Realigning Democratic Practices in Natural Resource Policy: From Vision to Action

Final Report to the Kettering Foundation
by Matthew McKinney, Ph.D.

June 8, 2011

Table of Contents

Introduction

The process of formulating and implementing natural resource policy has shifted somewhat dramatically in the past two decades, moving from an expert-driven model of politics to democratic governance. This shift in politics and governance includes at least three design-related questions: (1) What is the vision for realigning democratic practices and governance, and what are the roles of citizens, professionals, and communities in shaping that vision? (2) What are the practical opportunities and challenges for realizing and achieving the vision? and (3) What is the impact of any such realignment on democratic practices, governance, public policy, and practical problem-solving?

Using the Crown of the Continent as an in-depth case study, the purpose of this report is to provide the necessary background and information on the first design-related question. The two additional design-related questions will be addressed at a later date.

The Crown of the Continent

The process of formulating and implementing natural resource policy throughout the world is undergoing a subtle, yet profound, shift from an expert-driven model of politics to democratic governance. Elinor Ostrom earned a Nobel Prize in 2009 based on her lifelong contributions to what she refers to as "polycentric systems of governance," which reflect in part this fundamental shift in politics and governance[1]. To understand how and why this shift is occurring, it is instructive to focus in some depth on a particular case study. The Crown of the Continent is an ideal laboratory to examine this transition.

Historical Overview[2]

The 18-million-acre Crown of the Continent is a rare and special place, an ecological crossroads where plant and animal communities from the Pacific Northwest, eastern prairies, southern Rockies, and boreal forests mingle. This spine of uplifted and glacier-carved mountains is also the headwaters for North America, where pristine rivers originate and flow to the Pacific Ocean, Gulf of Mexico, and Hudson Bay. Nowhere else on the continent retains its full complement of native habitat and native predators—wolves, grizzly and black bears, cougar, coyote, fox, wolverine, bobcat, and lynx—as well as large populations of moose, elk, bighorn sheep, pronghorn, and deer.

---

[1] Elinor Ostrom, *Beyond Markets and States: Polycentric Governance of Complex Economic Systems* (Nobel Prize Lecture, December 8, 2009).

[2] This and the following sub-section draw heavily on *Remarkable Beyond Borders: People and Landscapes in the Crown of the Continent*, edited by Sarah Bates (The Sonoran Institute, September 2010).

The Crown is also a place where nations and cultures meet. Humans have traveled through the Crown of the Continent since the last great ice sheets retreated about 11,500 years ago. Ancestors of the Blackfeet, Kainaiwa, Ktunaxa, Salish, and Kootenai peoples were among the first to hunt, fish, and gather plants for food and fiber here. These first inhabitants interacted with the landscape in many ways—using fire to replenish grasslands, funneling bison over cliffs, wearing trails and roads into the earth, and establishing camps and villages in favorable sites. By the early 1800s, when the first white explorers and trappers arrived, much of the region was already settled, with tribal territories, hunting grounds, and travel routes well established.

The Kainaiwa lived across the prairie of today's southern Alberta, wintering near the mountains along the Belly and Highwood rivers. The Blackfeet ranged over some of this same territory, along the Rocky Mountain Front from the North Saskatchewan River in Alberta and south as far as the Yellowstone River in Montana. The Salish and Kootenai peoples shared parts of southern British Columbia, northern Idaho, and northwestern Montana, ranging into Alberta to hunt bison. The territory of the Ktunaxa included the Kootenay region of southeastern British Columbia and parts of Alberta, Montana, Washington, and Idaho. Not bounded by lines on a map, these territories overlapped and blended, enabling people to hunt and trade throughout the region.

Explorer and fur trader David Thompson was the first non-Indian to come into contact with the Native people of this region in the early 1800s. The promise of beaver and other furs brought French, English, and Spanish trappers, while other explorers came through searching for a trade route to the Pacific. In July 1806, returning to St. Louis, Meriwether Lewis and a handful of the Corps of Discovery followed the Nez Perce trail along the Blackfoot River eastward, crossing onto the plains at today's Lewis and Clark Pass in Montana. They soon turned north, following the Marias River deeper into Blackfeet country to within 20 miles of the area that is today's Glacier National Park.

As ever more trappers, traders, and miners came to the region, they depleted the once innumerable bison herds and other wildlife that native peoples depended on for survival. The newcomers also began parceling up the land; the Oregon Treaty of 1846 established the 49th Parallel as the boundary between the United States and Canada. By 1855, treaties in both Canada and the United States drew boundaries around tribal lands throughout the Crown region. In coming years, those boundaries would grow ever tighter as more people competed for land and resources.

In 1858, British military Lieutenant Thomas Blakiston broke off from the Palliser expedition in Alberta to look for a low mountain pass suitable for railroad passage over the continental divide. Credited as the first European to travel through what is now Waterton Valley, Blakiston named the lakes here in honor of Sir Charles Waterton, a British naturalist. He mapped the area and reported on its scenic beauty and abundant resources.

In 1883, Fredrick Godsal leased 20,000 acres for grazing cattle between the north and south forks of the Oldman River. An avid outdoorsman, Godsal recognized the recreational and scenic values of the nearby mountains. In September that year, Godsal drafted a letter

to his good friend, William Pearce, Canada's Superintendent of Mines, urging the government to protect these public values. Pearce forwarded the letter, with an enthusiastic letter of his own, to the Department of the Interior in Ottawa. On May 30, 1895, Canada's Governor General T. Mayne Daly created a "Forest Park" around today's Waterton Lakes.

The Great Northern Railway line over Marias Pass was completed in 1891, bringing homesteaders into the valleys west of the pass and miners looking for gold and copper. In 1895, under pressure from miners, the U.S. government acquired from the Blackfeet the mountains east of the continental divide within today's Glacier National Park and Lewis and Clark National Forest. Further north, the Canadian Pacific Railway Company completed its line over Crowsnest Pass in 1898, opening the pass and Elk River valley west of the divide to logging and coal mining. With two cross-continental rail lines, the region saw rapid growth in population and development.

As the population grew, some saw development as a threat to the region's natural abundance and beauty. In the late 1890s, the editor of Forest and Stream magazine, George Bird Grinnell, and others lobbied Congress to establish a national park south of the Canadian border. In a series of articles, Grinnell referred to the region as the "Crown of the Continent." A forest preserve was set aside in 1897, but the area remained open to mining and logging. Grinnell and other conservationists continued lauding the area's unique features, and finally, in 1910, President Taft signed a bill creating Glacier National Park.

