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Troy D. Abel

Western Washington University

Jenni Pelc

Western Washington University

Lauren F. Miller


Western Washington University

Jacqueline Quarre

Kathryn Mork

Western Washington University

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Borders, Barriers, and Breakthroughs in the Cascadia Corridor

Troy D. Abel
Associate Professor, Environmental Policy

Jenni Pelc
M.S. Geography

Lauren Miller
M.S. Geography

Jacqueline Quarre
B.A. Environmental Studies

Kathryn Mork
M.S. Geography

Huxley College of the Environment, Department of
Environmental Studies, Graduate Program in Geography,
Western Washington University

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Border Policy Research Institute
Western Washington University
Bellingham, Washington
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Border Policy Research Institute
Western Washington University
516 High Street
Bellingham, WA 98225-9110
(360)650-3728

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Abstract

This project focused on dilemmas of political biogeography through a case study of wildlife conservation and management efforts in the transboundary Cascadia region. Our team examined the interface of political science and biogeography, or “political biogeography,” through its manifestations in the evolving opportunities and barriers to regional wildlife conservation in the shared terrestrial ecosystems of British Columbia and Washington. Our research combined content analysis of policy documents and semi-structured stakeholder interviews and questionnaires. We also produced a series of maps and GIS data layers that provide useful spatial information about the wildlife commons in the Cascadia region. The results of the content analysis and surveys present a picture of uneven management with fragmentation on both sides of the border and as a result, very few efforts in civic ecosystem management. In short, the Cascadia wildlife corridor needs some CPR, or the resource, institutional, and stakeholder characteristics that have been identified as essential to the successful management of Common Pool Resources (CPR). Our research leads to several policy prescriptions including: (1) communication efforts that begin to establish a geographic identity for the Cascadia wildlife corridor; (2) participatory efforts that foster civic environmentalism; and (3) institutional governance building at multiple scales.

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Executive Summary

Let's start with a borrowed but modified analogy (Quammen, 1996, p. 11). Imagine we're indoors visiting the Department of Anthropology to admire a fine Salish blanket. This textile form endemic to the Pacific Northwest indigenous tribes is typically made from mountain goat hair. The dyes come from native plants and soils and the yarns are an intricate weave of criss-crossing fibers that form complex geometries of blocks, diamonds, and triangles. The tapestry has a complicated and three dimensional structure. Now imagine taking a knife, sharpening it, and cutting the blanket into more than a dozen uneven pieces, each unique in size and angles. The slicing sounds like gasps of disbelief. The severed fibers protrude from the edges. What do these pieces amount to? We have the same area of tapestry, but do we have more than a dozen Salish blankets? No, all we are left with are ragged and frayed fragments, each one nearly worthless and commencing to come apart.

Now take the same logic outside into the Cascades and Coast Range mountains, across the valleys of British Columbia and Washington, and this provides us with an organizing metaphor to understand the challenges of wildlife conservation in the common transboundary habitats along the northwestern border of the U.S. and Canada. "An ecosystem is a tapestry of species and relationships. Chop away a section, isolate that section, and there arises the problem of unraveling" (Quammen, 1996, p. 11). In Washington for instance, the state has lost 90 percent of old growth forest, 70 percent of estuarine wetlands, and 50 to 90 percent of riparian habitat according to the Washington Department of Fish and Wildlife (WDFW, 2005). Ecologists, biologists, and wildlife managers are studying how to stop the Cascadia ecosystem from unraveling even more.

This report details our project that focused on the "new" politics and policy of ecosystem management through a case study of wildlife conservation and management efforts in the transboundary Cascadia wildlife corridor. We combined content analysis of policy documents, semi-structured stakeholder interviews, questionnaires, and geographic information system maps to explore the policy challenges and possibilities confronting wildlife conservation scientists and managers in the transboundary Cascadia Corridor. We examined the following questions. How are federal and provincial wildlife conservation policies and management diverging and converging on both sides of the border? Is the discourse of civic ecosystem management becoming prevalent in contemporary policy debates and documents on transboundary wildlife conservation? What institutional arrangements limit and potentially foster transboundary ecosystem management?

With financial support from Western Washington University's (WWU) Border Policy Research Institute (BPRI), our project team spent a fair share of 2009 and 2010 exploring the political biogeography of this Common Pool Resource (CPR) dilemma through the Huxley College of the Environment and its Geography Program. Our college's namesake was also nicknamed Darwin's bulldog because Thomas Henry Huxley became a renowned and even more argumentative advocate for the theory of evolution than Darwin. But there was another and less well known associate of Darwin that is more relevant to the present study. His name is Alfred Russel Wallace.

Quammen (1997) called him "the man who knew islands". Some call him the father of biogeography. This field partially sets the stage for our research because it is the spatial study of past and present distribution, as well as the abundance and diversity of organisms on earth's surface. In short, the Pacific Northwest's geography is littered with islands. But they are not only in the San Juan or Gulf Islands dotting the Salish Sea. They are scattered across the terrestrial landscape as well. They fall within the lands just east of the Puget Sound in Washington and the Georgia Basin in British Columbia. There are many groups of scientists and conservationists that are trying to figure out how to weave the pieces back together in a way that will support 16 different species. This

scientific and political advocacy project includes one Washington based group called the Wildlife Habitat Connectivity Working Group. Other organizations like Vital Ground, the Cascades Carnivore Project, and Wildlands are now working on the spaces between these terrestrial islands. The human fragmentation is in the form of borders and highways cutting across the Cascadia corridor. Moreover, protected areas appear across the region like a patchwork of tapestry pieces.

This fragmentation among protected areas is a stark contrast from the effort in the nineties to create a single large transboundary park. There also is a significant divergence in the amount of geography protected in Canada versus the United States. Several smaller fragments are seen north of the border while a more contiguous set of protected spaces stretch south to the Oregon border. This juxtaposition also epitomizes one of the central debates in the field of biogeography—SLOSS.

