Canadians.



## Ideas change the world

As Canadians debate the key public policy issues of the day, it is critical that the aspirations, perspectives, and ideas of western Canadians are heard.

Through its Western Cities, Next West, and Natural Capital Projects, the Canada West Foundation is proactively working to generate ideas for positive change and to make sure that the views of Western Canadians are an integral part of national policy debates.

### How can you help?

Without ideas – and an organized effort to get them heard – change will not happen. This is what the Canada West Foundation does. But, we can't do it without your support. If you want to help ensure that western Canadian ideas are front and centre on the national stage, we invite you to become a FRIEND of the Canada West Foundation by making a donation. For more information, please visit our website ([www.cwf.ca](http://www.cwf.ca)) or contact our Director of Finance and Administration Lori Zaremba by phone (403.538.7347) or email ([zaremba@cwf.ca](mailto:zaremba@cwf.ca)).