Local Rotary clubs in Alberta and Montana rallied around the idea of a transboundary peace park, and in 1932 the governments of both Canada and the United States voted to designate the parks as Waterton-Glacier International Peace Park—the world's first such designation. The United Nations Education, Scientific, and Cultural Organization named Glacier National Park as a Biosphere Reserve in 1976, and recognized Waterton Lakes with the same designation in 1979. Comprising about 1.3 million acres, the two parks were named a World Heritage Site in 1995, acknowledging the area's rich ecological and cultural values.

Stateside, about 1.6 million acres of federally protected wilderness extend around the outskirts of Glacier National Park. In 1986, the Canadian government designated more than 10,000 hectares as a recreation area adjacent to Waterton and Glacier National Parks, and in 1995, British Columbia established the Akamina-Kishinena Provincial Park, protecting the narrowest point of the Rocky Mountains. Many additional acres of working landscapes are protected under conservation easements, under which lands remain in private ownership with restrictions on development rights in order to preserve their essential natural characteristics.

More recently, in February 2010, government leaders in British Columbia and Montana announced an agreement to manage the headwaters of the Flathead River Basin for existing types of forestry, recreation, guided outfitting, and trapping uses. British Columbia Lt. Gov. Steven Point declared the Canadian portion of the Flathead River Valley off limits to mining and energy extraction, and Montana Governor Brian Schweitzer vowed to seek

federal help to permanently retire mineral leases on the U.S. side of the border. Although a number of details are yet to be determined, this initial accord was an important move toward resolving decades of controversy over proposed development in the headwaters of the Flathead River Basin.

Thanks to this remarkable and ongoing history of stewardship, the Crown of the Continent endures today as a natural oasis in an increasingly developed world. More than a hundred agencies and community-based organizations are working today to conserve these natural resources and quality of life and guide the Crown's future. Their work builds upon the legacy of visionaries in the past century who recognized the link between a healthy landscape and thriving communities.

Issues Facing the Crown

The Crown of the Continent is a region in transition, shaped by internal and external forces that both exert pressure and present new opportunities. Some of the changes are good for the region: improved access to education and healthcare services, regional and global markets, technology, and financial resources. However, both casual observation and scientific investigation tell us that some current trends present challenges for the future: loss of wildlife habitat; increased demands for water, land, and energy resources; and social turbulence, as economies diversify from a base of natural resource use to knowledge-industry and amenity-oriented growth.

Climate Change: Perhaps nowhere is the rate of change or the range of uncertainty as great as with climate change. Milder winters may make this region more attractive for new residents and may extend growing seasons, but changes in the region's climate will likely also result in drier conditions that could increase the threat of fire and decrease crop yields. Most dramatically, the region's emblematic glaciers are rapidly shrinking. Some climate models predict that glaciers may disappear altogether by 2030. In short, climate change impacts challenge policy leaders, resource managers, and others who depend on the region's natural resources to understand and plan for conditions that cannot be predicted with certainty. Responding to this uncertainty requires both ongoing learning and flexible policies that can adapt to evolving circumstances.

The Crown of the Continent is well positioned to serve as a laboratory for observing and predicting climate change impacts. The region encompasses the intersection of three major climate zones and a broad array of microclimates. This unique topography presents a distinct opportunity for researchers in the Crown to play a leading role in global efforts to investigate climate change impacts across a range of climate types and at differing elevations. Significant efforts to understand these dynamics are already underway. Policy changes are a bit slower to develop, but there has been progress in the region. Additionally, prominent conservation groups from throughout the Crown developed a Crown of the Continent Conservation Initiative aimed at addressing climate change related impacts.

Because climate is a defining element of a region's character, changes in the Crown's climate necessarily influence other changes taking place in the region, including changes in

water flow and supply, impacts on habitat, wildlife health, and agricultural production, and ultimately, our communities and economies.

Water Resources: The abundant, high quality waters that flow from the Crown's majestic peaks to its valley floors cross political and jurisdictional boundaries, connecting diverse communities and users. As headwaters of the Saskatchewan, Columbia, and Missouri river systems, the Crown plays a significant role in supplying water across the North America continent.

Changing conditions in the Crown present both challenges and opportunities for water managers and all who depend on the Crown's water resources. The leading pressures today include increased demand from a growing number of users; changes in water supply and quality due to the region's changing climate; and unresolved issues regarding water rights and jurisdiction involving Native American tribes in the U.S. and First Nations in Canada.

Although abundant, the Crown's water resources are stretched thin in some areas by competing demands from communities, agriculture, and industry as well as by the need to maintain and restore streamflows for fish and recreational uses. In some cases, this competition will result in limitations on new uses or restrictions for existing water users.

Water, like air, is ultimately a shared resource. Conflicts about its use and management illustrate the many ways in which people throughout the Crown of the Continent are linked together. Solving water challenges requires bringing diverse users together to consider shared interests, build relationships and knowledge, and ultimately devise new and innovative methods to protect and conserve the resource.

Wildlife Corridors and Habitat Conservation: The Crown of the Continent's rich species diversity depends on varied and distinct ecosystems—boreal forests, Pacific maritime cedar rainforests, alpine tundra, windswept prairie, and dry grassland pine—which provide habitat needs for specially adapted species such as cutthroat trout, bull trout, Arctic grayling, river otter, bobcats, fishers, martens, lynxes, and wolverines.

Protected lands such as national parks, wilderness areas, and wildlife refuges provide critical habitat, but these species often require a much larger and more complex network of landscapes and waterways in addition to these protected lands to survive. These networks require corridors through which animals can move between protected areas, safely navigating landscapes bisected by roads, energy lines, cities and suburbs, and other hazards.

Although corridors are essential to long-term species viability, past efforts to preserve critical wildlife habitat areas often did not incorporate these passages. For example, grizzly bears moving from the Crown of the Continent into Idaho, the Greater Yellowstone Ecosystem, and the plains along the Rocky Mountain Front must cross a patchwork of public and private, developed and undeveloped lands. Furthermore, major transportation corridors, such as Highway 2 in Montana and Highway 3 in Canada, have proven to be such

formidable migration obstacles that the bears have simply stopped moving across them: researchers can differentiate between DNA from grizzlies on either side these roads.

Preserving these corridors doesn't have to come at the expense of human needs. Resource managers, land use and transportation planners, tribes, and private landowners developed an innovative plan to enhance traffic safety while simultaneously improving wildlife movement across U.S. Highway 93 in Montana.