Single Large or Several Small?

Biogeography's seminal publication was released in 1967. MacArthur and Wilson's *The Theory of Island Biogeography* presented two fundamental principles. First, larger islands support more species than smaller ones. Second, remote islands support fewer species than less remote ones. This began an important debate in the conservation field. Should efforts be focused on preserving a Single Large section of habitat, or Several Small (SLOSS)? The SLOSS debate arrived in the Northwest in 1994 and soon ended as a single transboundary unit failed to get the breadth of political support needed to establish a large conservation area (Miles, 2003). Wildlife conservationists and managers are now confronted with the practical reality of several small units and the promise and limits of a corridor strategy to conserve more than a dozen threatened or endangered species common to British Columbia (BC) and Washington (WA).

But this is not solely a biological or ecological study. Our interest is in the dilemmas of political biogeography and we therefore combine the spatial study of ecosystems with an influential body of social science theory and research to inform our study. Elinor Ostrom won the 2009 Nobel prize in economics for her decades of work developing the theory of CPR management. Her early work in the sixties paralleled the SLOSS debate in biogeography when she applied her research to a dominant argument about public management. Many scholars were proponents of consolidating metropolitan public services under one government, a single large structure that would eliminate the inefficiency and chaos of several small governments. Ostrom specifically studied water service delivery in California and found polycentric governance, or multiple centers of governance among several smaller jurisdictions, was often more effective in public service delivery than unitary governance through a single large structure.

Ostrom and her public choice colleagues would become influential voices in the field of public administration for two more decades. They pushed the debate beyond just a dichotomous choice between markets or a hierarchical government. In particular, they began to illuminate a third path that was more plural, local, and potentially more civic. In the nineties, Ostrom also became a significant voice challenging the conventional prescriptions offered to resolve the tragedy of the commons (Hardin, 1968). The influential analogy described the dynamics of an open pasture neither owned nor regulated and its inevitable collapse because users received a clear and concentrated payoff to add more and more grazers to the system. This individual rationality to expand each farmer's herd was collectively irrational as more and more sheep ate the pasture into oblivion. Hardin's prescriptions were also dichotomous, either privatize or regulate. Ostrom's research would again challenge a prominent and arguably simplistic world view.

Ostrom and others have shown that CPR and their users are not doomed to tragedy, but instead

can succeed with more of the right resource conditions, resource user attributes, and a combination of institutional features. We focus here on the latter and our research points to three that are critical in the Cascadia wildlife corridor: (1) clearly defined resource boundaries; (2) participatory collective choice arrangements; and (3) networking multiple levels (regional and local) of organizational involvement in transboundary governance.

Imagining Cascadia's Wildlife Geography

According to CPR theory, a resource must have several characteristics to be suitable for polycentric governance with several smaller jurisdictions. First, the improvement of the resource must be feasible. Second, reliable and valid indicators of the resource conditions must be available at low cost. The predictability of resource flows is a third condition, and fourth, the spatial extent of the resource must be amenable to defining its borders and its internal microenvironments. Many of these conditions appeared to converge in 2009.

The environmental group Conservation Northwest hosted the third annual “Wild Links” meeting in September of 2009 in Osoyoos, British Columbia. The theme was “thinking across borders” as participants discussed issues about wildlife habitat connectivity, transboundary wolves and wolverines, and conservation planning across borders. Among scientists and conservationists, the transboundary ecoregion boundaries are well defined, there are good indicators of wildlife resources, and their flows are relatively well understood. However, this biogeography is not well understood by the public. Moreover, the US-Canadian International Border (the Border) in the Pacific Northwest divides not only two nations, but also the political identities between Washington and British Columbia. Natural resource management north and south of the U.S.-Canadian border is markedly different and is a direct reflection of the respective political systems. Yet, these boundaries are permeable to ideas, values, and environmental beliefs because residents of the borderland region frequently share social, cultural, and economic ties on a daily basis. In one part of our investigation, we examined the presence and absence of a transcendent regional and ecological identity among a sample of college students in WA and BC.

A survey was designed and administered to 46 environmental undergraduate students from Western Washington University in Bellingham, WA and 23 students from the University of Fraser Valley in BC. The survey included both open and closed-ended questions and asked the student to identify their boundaries of Cascadia on a map. When asked how closely they identified with several geographic terms, the majority of respondents on either side of the border identified “Pacific Northwest” most frequently followed by country and city. Close identification with ecosystem was the fourth most common response with connections to their province or state being last. However, when asked if they had heard the term Cascadia, 77 percent answered yes. We then asked them if Cascadia was related to geography, politics, the environment, or made a personal connection. One out every three students (33.3 percent) associated Cascadia with geography while slightly less (31.9 percent) made an environmental association. Americans made more environmental associations (36 percent versus 22 percent) while Canadians made more geography associations. Very few assigned political, recreational, or even personal meaning to the term. Nearly as many (27.2 percent) didn't assign Cascadia with any meaning. Finally, when asked how strong they related to the Cascadia term, the majority were neutral. These results are consistent with other findings where a regional ecological governance identity is weakly supported (Alper & Salazar, 2005). In sum, there may be convergence among scientists and wildlife managers on a perceived ecoregion, but it has yet to take hold among broader publics, thus Cascadia and its common wildlife face a dilemma of political biogeography.

The survey of a Cascadia ecological imagination leads us to our first policy prescription. *Education and communication efforts should be expanded and developed to foster the public's perception of the geography of the terrestrial Cascadia corridor.* As the communications subgroup of the Connectivity Working group put it, conservationists must “Develop a robust communications strategy and inform the people. . . about the importance of habitat connectivity to build support for implementation of connectivity conservation.” Perhaps the recent efforts to get the Salish Sea recognized as an official geographical place and name offers several lessons for terrestrial conservationists. Moreover, additional efforts in civic environmentalism will reinforce the recognition of our CPR geography.

Initiating Civic Environmentalism

Before 1970, and in the metaphor of SLOSS, U.S. environmental protection involved a “several small” approach with the states responsible for pollution regulation. A “single large” alternative developed in the seventies and eighties. The nationalization of environmental laws and institutions led to the development of a “command-and-control” system where regulations were technology forcing, adversarial, and dealt with pollution at the end-of-the-pipe. A similar style became prominent in natural resource management and sometimes is characterized as a “fence-and-fine” or “protect-and-patrol” approach. While these environmental regulations led to significant reductions in air and water pollution while protecting large areas of habitat in the Western U.S., they are now reaching several limits. According to Hempel (2002), the policies and jurisdictions that functioned reasonably well to limit resource degradation and past pollution are proving inadequate to manage today’s environmental challenges that require transboundary and multilevel strategies.

A variety of alternatives to the concentration of environmental policy power at the national level have been recognized in recent years. Two specific ideas have gained great support and include both the devolution of policy-making responsibility from the federal government to state and local jurisdictions and attempts to increase the influence of citizens in environmental decisions (Abel and Stephan, 2000). This kind of governance stands in stark contrast to environmental policy driven by national experts or interest groups. However, the development of participatory decision making opportunities in North American environmental governance has been uneven. We therefore examined the prevalence of a civic environmental style and initiatives in transboundary wildlife governance with a combination of content analysis, interviews, and surveys of conservation organizations, wildlife managers, and environmental activists.

We frame our research on civic environmentalism with the theory of environmental discourses. It is a group’s shared view of the environment, its spatial extent, how it’s threatened, and what kind of politics and policies should be pursued in order to restore ecosystems. Moreover, different groups have divergent discourses that have political consequences. We expected regional conservationists and wildlife managers to adhere mainly to a “managerial discourse” that privileged questions and answers advanced by experts and scientists. Consequently, we expected that an alternative or “civic discourse” would be marginally present in both the stakeholder’s perceptions and the transboundary wildlife programs of Cascadia. To explore these hypotheses, we analyzed the content of wildlife programs on both governmental agency and environmental group websites active in BC and WA conservation efforts. We also interviewed nine key participants in the regional wildlife conservation community and surveyed twenty-seven more using a web-based questionnaire.

First, following Abel and Stephan (2008), we characterized four types of wildlife conservation programs on a continuum from the most technocratic to the most democratic. We also reviewed wildlife programs in Alberta to provide some comparative perspective. From 14 Cascadia

programs, only the Wolf Working Group through the WDFW exhibited a civic character. The most prevalent efforts were informational followed by technical and then organizational. Our content analysis of environmental discourses revealed very little civic character, a key strategy that would reflect a shift towards a new politics of ecosystem management. *Our second policy prescription calls for more attention to developing civic wildlife conservation programs.* Participatory conservation forums must not only involve communities; their citizens must be able to influence decisions. This will be fostered when wildlife conservation programs are diffused among several smaller jurisdictions rather than the current, and predominately technocratic arrangements.

Polycentric governance

The seeds of polycentric and transboundary governance in Cascadia can be traced to meetings in 1994. One was called the *BC/WA Symposium on the Marine Environment* and the other, *Nature Has No Borders*. The latter focused on the terrestrial ecosystems of the North Cascades and Okanogan but did not lead to the institutional development seen in the former; or what we now call the Salish Sea. Two years later, a Washington meeting convened U.S. and Canadian scientists and activists to exchange research in *Our Living Estuary Conference*. In Canada, the Fraser river and its basin became the focus of a series of *State of the Basin Conferences* in 2000 and 2003. These converged in 2003 in the first ever Georgia Basin and Puget Sound Research Conference. Binational meetings have continued biannually with the most recent held in 2009. No binational meetings on wildlife followed in the wake of the terrestrial conservation initiative.

But attention on the marine side grew and transboundary ecosystem issues found an institutional and subnational home in the BC/WA Environmental Cooperation Council (ECC). Established in 1992, the ECC's "purpose is to ensure coordinated action and information sharing on environmental matters of mutual concern" (<http://www.env.gov.bc.ca/spd/ecc/>). No task force yet exists for terrestrial wildlife in the ECC, but other institutional venues for transboundary wildlife governance are emerging.

South of the border, The Western Governor's Association (WGA) offers an institutional venue for polycentric wildlife management. In 2008, the WGA established the Western Wildlife Habitat Council (WWHC) to coordinate and manage implementation of the recommendations from the *WGA Wildlife Corridors Initiative Report*. In the next two years, this council coordinated the development of a habitat database and wildlife assessment for Alberta and British Columbia, Canada, and Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. Moreover, the initial strategy recognizes the importance of the border and transboundary wildlife corridors.

According to the 2008 strategy, "Continued development near the border further frustrates border security efforts—and also compromises important habitats and corridors. Prevention of development and protection of open space near the border can help protect important wildlife habitat and help ensure that our border agents have the response space and time needed to intercept illegal immigrants" (WGA 2008, p. 82). This convergence of policy objectives for border and wildlife habitat protection provides an important opportunity for the further development of transboundary wildlife governance. This WGA Corridor initiative will be an important polycentric venue for Cascadian wildlife managers and activists. *We therefore prescribe that Cascadia's wildlife managers carefully cultivate their presence in these forums as our third policy recommendation.*

While promising, the WWHC does not yet include formal governance participation from British Columbia and Alberta, only data sharing. At two years old, the WGA's wildlife corridor is a

relatively new addition to the family of wildlife conservation institutions. And comparatively, the layers of conservation institutions are quite different in age on each side of the border. Wildlife conservation in the U.S. received a major boost nearly fifty years ago with passage of the Wilderness Act in 1964. Two years later, the Endangered Species Preservation Act was passed by Congress, amended in 1969, and again in 1973 to become simply the Endangered Species Act. And in Washington, the state's history of managing "species of concern" dates to 1978. Conversely, the British of Columbia established a Wildlife Act in 1996 and a federal law emerged in 2002 called the Species at Risk Act (SARA). In short, many more layers of governance have developed over several decades south of the border. U.S. Wildlife conservation might be described as a collection of middle-aged institutions and experience, but Canada's just reaching its teens. Therefore, the lack of institutional history north of the border is a major barrier to polycentric wildlife management in Cascadia.