Evolving Economic Opportunities: The natural boundaries of the Crown of the Continent provide a useful delineation for thinking about river basins, wildlife habitat, and cultural influences. This geographical region, however, is more challenging when considering economic forces currently at work and how they will influence the region in the future.

Historically, much of the region's economic growth depended on the Crown's abundant natural resources. Communities formed around timber mills, rich farmland, mineral resources, and recreational destinations. Faced with the growing influence of global market forces, some of these commodities lost their competitive advantage, and the engines of economic development shifted and diversified.

Today, the region's economic opportunities relate largely to tourism, energy development, and a growing professional services sector. Importantly, non-labor sources such as investments, pensions, and public benefits now account for approximately 40 percent of personal income in the counties on the U.S. side of the Crown of the Continent. These and other trends have diversified the Crown's economy and demanded a more educated and skilled workforce. In response, local businesses have linked with Tribal and community colleges to shape curricula and programs, helping both retrain workers and prepare the region's next generation to be competitive in tomorrow's economy. This assistance is necessary to ensure that better, high-paying jobs are available to young people living in the Crown as well as experienced workers whose skills no longer match the demands of the market.

Patterns of Growth and Development: Over the past several decades, growing communities and shifting land uses have reshaped the ring of human development that surrounds the protected areas at the Crown's core. Three notable trends are currently playing out: (1) larger towns and cities have grown considerably in population over the past 30 years and are projected to experience continued growth; (2) smaller towns and more rural locations have seen little population growth and in many instances have declined in population over the past 30 years; and (3) an increasing number of land use efforts seek to accommodate concentrated growth in and around populations centers while preserving important environmental, natural resource, aesthetic, and agricultural values.

Not surprisingly, development in the region is closely tied to economic opportunities. Prior to the economic downturn beginning in 2008, the amenity-rich communities in the Crown were growing quickly. Much of the new development sprawled into surrounding farmland and the woods close to the borders of protected public lands. This growth was fueled in part by new technology that allowed people to conduct business in more remote locations,

as well as by a booming market in second homes. For example, Montana's Flathead County, which supports the largest economic center and greatest number of residents in the Crown, grew from 59,218 residents in 1990 to 89,624 in 2009, a 51 percent increase in just two decades. The same is true north of the border. Calgary, the closest major city to the Crown, grew by 90.1 percent from 1980-2009; nearby Lethbridge grew by 55 percent over the same period.

While population centers have put increasing pressure on valued landscapes in some areas of the Crown, they also contribute resources and expertise that have led to a number of innovative land use practices and conservation tools. Some new developments use sustainable resources, preserve natural and historic resources, engage others in the community during the planning process, and focus on economic viability. Additionally, there is a growing awareness of the hazards associated with rural residential development in fire prone areas.

One growing trend is the use of conservation easements. Conservation easements are voluntary agreements between a landowner and a private entity or public agency, whereby the "use rights" to a property are purchased for conservation purposes. As shown on the following map, conservation easements have been put in place in many places in the Crown, with the effect of providing both economic benefit to landowners and helping achieve conservation objectives.

In addition to conservation easements, efforts are underway in the Crown to protect important landscapes and resources through land purchases and exchanges. The Montana Legacy Project is the most notable effort to purchase land outright for conservation purposes: The Trust for Public Land and The Nature Conservancy, with the assistance of the U.S. government, will buy 310,000 acres from Plum Creek Timber Company in the southern part of the Crown.

Existing and evolving land use and planning regulations add to this suite of options (see the sidebar for a summary in the Crown). The most notable land use planning effort currently underway in the region is in Alberta, where a new Land Use Framework and Land Stewardship Act provide additional tools to citizens and government officials in response to significant growth in the province. These include additional opportunities for using conservation easements (may now be used for purposes including environmental education, research or scientific use, open space, or recreational use); new conservation directives (prescriptive government directives that can be used to preserve and conserve critical conservation values); and the establishment of a transfer of development rights program.

The Ecology of Governance

In response to this mix of complicated issues, individuals and organizations throughout the Crown are rising to the occasion and creating new forms of democratic practice. In a formal sense, the Crown of the Continent includes two nations, two provinces, and one state, with more than 20 government agencies exercising some type of authority and management of

the landscape (see map at end of this report). While each of these expert-driven institutions play an important role in managing natural resources, most of the issues facing the Crown present themselves at a spatial scale that crosses jurisdictional and cultural boundaries. While the formal legal and institutional boundaries delineate ownership and management authority, they also act as dividers between disparate cultures, attitudes, goals, and values. Such divisions stymie efforts to address shared challenges in an effective manner.

People who care about the Crown and its future are increasingly looking to bridge these jurisdictional and cultural barriers to address the challenges they collectively face at the spatial scale at which they are occurring. What is occurring, in fact, is a nested system of political arrangements where people with vision, passion, and capacity are creating new opportunities to name issues, frame options, and take action. This nested system is akin, at least in part, to Ostrom's "polycentric systems of governance."

Starting at the smallest geographic scale, there are at least 20 community-based partnerships in the Crown, most of them initiated and convened by citizens (see map at end of this report). These community-based partnerships create the basic building blocks within the emerging nested system of governance. Consider, for example, the Blackfoot Challenge. This landowner-based group coordinates management of the Blackfoot River, its tributaries, and adjacent public and private lands – approximately 2,400 square miles. It is organized locally and known nationally as a model for preserving the rural character, ecological health and natural beauty of a watershed.

The mission of the Blackfoot Challenge is to coordinate efforts that will enhance, conserve and protect the natural resources and rural lifestyles of the Blackfoot River Valley for present and future generations. It supports environmentally responsible resource stewardship through cooperation of private and public interests. Private landowners, federal and state land managers, local government officials, and corporate landowners compose the informal membership. All share a common vision of how the Challenge operates in the Blackfoot watershed and all believe that success is most likely to result from building trust by working together.

The Blackfoot Challenge has produced an impressive list of accomplishments over the years. It is a good example of how community-based partnerships often "nest" alongside each other, and within a large spatial context – in this case, the ecosystem referred to as the Crown of the Continent. As illustrated below, at least nine independent and complementary initiatives have emerged since 1994 to promote and support problem-solving at the scale of the Crown itself. While non of these initiatives has any formal authority to make and implement decisions, they each play a critical role in exchanging information, building relationships, and exploring opportunities to work together. Along with the community-based partnerships, they help build the civic and political will to address complex natural resource and related issues that cannot be effectively addressed by any single community, stakeholder group, or government agency.