Conservation views above and below the 49th

To complement our secondary research described above, we completed interviews and surveys of wildlife conservation stakeholders in the U.S. and Canada. We conducted nine interviews and surveyed 27 key stakeholders across the region. In both our surveys and interviews, we asked some of the leading regional stakeholders to identify the key issues for wildlife conservation in Cascadia, what the best opportunities for innovation were, and what were the most significant barriers. Habitat connectivity was the top issue from both sources ranking extremely important among 88.5 percent of survey respondents and discussed at length in five of our nine interviews. But connectivity, as one U.S. respondent described, also involves policy and management on both sides of the border. "I definitely think some of the levels of protection for various species across the Canada/U.S. border are completely disparate, and finding common ground between the way species are managed here and there is very difficult."

Climate change, shared organizational goals, and funding came in second with extremely important ratings among two-thirds (66.7 percent) of our survey respondents. However, only three of our interview respondents (one-third) discussed climate change as an important issue and only two discussed funding at length. Canada's lack of an endangered species law was the second most important issue among our interview respondents. In the surveys, endangered species legislation fell into a third tier of importance along with community involvement and public involvement. Yet shared organizational goals was in the second tier of issue importance in the surveys. In our interviews, the lack of collaboration and coordination emerged as a major theme across several issues.

According to one U.S. respondent, "If Canada had a piece of legislation as powerful as the Endangered Species Act it might encourage more collaboration. The pressure is not on Canada to take things as far as it should." Two Washington and Canadian conservationists identified the lack of common goals as a major issue. For instance, according to another U.S. respondent, "I think part of the problem is that a lot of people who are trying to protect wildlife or connectivity don't really have a grasp of their goals and objectives and how to get there." Another observed that "[Non-governmental Organizations] NGOs are not working very well together." And according to one respondent, "Agencies and organizations are siloed and there is not always reward or accountability system for true collaboration." Such discord is a frequent reason that regulation by a single agency is often preferred over governance by many organizations.

Less than one in three survey respondents ranked land access management and human/predator interactions as extremely important while keystone species fell last among survey respondents.

Conversely, carnivores or keystone species were identified as important by two U.S. interviewees and one Canadian, or in one-third of our interviews.

When asked if transboundary issues were of concern for wildlife conservation, nearly three-fourths of survey respondents strongly agreed. Much more discord was evident in their perceptions about transboundary wildlife conservation research. Fifty-two percent agreed that there is adequate scientific data while thirty-six percent disagreed. Likewise, one of our interview respondents identified the lack of science as a major barrier while another said that we had all the science needed. There was nearly as much divergence about institutional capacity with forty-four percent believing that it was adequate and forty percent disagreeing. For instance, interagency dissonance was mentioned by three of our five Canadian interviewees but not by one U.S. respondent. A majority disagreed that funding for transboundary wildlife conservation was adequate.

In our final set of survey questions, we focused on public education and involvement. The former produced the strongest responses with 56 percent and 60 percent strongly agreeing that the public needs more education on wildlife and large carnivores respectively. But our question about citizen trust achieved the greatest agreement intensity as 68 percent of respondents strongly disagreeing that citizens trust government. Slightly less intense agreement emerged on whether the public should be involved in the decision-making processes—only 16.7 percent strongly agreed but 58.3 percent agreed. Likewise, 60 percent agreed that community involvement plays a role in wildlife conservation while only 28 percent strongly agreed. Finally, and perhaps most telling were the uneven responses to the statement that we need more avenues for public participation in decision-making. Almost one-third (32 percent) of our respondents agreed and 28 percent strongly agreed but many were undecided (24 percent) or disagreeable (16 percent).

New institutional and more civic avenues received some support among our survey respondents. Among our 9 interviews, most agreed that community involvement has a role in wildlife management. However, the respondents would focus on education programs rather than the participation of the public in actual wildlife management governance. But a third way we believe to be critically important in this transboundary case is the fostering of multiple layers (national, regional, local) of “nested” governance structures. Local and participatory governance must be connected to, and as influential, as governing bodies in the state or province and at the national level. Or, in the language of regional geography, an assemblage of political and policy actors must transcend two nations and many communities. The form in Cascadia would best be described as both global and local. But the latter is the most undeveloped “nest” in our region’s wildlife governance structures.

Research by numerous scholars (Swyngedouw, 2004; Alper, 2004; Fiorino, 2006; Teske, 2004; and Klyza and Sousa, 2008; among others) on the scale and type of institutional involvement in resource management has indicated a shift towards “glocalization” (Swyngedouw, 2004). According to Swyngedouw, glocalization is the process by which institutional and regulatory arrangements shift simultaneously to both a global and local level. In our examination of the regulatory layers influencing transboundary wildlife management, we found the development of local polycentric governance to be not only in its infancy, but facing major institutional barriers north of the border. Wildlife conservation in Cascadia begins inside of our protected areas, governments, and non-governmental organizations but will be finished, for the good or the bad, outside of them.