Crown-wide Initiatives

1994 Crown of the Continent Ecosystem Education Consortium
Develops ecosystem-focused curricula, workshops, and projects

1999 Transboundary Research and Education Program -- Jointly managed by faculty from the Environmental Studies Program at the University of Montana and the Faculty of Environmental Design at the University of Calgary, this program offers graduate student research and internship support, shared courses, and faculty exchange to explore and develop the knowledge and skills necessary to manage across domestic or international administrative boundaries.

2001 Crown Managers Partnership -- The Crown Managers Partnership (CMP) was created in 2001 as an inter-agency forum for about 20 land management agencies in Montana, British Columbia, and Alberta. This voluntary partnership seeks to build common awareness of Crown interests and issues, shape relationships, and identify collaborative and complementary tasks that the various participating jurisdictions can pursue.

2002 Crown of the Continent Resource Learning Center -- Located in Glacier National Park, the Learning Center provides coordination and information sharing between scientists and land managers. Projects are carried out through collaboration among government, academia, educational institutions, public interest, and private citizens, all of whom are committed to understanding and preserving the Crown's natural, social, and cultural heritage. The Learning Center has made communicating the impacts of climate change one of the highest priorities.

2002 Heart of the Rockies – This initiative includes 25 national, statewide, and local land trusts working along the Continental Divide in Alberta, British Columbia, Montana, Idaho, and Wyoming. The core mission of this initiative is to work together to increase the pace of strategic private land conservation in the Northern Rockies to ensure the long-term ecological functionality of the region's landscapes. Private lands are among the regions most ecologically productive. They are generally found along river corridors and house important wetlands, seasonal wildlife habitat and connectivity habitat that bind the greater ecosystem together. By enhancing the capacity of the organizations working on the ground in this region, supporting excellence, and facilitating capital fundraising, the Heart of the Rockies Initiative is advancing long-term conservation of ecological, agricultural and cultural significance.

2007 Crown of the Continent Geotourism Council -- This broad-based partnership of local community and business leaders started as an advisory committee to work with the National Parks Conservation Association and the National Geographic Society on the Crown of the Continent Geotourism MapGuide and interactive

website. Today, the Council describes itself as "a regional network of communities, tourism bureaus, conservation and business groups, educators, First Nations, government agencies, and others working together [to provide] information about the Crown of the Continent region for visitors and residents to understand, appreciate, and help preserve its geographic character, including historical, cultural and environmental heritage. Looking forward, the Council intends to pursue cooperative projects that promote regional understanding and appreciation, encourage sustainable businesses, support community well-being, advance landscape stewardship, and provide outstanding visitor experiences."

2007 **Roundtable on the Crown of the Continent** -- The Roundtable is an ongoing forum to bring together people who care about this special place. It is based on the observation that the future of the Crown of the Continent is being shaped by over 100 government agencies, non-government organizations, and community-based partnerships. While these various initiatives operate somewhat independent of each other, the Roundtable provides a unique opportunity to connect people that share a common commitment to the region. Through workshops, forums, policy dialogues, and conferences, the Roundtable provides an opportunity to exchange ideas, build relationships, and explore opportunities to work together -- to sustain the natural and cultural heritage of this remarkable landscape. The Roundtable is convened by the Center for Natural Resources and Environment Policy at The University of Montana and the Lincoln Institute of Land Policy

2009 **University of Montana Crown of the Continent Initiative** -- Led by the Department of Geography at the University of Montana, this initiative was publicly launched in 2009 and includes research coordination at UM, educational outreach, and publication of an e-magazine and e-notes with updates about activities related to the Crown. The initiative expects to publish a book in 2011 with articles, stories, photographs, and maps reflecting the diverse research underway around the Crown.

2009 **Crown of the Continent Conservation Initiative** -- This coalition is led by a steering committee of 15 organizations in the U.S. and Canada. Over the past year, the CCCI developed a comprehensive Conservation Agenda and Conservation Plan to achieve long term conservation goals and vision for the Crown in a time of climate change, as well as comprehensive and collaborative conservation strategies in four key areas: climate science, policy framework, communication/outreach, and capacity building. Climate change is the overarching them of the CCCI.

Scaling up even further from the level of the Crown is the Yellowstone to Yukon Conservation Initiative (Y2Y), an effort to protect wildlife core areas and corridors across a 500,000 square mile landscape -- nearly three times the size of California (see map at end of this report). Y2Y began as a network of biologists and conservationists who were concerned about populations of wildlife “blinking out,” generally on a northward trend. Today, Y2Y continues its networking function, but programmatically focuses on protecting

key connectivity areas for wildlife—areas that currently harbor endangered species such as the grizzly bear while facing significant threats from habitat loss, invasive species, and, increasingly, climate change. While Y2Y focuses on wildlife corridors and connectivity, it works closely with private landowners, community leaders, and others to address a range of issues related to land use, community and economic prosperity, and wildlife management.

The latest addition to the ecology of governance in the Crown of the Continent is the Great Northern Landscape Conservation Cooperative (see map at end of this report). This initiative, led by the US Fish and Wildlife Service and other federal agencies, is developing scientific capacity to address climate change and other stressors to wildlife species and habitats within the Northern Rockies and Columbia Basin. The Cooperative will provide multiple science support services to resource management practitioners to enhance landscape scale adaptive management.

This ecology of governance in the Crown illustrates the larger trend in natural resource policy – citizens and non-governmental organizations or associations are increasingly taking the lead to convene, coordinate, and implement actions to foster conservation and stewardship. This trend not only suggests a shift from an expert-driven model of politics to more democratic approaches, but also raises some important questions about "govern-ance" and the role of citizens, professionals, and communities in governance – where governance is more than government. It is much more inclusive, engaging both formal and informal actors and institutions. How this proposition plays out on large-scale, mixed ownership landscapes is of course an open question.

From a political perspective, this trend in natural resource policy creates a healthy tension between bottom-up and top-down approaches to governance. In a recent book entitled *Planning with Complexity*, Judith Innes and David Booher suggest that this tension can be explained – at least in part – by the difference between "instrumental rationality" and "collaborative rationality"[3]. Instrumental rationalists tend to approach natural resource and environmental issues as largely technical problems that can be effectively resolved by sound science and the separation of politics from decision-making (i.e., the expert-driven model of politics).

By contrast, collaborative rationality sees the world as inherently uncertain and assumes that all decisions are necessarily contingent. From this perspective, planning and policy are not about finding the best solution (indeed, there is not likely to be one best solution), but rather discovering many better ways of proceeding than the status quo. Collaborative rational political processes are about engaging with diverse members of a community – including citizens, associations, and experts! – to jointly learn and work out how to generate improvements in the face of conflict, changing conditions, and conflicting sources of information. Such processes – as illustrated by the ecology of governance in the Crown of

[3] Judith Innes and David Booher, *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy* (Routledge 2010).

the Continent – are not only about finding new ways to move forward, but also about helping communities adapt and be resilient in the face of new challenges. One ongoing challenge for experts and institutional actors is to realign their expectations and practices in a way that is more conducive to the practices of collaborative rationality.

Realigning Democratic Practices and Governance: An Emerging Vision

The ecology of governance in the Crown of the Continent seems to be evolving for two reasons. The first reason is perhaps obvious and easy to understand – the formal systems for public engagement and decision-making are simply inadequate for the task at hand. The formal systems are organized by jurisdictional boundaries, making it a challenge to address the region's most compelling natural resource issues … all of which cross multiple boundaries. The formal processes of citizen involvement, public dialogue, and public conflict resolution also suffer from the same afflictions so well documented by the Kettering Foundation and others[4].

The second reason for the ecology of governance in the Crown is in part a response to the limitations of the existing system of politics and governance. As presented earlier, people within the Crown of the Continent are forging a system of civic engagement and public problem solving that more appropriately fits the region. This emerging system is not the vision or brainchild of any one person or group, but is much more ad hoc and organic, reflecting some of the characteristics of Ostrom's "polycentric system of governance." To help explain the origin and evolution of this emerging vision, it is instructive to apply the concept of emergence as explained in complexity theory[5].

Emergence is the process by which systems or patterns arise out of a rich multiplicity (a complexity) of relatively simple interactions. Examples of emergent structures range from hurricanes to sand dunes to a school of fish swimming or a flock of birds flying in a tight pattern, moving as one body. Complexity theorists stress that it is inherently impossible to provide in advance a rule or algorithm that will produce the structure or pattern that in fact emerges. Nothing commands the system to form a pattern, let alone any particular pattern. Instead, the interaction of each part with its immediate surroundings (including other parts) results in a complex chain of processes that eventually leads to some recognizable pattern or ordered structure. So, for example, Stuart Kauffman describes the origin of life itself in these terms:

> "Life, in this view, is an emergent phenomenon arising as the molecular diversity of a prebiotic chemical system increases beyond a threshold of complexity. If true,

[4] See David Mathews, *Politics for People: Finding a Responsible Public Voice, 2nd edition* (University of Illinois Press, 1999).

[5] The following discussion relies on a series of papers prepared by Daniel Kemmis and Matthew McKinney.

> then life is not located in the property of any single molecule – in the details – but is a collective property of systems of interacting molecules. … Life, in this view, is not to be located in its parts, but in the collective emergent properties of the whole they create. … The collective system is alive. Its parts are just chemicals."6

Emergent or self-organizing phenomena arise in the social as well as the physical realm. Markets, for example, comprise a form of social interaction that seems to arise spontaneously out of the inescapable conditions of human being. While individual markets can be intentionally created, and while any market can be subjected to externally imposed rules and regulations, the market as a feature of human society appears and persists in history as something far more akin to self-organizing hurricanes or sand dunes than to intentionally manufactured artifacts like clocks or computers. Cities are similarly emergent, seeming to come with the territory of human society. With the city (the polis) comes another emergent form of human engagement: politics.

Two related concepts in complexity theory provide additional insight on the emerging vision of politics and governance in the Crown of the Continent -- attractors and fractals. Start with attractors. While it is true that, in a genuinely complex setting, it is inherently impossible to predict exactly which patterns (if any) will emerge, when patterns do start to emerge, they seem to congregate around certain literal or figurative points ("attractors") in the operative landscape. The independent emergence in the Crown of the Continent of so many community-based partnerships, Crown-wide initiatives, and larger regional efforts is an example of an emergent pattern around a specific "attractor" -- in this case, a particular place. The theory of emergence, combined with the concept of attractors, becomes an even more useful framework for understanding the realignment of democratic practices in the Crown by adding the concept of fractals.

Fractals may be thought of as "patterns within patterns within patterns." Look on the surface of a sand dune, and you will see small sand dunes making up that surface, and even tinier dunes on the surface of the small dunes. Notice how often spirals appear in nature, from spiral nebulae to hurricanes to your draining bathtub. Complexity theory says that these forms play back and forth on one another: what happens at a large scale is related to what happens at a much smaller scale, but not in a Newtonian, billiard ball way. Rather, in this fractal form of emergence, new forms suddenly begin to emerge simultaneously, often at several different scales at once, the way crystals emerge within crystals in a super-saturated solution. Here is how one complexity theorist speaks of these fractal patterns emerging around "strange attractors":

> "One of the unexpected patterns of order found in strange attractors is that they are self-similar. A self-similar system has the same basic pattern repeated at different levels. When you look at a picture of desert sands, you cannot tell whether you are looking at the sand from a distance of five meters or 500 meters. The picture could

---

6 Stuart Kauffman, *At Home in the Universe: The Search for the Laws of Self-Organization and Complexity* (Oxford University Press, 1995): 24.

> be a close up or a distant shot. The basic shape of the sand dunes looks similar at all distances. It is said to be "self-similar" or "scale free". Its shape is similar to itself at different levels of viewing and no matter from what scale we look at the fractal it has a similar appearance.[7]

In natural resource policy, there is one pervasive fractal pattern – watersheds. All around the world, watersheds provide a ubiquitous example of how fractals look and operate.[8] The language quoted above about sand dunes applies precisely to watersheds in that major rivers represent exactly the same image as their tributaries, and those tributaries take precisely the same form as their own smaller tributaries. To paraphrase: When you look at a picture of a watershed, you cannot tell whether you are looking at the landscape from a distance of five miles or 50 miles. The picture could be a close up or a distant shot. The basic shape of the watershed looks similar at all distances.[9]

What then, does this all have to do with the ecology of governance in the Crown of the Continent? In short, the vision of politics and governance emerging in the Crown is self-organizing, rooted in a deep sense of place, and nested – from very local community-based partnerships to Crown-wide initiatives to larger regional efforts. These fractally nested forums provide some important lessons about how democratic citizenship manifests itself in place-based settings.