Introduction

Over a decade ago, many of the world's environmental decision makers met at the United Nation's Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. The event produced *Agenda 21*; an 800 page blueprint of actions to address the wide range of environmental and social dimensions of ecological degradation. The conference's Secretary-General Maurice Strong observed that: "The Earth Summit is not an end in itself, but a new beginning. . . The road beyond Rio will be a long and difficult one; but it will also be a journey of renewed hope, of excitement, challenge and opportunity" (Haas, Levy, & Parsons, 1992, p. 7). As environmental scientists and policymakers travel this road, one of our many challenges is achieving a more satisfying and durable blend of the technical and democratic demands on environmental decision making. These scientific and participatory intersections create many tensions in environmental policy and this project analyzes their political and policy dimensions in a transboundary commons dilemma stretching across the northwest border of Canada and the United States.

Agenda 21's fortieth and final chapter is called "Information for decision-making" but the former resides in the rational realm of environmental science while the latter unfolds through the logic of social choice, and their messy convergence attracts the attention of a growing number of scholars. Many see a significant disconnect between scientific expertise and citizen participation especially in the realm of environmental decision making. Describing this "democracy and technocracy quandary," Brent Steel (2000) noted that nations face many policy problems that are highly technical and scientific while simultaneously experiencing increasing demands for citizen participation, especially in the environmental policy arena.

In 2000, Schlosberg and Sisk traced the roots of the rationalizing and democratizing cleavages to the disciplinary pedagogy of environmental and political sciences. They posited that many environmental policymakers received their education in social science disciplines while physical and biological degrees predominate among environmental scientists. Consequently, environmental scientists and administrators are trained separately and then work separately; sometimes to the detriment of environmental problem solving. And in Cascadia, several northwestern bioregions shared between Canada and the United States are split by an international border representing another division challenging wildlife conservation managers. This report will analyze the challenges and possibilities confronting wildlife conservation scientists and managers in the transboundary Cascadia corridor. We primarily utilize a political biogeographic perspective to guide our research.

Conservation Geography

We concentrate here on the places and spaces of a shared terrestrial bioregion between Canada's British Columbia and Washington in the United States. The natural resource management challenges are numerous but essentially involve managing a fragmented landscape that is, or could be, home to more than a dozen threatened terrestrial species. In particular, three ecozones straddle the Canadian and U.S. border and provide important habitat for more than 70 mammal species, hundreds of birds, and forests of Douglas-Fir, Western Hemlock, Ponderosa Pine, Western White Pine, and Western Red Cedar. First, the North Cascades ecoregion makes up 10 percent of Washington with Snoqualmie Pass at its southern border, the Puget Sound trough to the west, and the Cascade Crest to the east. It runs northward and includes British Columbia's entire mainland coast. The Okanagan is the second ecoregion that encompasses the highlands between the North Cascades and Rocky Mountains covering about 14 percent of Washington State. Our study region (Map 1) focused on these two large terrestrial ecoregions. We do not include the small portion of the Rocky Mountains ecoregion which covers only 4 percent of Washington's northeast corner nor

the Northwest Coast or Puget Trough (DNR, 2003).

The international border cuts across this “Cascade Corridor” and is an unnatural division for this diverse biogeography. Highways and communities also present significant barriers for the region’s wildlife. In fact, these many barriers create islands of nature, a kind of terrestrial archipelago that mirrors the San Juan and Gulf Islands of the Salish Sea. Therefore, the theory of island biogeography provides a useful starting frame for the conservation challenges in the region. MacArthur and Wilson (1967) published the seminal book for this subfield of ecology and established two relevant principles. First, larger islands support more species than smaller ones.



And second, more remote islands host fewer species than less remote ones.

They also built on the remoteness principle to develop the concept of insularity. This is the idea that habitat can be insulated by not only distance between islands, but anything that divides a landscape such as mountains and climate. “Insularity is moreover a universal feature of biogeography. Many of the principles graphically displayed in the Galapagos Islands and other remote archipelagos apply in lesser or greater degree to all natural habitats” (MacArthur and Wilson, 1967, p. 3). Here, the criss-crossing highways and border artificially divide formerly contiguous habitat in Cascadia.

In more directly relevant work, Preston (1962a, 1962b) raised the concern that many nature preserves and parks were just too small to support many species. Later, Diamond (1975) connected these ideas and developed a set of design principles for the management of an ecologically sound park system. These included: (1) larger protected areas will hold more species than smaller ones; (2) a protected area closer to others will support more species than an isolated one; (3) a round park will hold more species than a long narrow area; and (4) corridors between conservation areas might

mitigate the island problem. According to Quammen (1996), the conservation implications of island biogeography led to a heated debate that is still relevant to our research. Should conservation area designations strive for Single Large or Several Small (SLOSS)?

The idea of a single large and binational conservation area first emerged in 1971 as part of the opposition to the expansion of Ross Dam on the upper Skagit river. In testimony to the International Joint Commission, an environmental group called the North Cascades Conservation Council proposed a Canadian “Salish National Park” that would parallel the North Cascades Park complex and the Pasayten Wilderness that together would be jointly managed as a single wilderness area (<http://www.nps.gov/archive/noca/adhi-toc.htm>). But, according to Louter (1998, p. 311), the U.S. Park Superintendent was informed by B.C. Forestry officials that: “they planned to log every possible inch of B.C. right up to the international boundary, and that they had no concern for protection of wilderness qualities adjacent to our wilderness. They...had too much, not too little wilderness in B.C. and felt the strength of the province depended upon sustained yield harvest of all resources.” The single large idea hung on through the eighties and then peaked in the early nineties.