The role of networking, for example, is crucial to this particular form of democratic practice. In an essay in the Summer 2009 issue of the Kettering Review, Margaret Wheatley and Deborah Frieze capture the fundamentally democratic, world-shaping role of this kind of networking: "Despite current ads and slogans, the world doesn't change one person at a time. It changes as networks of relationships form among people who discover they share a common cause and vision of what's possible. … We don't need to convince large numbers of people to change; instead, we need to connect with kindred spirits."[10]

This explanation describes precisely what is driving the realignment of politics in the Crown of the Continent. And, as Wheatley and Frieze explain, emergence is exactly what is at work here: "As networks grow and transform into active, working communities of

---

[7] http://complexity.orconhosting.net.nz/fractal.html

[8] Kauffman actually uses watersheds as the metaphor by which he describes attractors. "We can roughly think of an attractor as a lake," he writes, "and the basin of attraction as the water drainage flowing into that lake." Kauffman, p. 78.

[9] For a visual illustration of this idea, see the recent special issue of National Geographic and the associated map of watersheds around the world. http://ngm.nationalgeographic.com/2010/04/water/water-animation

[10] Margaret Wheatley and Deborah Frieze, "Using Emergence to Take Social Innovations to Scale," *Kettering Review*, Volume 27, No. 2 (Summer 2009), 34.

practice, we discover how life truly changes, which is through emergence."[11] Wheatley and Frieze recognize the practical roots of the ecology of governance that is emerging in the Crown -- networks are based on self-interest. "People usually network together for their own benefit and to develop their own work. Networks tend to have fluid membership; people move in and out of them based on how much they personally benefit from participating."[12] But out of this complex web of interactions, something unexpected often appears. As people exchange ideas, learn together, and develop a common sense of purpose, "suddenly and surprisingly a new system emerges at a greater level of scale."[13]

The Roundtable on the Crown of the Continent, which is a signature project of this author, is designed to be a "network of networks," creating opportunities to connect currently disparate individuals and groups with similar interests and a common vision for the region. The work of the Roundtable and other initiatives in the Crown strongly suggests that self-organizing systems of politics and governance that are rooted in a sense of place can lead to significant change. Wheatley and Frieze describe a frequent phase in the process of emergence characterized by "the sudden appearance of a system that has real power and influence. Pioneering efforts that hovered at the periphery suddenly become the norm."[14]

One manifestation of this emerging system in the Crown of the Continent is *Friends of the Crown*, an initiative of the Roundtable. During the past 18 months, a diverse group of individuals in the region articulated a statement of values and principles for *Friends of the Crown*. The purpose of this document and association is as follows:

> "Numerous government agencies, non-government organizations, community-based partnerships, and individual citizens are shaping the future of the Crown of the Continent. These individuals and organizations operate at multiple spatial scales, share a common commitment to the landscape and communities of the region, and often work together through informal partnerships.
>
> "This Statement is designed to connect people who care about the Crown by articulating a set of common values and principles -- which collectively provide a vision for the future. It facilitates a regional network (*Friends of the Crown*) while sustaining the identity, integrity, and legitimacy of all the individuals and groups working to shape the future of the Crown. And it provides a foundation for shaping the future of the region through research, education, policy, management, and advocacy.

---

[11] *Ibid*.

[12] *Ibid*., 37.

[13] *Ibid*., 34.

[14] *Ibid*., 37.

> "The Statement is a voluntary, non-binding "good faith" agreement; it does not replace or duplicate existing laws, agreements, policies, or community-based partnerships. It was prepared in consultation with several people (list on the web site) and discussed at the 2010 conference *Remarkable Beyond Borders*.
>
> "Any individual, organization, community, partnership, or agency that subscribes to the common values and shared principles is invited to be a signatory of the Statement and to become a *Friend of the Crown*. Signatories aspire to uphold the common values and shared principles in their activities and are invited to prepare a brief statement that describes their commitment to the Statement, including any actions taken in support of the common values and shared principles. These statements will be compiled as an addendum to the Statement and updated periodically to assess progress and guide future efforts.
>
> The Roundtable on the Crown of the Continent serves as the coordinating body for this effort and will provide ongoing support in the distribution, use, and updating of the Statement. The Statement is a living document; it will be reviewed and revised periodically by the Roundtable Steering Committee to ensure that it reflects the values of people who care about the Crown of the Continent."

At the time of this writing, 33 individuals and/or groups -- representing a diversity of social, economic, and environmental interests – have signed the document and become *Friends of the Crown*. While this group of *Friends* suggests that there is an emerging shared vision of both politics and place in the Crown of the Continent, not everyone is convinced that there is value in such an effort. On more than one occasion, participants in community-based partnerships have asked how *Friends of the Crown* or the Roundtable on the Crown of the Continent can help them achieve their particular interests. These people seem to operate on an assumption that if we each care for our own backyards (or watershed, for example), the larger landscape known as the Crown of the Continent should be fine.

Suffice it to say that not everyone agrees with this perspective, arguing that we need to knit together various efforts throughout the Crown to sustain cultural, community, and conservation values. In any case, there is an interesting and important tension among people as you attempt to scale-up a system of political engagement from community-based partnerships to Crown-wide initiatives. To be most effective in taking action, *Friends of the Crown* need to listen, learn, and figure out how best to engage the naysayers – who may or may not have different and/or conflicting interests. This is very much a work in process, and provides an excellent laboratory for innovations in democratic practice.

Implications for Citizens, Professionals, and Communities

The ongoing experience in the Crown of the Continent, and other similar examples throughout the world, suggest some implications for the roles of citizens, professionals, and communities in shaping new visions for democratic practice.

The aspect of emergence just presented has profound implications for citizens that take on the role of "democratic entrepreneurs." By better understanding the emergent properties of nested, place-based collaborative efforts in a locale like the Crown of the Continent, individuals and organizations will be better positioned to mobilize the political power to facilitate lasting change. Coincidentally, they will also develop and test new forms of governance and economic self-determination … to think regionally and act at whatever spatial scale makes sense.