In 1993, the Greater Ecosystem Alliance environmental group (now Conservation Northwest) published the book *Cascadia Wild: Protecting an International Ecosystem*, advocating a single large and transboundary park. In this book, geographer Steve Walker created a map that would later be blown up into a poster that included a core binational protected area boundary surrounded by a “buffer zone” that included many populated areas like Bellingham and Wenatchee, WA and Abbotsford, BC. This transboundary ecosystem encompassed 2.5 million wilderness designated acres in the U.S. and 328,355 in Canada (Miles 2003, p. 224) and included the U.S. North Cascades National Park and Skagit Recreation Area and the Canadian Manning and Cathedral Provincial Parks. This map was released at the “Nature Has No Borders” conference in 1994, but this may have been the pinnacle for the single large transboundary conservation agenda in Cascadia.

Sponsored by the nonprofit National Parks and Conservation Association, the University of Washington’s School of International Studies, and the National Park Service (NPS), the meetings brought together U.S. and Canadian government commissioners, Senators, researchers, environmentalists, and government agency directors. However, the meeting and the map in particular galvanized conservatives in the region and mirroring national political trends, an anti-government and anti-park campaign undermined any possibility for U.S. support of a single large park (Miles, 2003). Moreover, forestry interests on the Canadian side helped cool the enthusiasm of support north of the border. The region described in 1994 was a “Greater North Cascades Ecosystem” stretching from the Puget Sound’s tide water on the west to the dry Okanogan River Valley on the east; from Washington’s Snoqualmie Pass on the south to the Canadian Similkameen and Fraser Rivers along its northern extent (Nature Has No Borders map). Yet, this bioregion continued to receive attention from regional wildlife conservationists.

In particular, several government agencies and nonprofits participated in the *Wildlinks* conference in Osoyoos, BC on the theme of “Thinking Across Borders” in the fall of 2009. In one presentation, a Canadian environmental group observed that 3,900 of the 4,300 species in BC are transboundary (91 percent). From Washington, a state coalition presented their work studying the habitat connectivity for wildlife and promoting cross-border coordination and cooperation. They have modeled habitat and linkage indicators that describe a “cascades bottleneck” along the 49th parallel between the upper Nooksack watershed and the eastern border of Washington. Another group discussed their analysis of a shared Okanogan ecoregion in Southern BC and North Central WA. This area is bordered to the West by a North Cascades ecoregion that includes the traditionally

named Coast Range in Canada and the North Cascades in the U.S. These terrestrial landscapes, beginning with the proposed Salish Park in the seventies, never achieved the visibility or support to rival the nearby marine ecosystem of the Georgia Basin and Puget Sound.

Salish Sea Envy

During the week of Earth Day in April 2009, the popular public broadcast news series *Frontline* featured the Puget Sound in the two-hour program “Poisoned Waters” (Smith 2009). A month earlier, the Sound’s transboundary character as a “Salish Sea” was featured in the *Seattle Times*. “It’s celebrated in song, dissected in scientific journals and detailed on government Web sites. It’s the subject of international conferences, amateur theater performances, and gatherings of Northwest tribal leaders” (Cornwall 2009). And three month’s of media interest began in February with the Puget Sound/Georgia Basin Ecosystem Conference in Seattle. This attention to one of North America’s largest estuarine environments overshadows the nearby, and equally important terrestrial ecosystem. We have extended our geographic attention further north to reflect more than a contiguous conservation area, but a wildlife corridor that connects the wildlife of BC and WA. Map 2 displays the Cascadia Corridor land cover straddling British Columbia and the state of Washington.

Environmental Governance

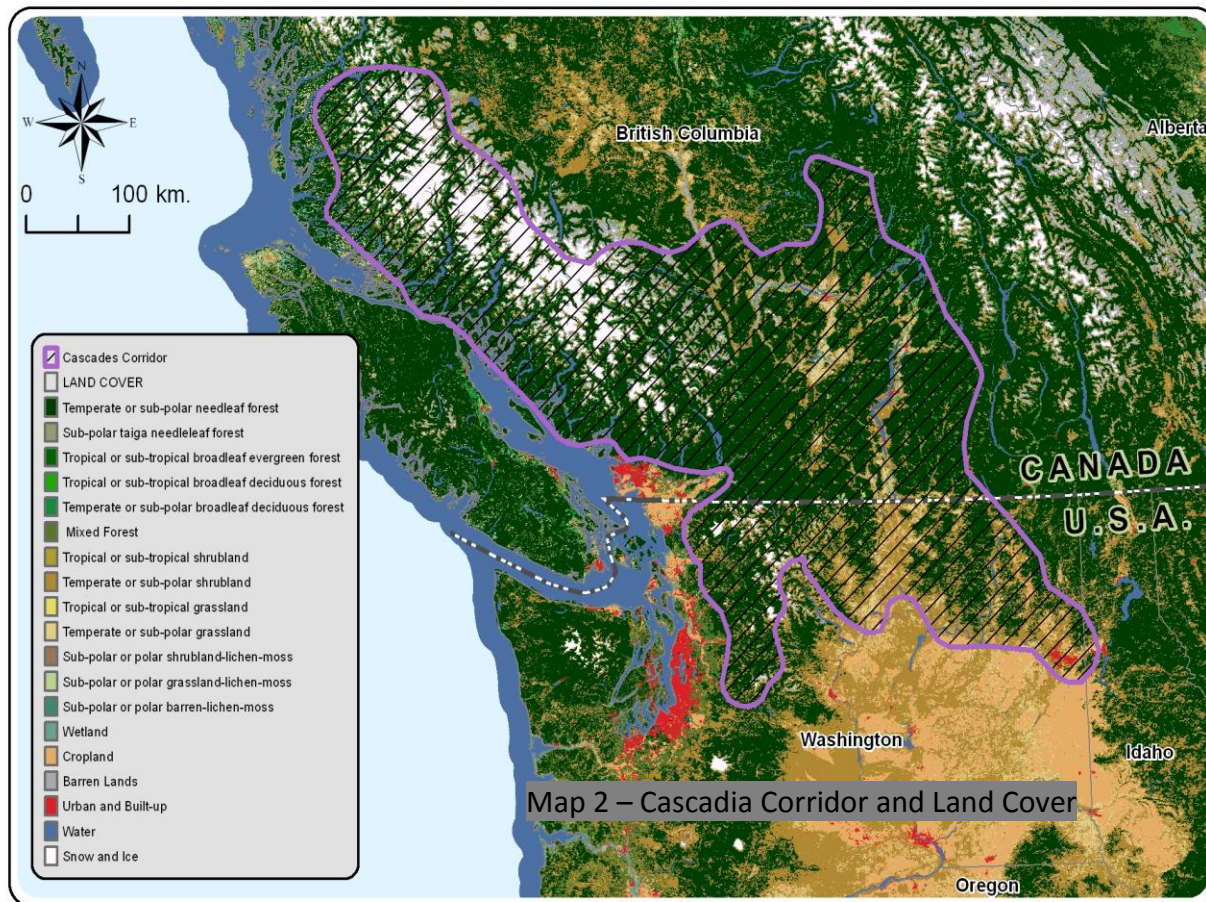
The political biogeography of the Cascade Corridor suffers from a governance problem. As Daniel Press (1994) so aptly observed,

“Environmental protection and restoration are not technically overwhelming—we probably had less of the requisite know-how for putting a craft on the moon in the 1950s than we do for solving major environmental problems today. In our society, environmental problems are *democratic dilemmas*” (p. 1, emphasis added).

This project continues the lead author’s scholarship on the dynamics of environmental governance reform (Kraft, Stephan and Abel, 2011; Abel and Stephan, 2008; Abel et al., 2007; Abel, 2001; Abel and Stephan, 2000). There are now well worn criticisms directed at the environmental regulatory systems in North America. As one recent appraisal put it, existing environmental policies have been widely viewed as “heavily bureaucratic, prescriptive, fragmented in purpose, and adversarial in nature” (Durant, Fiorino, and O’Leary, 2004, 1). Or, as some describe it, environmental regulation is primarily command-and-control. Businesses and other critics have long complained as well about the overall complexity and rigidity of rules and regulations, the high costs of compliance with policy requirements, the focus on remedial rather than preventive actions, the lack of incentives for companies to innovate or to go beyond compliance with regulatory standards to achieve better environmental results, and the difficulty of using comprehensive and integrated strategies that cut across different environmental media (Davies and Masurek, 1998; Eisner, 2007; Fiorino, 2006).

These critiques typically focus on an overarching “policy style” or the interplay among the regulated community, government agencies, science, social movement organizations, and public concern in environmental policy dynamics. This paper focuses on the “new” politics and policy of ecosystem management through a case study of the transboundary Cascade Corridor. In particular, we turn our attention towards the evolving opportunities and barriers to regional wildlife governance in shared biogeographies between British Columbia and the state of Washington.

There is an impressively long list of significant weaknesses or failures in four decades of North American environmental policy. It is hardly surprising then that since the 1980s policymakers,



analysts, and scholars have offered an expansive and varied agenda for environmental policy reform (e.g., Chertow and Esty 1997; Marcus, Geffen, and Sexton 2002; National Academy of Public Administration 1995 and 2000; Sexton, et al. 1999). Much of the discussion about new directions in environmental policy has focused on the likely effectiveness, efficiency, or public and political acceptability of alternatives to federal command-and-control regulation. Part of this shift represents a turn of scholarly attention towards both supranational and subnational dimensions of environmental governance that looks beyond just the national scale. Swyngedouw (2004) termed this “glocalisation” in a broad characterization of research on global or local efforts, while others provide specific efforts that explore transboundary policy research and practice (Loucky et al 2008).

Many environmental governance alternatives have been identified, appraised to some degree, and endorsed by a diversity of policy actors. These include a plethora of voluntary initiatives by

business and voluntary public-private partnerships, substantially increased use of market incentives, more flexible regulation based on environmental results or performance, greater involvement of citizens and other stakeholders in regulatory decisionmaking, particularly through more open and collaborative processes (“civic environmentalism”), further decentralization of environmental responsibilities to the states and local or regional governments, greater attention to denationalization, and more holistic approaches captured in the term ecosystem management.

Commons Governance

Ecosystem management emerged in the nineties as an alternative to policies that dealt with discrete environmental elements such as water, species, or forests. Grumbine (1994) defined ecosystem management as an integration of “scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting native ecosystem integrity over the long term” (p. 31). This concept represents one of the many examples of collaborative approaches to environmental policy that can now be found in almost every federal agency and many state governments (Bardach 1998). Yet collaborative environmental management embodies one of the classic problems of politics: the collective action dilemma. “One cannot merely assume that groups arise and are maintained; rather, formation and maintenance are the central *problems* of group life and politics generally” (Shepsle and Bonchek, 1997, p. 238). In political science, Mancur Olson (1971) first articulated how self-interested individuals were unlikely to cooperate voluntarily to capture joint benefits and political scientists have developed an extensive literature on the topic (Axelrod 1984; Bendor and Mookerjee, 1987; Ostrom, 1990; Taylor and Singleton, 1993). On the environmental dimension, Garret Hardin addressed the topic in a seminal 1968 publication.

“Freedom in a commons brings ruin to all” (Hardin, 1968, 1244) is one of the most famous and foundational statements influencing environmental policy. In his analogy of a pasture surrounded by sheep farmers, Hardin’s parable is the story of shepherds facing a powerful incentive to send more grazers afield for a quick, concentrated payback while the costs are very low and diffuse. The farmers’ acts are characterized as individually rational but collectively irrational as the increased herds eat the resource into collapse. This tragic analogy has informed policy designs around the world and Hardin’s prescriptions are an even more powerful force in environmental management. One must regulate or privatize and the commons world was painted black and white.