The ongoing realignment of politics and governance – where citizens play a deeper, more meaningful role in convening public forums and taking public action – also has implications for natural resource professionals and government agencies, which tend to employ a more expert-driven style of politics. While citizens seem to be taking the initiative now more than they were 10 to 20 years ago to convene public forums to discuss natural resource policy, governments still play a critically important role in promoting and supporting such forums. They often "sponsor" such forums, such as the Crown Manager's Partnership and the Great Northern Landscape Conservation Cooperative. This observation in the Crown is consistent with other empirical studies. In a study of land use dispute resolution, researchers discovered that government officials initiated and supported 78% of the cases. Likewise, a study of watershed councils in the American West concluded that those lamenting the involvement of federal agencies in community-based resource management should recognize that, in most cases, the federal agencies themselves remain the primary source of financial resources, technical support, and implementation authority[15]

These studies seem to suggest that, once citizen-driven forums get up and running, the initiators realize that they must create some type of partnership with the responsible agency if they hope to influence policy and management. One of the basic lessons from the theory of multiparty negotiation is that if you intend to influence public decisions, you need to link ad hoc collaborative processes to the formal decision-making process. Agencies also tend to have financial and technical resources that are necessary to sustain citizen-driven forums. For their part, public officials seem to be increasingly open to redefining their roles, moving away from the simple roles of technical expert and decision maker to a richer, more useful set of roles as convener, stakeholder, and partner[16]

There is one additional implication with the realignment of politics and governance that is particularly relevant to this report, and it compels us to take consider the history of natural resource policy and governance. John Wesley Powell, an acute observer of the West and later director of the U.S. Geological Survey, argued well over a century ago that, because of the aridity of the interior West, it would be especially important to organize human

---

[15] Doug Kenney, et al., *The New Watershed Sourcebook: A Directory and Review of Watershed Initiatives in the Western United States* (Natural Resources Law Center, University of Colorado School of Law, 2000).

[16] Julia M. Wondolleck and Claire M. Ryan, "What Hat Do I Wear Now? An Examination of Agency Roles in Collaborative Processes," *Negotiation Journal* 15(1999): 117-133.

activity—including political jurisdictions—according to the lay of the land and the particularities of the place, not according to an artificial, straight-line, square-cornered grid nor according to top-down management from the east coast. In 1878, Powell published his *Report on the Lands of the Arid Region of the United States* in which he set forth a remarkably broad and complex set of interlocking recommendations about public policy for the region. Powell proposed that the grid system so familiar on eastern landscapes be replaced by surveys based on topography, letting farms be as irregular in shape as they had to be to give everyone access to water.[17] Powell went on to argue that these individual watershed-shaped homesteads would be much more likely to prosper if they joined together within their larger watersheds to form grazing and irrigation cooperatives.

Powell was convinced that the arid western landscape could not be inhabited (or at least could not be inhabited in what we would now call a sustainable way) without a high level of cooperation among the inhabitants—just as he was convinced that where water was at such a premium, societies, economies, and policies would have to be organized according to the way the water flowed. Those who actually made the rules and fashioned the governing institutions for the West ignored Powell with a vengeance—basically trying for over a century to fit the West into an undifferentiated pattern of national policies and programs, as if it were no different than anyplace else. This expert-driven style of politics and governance stands in stark contrast to the democratic governance that is emerging in the Crown of the Continent and throughout natural resource policy. The citizen-driven model of democratic governance – whether it takes the form of watershed councils, forestry partnerships, or large landscape conservation initiatives – are increasingly effective and (perhaps) increasingly incompatible with the prevailing centralized and adversarial decision-making structures, as well as arbitrarily bounded political jurisdictions.

The ongoing realignment of democratic practices in natural resource policy -- moving from an expert-driven model of politics to democratic governance -- might provisionally be denominated as “fractal federalism.”

Conclusion

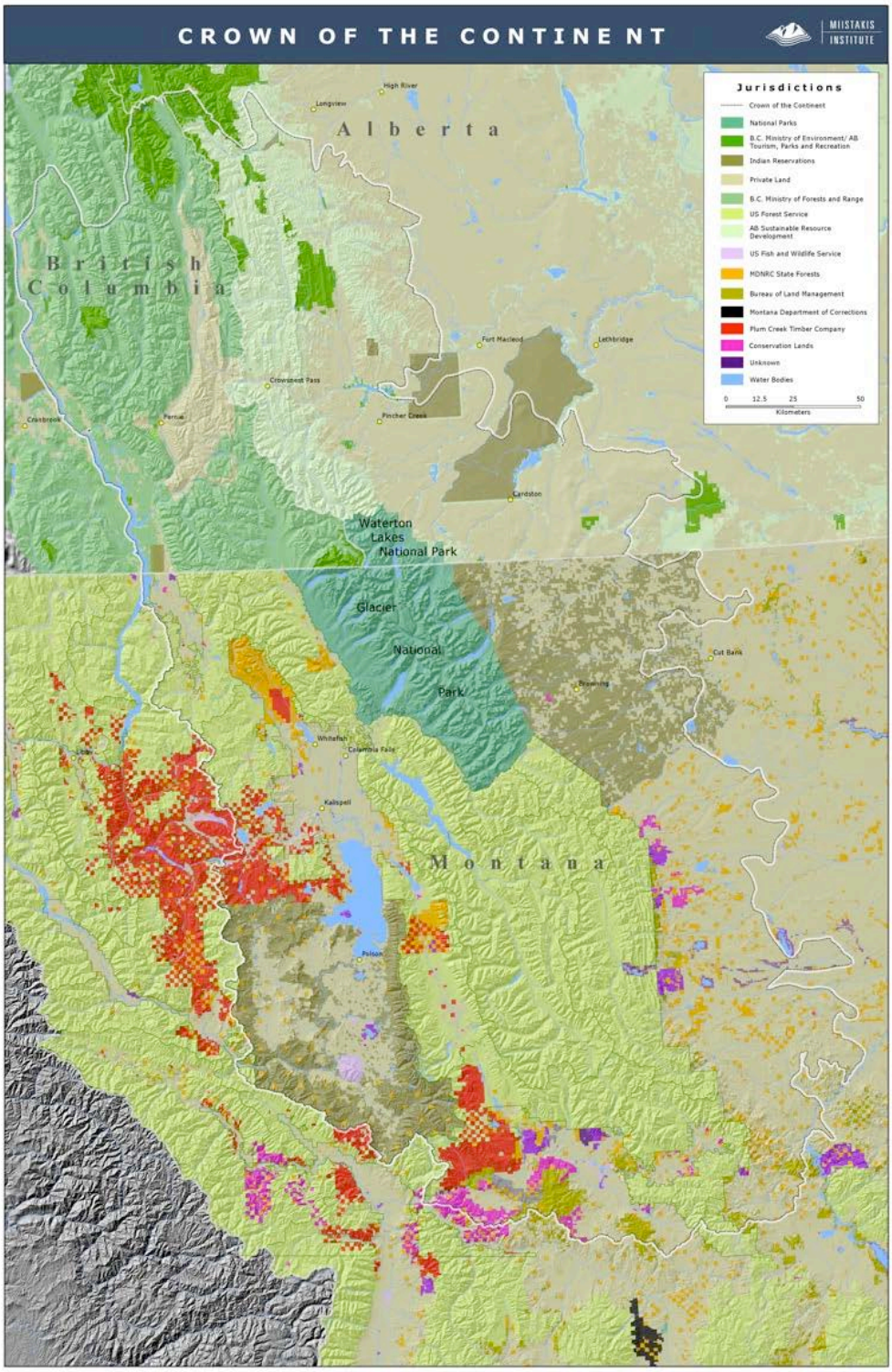
The emergence of network governance in the Crown of the Continent illustrates the realignment of democratic practices in natural resource policy. Throughout the Crown, there are a number of experiments – at different spatial scales – where people are moving from an expert-driven model of politics to democratic governance. The intent of this report is to answer the first of three design-related questions related to this shift in democratic practices -- What is the vision for realigning democratic practices and governance, and what are the roles of citizens, professionals, and communities in shaping that vision?

---

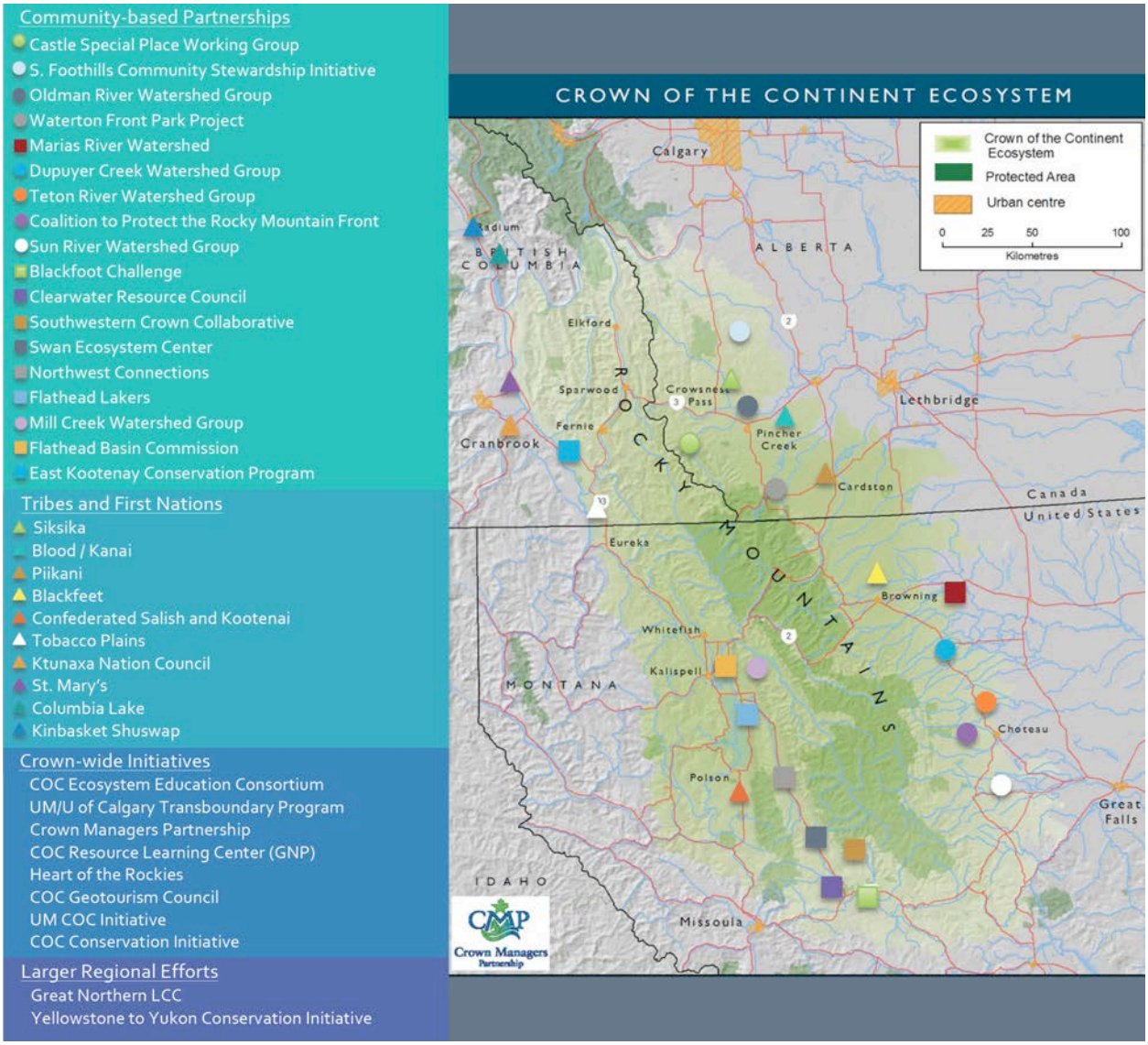
[17] John Wesley Powell, *Report on the Lands of the Arid Region of the United States*, ed. Wallace Stegner (Cambridge: The Belknap Press of the Harvard University Press, 1962), 38-57.

If this report adequately addresses this first question, then two additional questions emerge -- What are the practical opportunities and challenges for realizing and achieving the vision? What is the impact of any such realignment on democratic practices, governance, public policy, and practical problem-solving? Once again, the ongoing experiments in the Crown of the Continent provide an excellent case study to examine these questions.

Jurisdictional Boundaries in the Crown of the Continent



Regional and Sub-regional Initiatives within the Crown of the Continent




Yellowstone to Yukon Region
NUNAVUT
NORTHWEST TERRITORIES
YUKON TERRITORY
ALBERTA
BRITISH COLUMBIA
MONTANA
WASHINGTON
OREGON
IDAHO
WYOMING
Pacific Ocean
Fort Good Hope
Fort Norman
Dawson
Whitehorse
Fort Simpson
Watson Lake
Fort Liard
Cassiar
Liard River
Meander River
Fort Nelson
Dease Lake
Telegraph Creek
Fort Vermillion
Fort McMurray
Fort St. John
Peace River
Dawson Creek
Smithers
Grand Prairie
Prince George
Edmonton
Hinton
Jasper
Clearwater
Banff
Canmore
Calgary
Vernon
Kelowna
Cranbrook
Lethbridge
Vancouver
Cut Bank
Bonners Ferry
Kalispell
Great Falls
Lewistown
Spokane
Missoula
Helena
Lewiston
Butte
Billings
Bozeman
Salmon
Cody
Challis
Boise
Idaho Falls
Jackson
Pocatello
Twin Falls
YELLOWSTONE TO YUKON
LEGEND
Major Highways
Protected Areas
Y2Y Ecoregion
70 0 70 140 210 280 350 Km
50 0 50 100 150 200 Miles
Big Sky Conservation Institute GIS

Great Northern Landscape Conservation Cooperative