Alternatively, a rich literature has emerged that suggests that humans are not always trapped in the commons tragedy. Instead, a complicated web of resources, user, and institutional conditions can lead to successful CPR management. The 2009 Nobel Prize for the Economic Sciences was shared by the most influential scholar in this field. Elinor Ostrom (1990, 1999, 2009) has developed a scholarly strand that focused on polycentric governance institutions that exist in successful cases of CPR dilemmas. Ostrom and many others have challenged the conventional wisdom that common property is poorly managed and should be either regulated by central authorities or privatized.

She first became influential with her research on water service delivery in California and found “that multiple public and private agencies had searched out productive ways of organizing water resources at multiple scales contrary to the view that the presence of multiple governmental units without a clear hierarchy was chaotic” (Ostrom, 2009, p. 3). She spearheaded a major effort to analyze case studies of CPR management around the world including 44 cases of inshore fisheries and 47 cases of irrigation systems. In the latter, only 40 percent of the cases with government management achieved high performance while 70 percent of the farmer-managed water systems

performed well. In the fishery case studies, 33 out of the 44 had developed their own regulatory rules managing access and harvest without government coordination.

The CPR framework doesn't support less government involvement however. As Schlager (2004) observed: "The evidence from [CPRs] should not be interpreted to suggest that governments have no role to play in addressing common-pool resource dilemmas. That would be as great an error as suggesting that only governments can resolve common-pool resource dilemmas. The issue is not whether governments should be involved; rather, it is how governments should be involved in addressing such dilemmas" (p. 159). Or, as another put it, how "Government acts *with* instead of *on*" (Fiorino 2006, p. 19). In short, governance is more than central government regulation, but "...the coordination of action...through many different institutions" (Vig 2005, p. 4).

This compilation of case studies demonstrated that there could be successful commons governance without relying on either markets or government imposed regulation. However, one of the key conditions in these cases was the ability of citizens to participate and influence resource management strategies. "What we have ignored is what citizens can do and the importance of real involvement for the people involved instead of having someone in Washington or in a far far distance make a rule" (Ostrom's Nobel Lecture, Oct. 12, 2009). In particular, she has suggested seven institutional design principles necessary for successful CPR management.

First, the CPR has clearly defined boundaries and rights for cooperators. Second, the distribution of benefits from appropriation rules is roughly congruent to the cost imposed by provision rules. Third, most cooperators affected by the operational rules can participate in modifying these rules. Fourth, a monitoring mechanism exists to assess both resource conditions and appropriator behavior. Fifth, cooperators who violate operational rules are likely to receive graduated sanctions from other stakeholders, from officials accountable to these stakeholders, or from both. Sixth, cooperators and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between cooperators and officials. Seventh, the rights of cooperators in devising their own commitments will not be challenged by external or higher government authorities. Finally, governance activities like appropriation, provision, monitoring, enforcement, and conflict resolution are organized in multiple layers of nested enterprises (Schlager, 2004). We focus on the first, third, and eighth conditions in this initial exploration.

Table 1. Ostrom's (1990) Institutional Principles

1. Clearly defined boundaries	5. Graduated Sanctions
2. Congruence	6. Conflict-resolution mechanisms
3. Collective-choice arrangement	7. Rights to organize
4. Monitoring	8. Multiple layers of governance activities

Fragile institutional settings have few of these characteristics while more robust ones have many. The debate over collaborative institutions as an effective alternative to adversarial regulation in environmental policy remains vigorous. Proponents hail the superiority of collaborative institutions over adversarial ones (John, 1994; Marsh and Lallas, 1995; Weber, 1998, 2003). Singleton (2002) cautiously described a good, a bad, and one ugly environmental collaboration among Washington watershed protection efforts. Others argue that collaborative environmental decision making is a passing fad at best, and at worst, the collaboration may create perceptions of progress without real changes (Kenney, 2000). For example, Lubell (2004) examined one of the most prominent

collaborative institutions in environmental policy, the U.S. EPA's National Estuary Program (NEP). His survey results indicated that while levels of consensus were higher for NEP estuaries, there was no more cooperation than in estuaries outside the NEP framework. The field of collaborative environmental governance provides a complementary scholarly context for our social science research on transboundary wildlife conservation.

Environmental policy scholars have explored the ways in which collaborative institutions overcome the collective action dilemma. Trust, institutional mechanisms, and political leadership have all been theorized as key factors in encouraging collective action. Trust is often connected to social capital (Putnam 1995; Fukuyama 1995). In experimental settings, researchers have found that positive interactions in collective action simulations result in players learning to trust one another and tend to be reinforcing (Lubell and Scholz, 2001; Ostrom, 2000). Others have found greater collaboration among individuals who have experienced a history of cooperation in various institutional settings (Lubell et al., 2002, Schneider et al., 2003, Weber, 1998). In theory then, the success of a transboundary wildlife conservation framework will depend on a history of stakeholders interacting in cross-national networks that foster reciprocal trust.

This research was also informed by a growing literature that examines the institutional challenges of transboundary collaborative institutions. For instance, Norman and Bakker (2009) examined how transboundary water governance was hindered by asymmetrical governance structures, limited institutional capacity, and the lack of intrajurisdictional integration. Alper and Salazar (2005) also found little evidence of transboundary identity among Canadian environmentalists. Conversely, Alper (2004) focused on the regional governance arrangements being fostered by a set of normative or constructivist ideas in the Georgia Basin/Puget Sound. Dupeyron (2008) conceptualized a social-political Cascadia geography dominated by technical experts and economic interests. Masters theses (Bernstein, 2002), entire journal issues (Brunet-Jailly and Simon, 2008) and book monographs (Day et al., 2003; Loucky et al., 2008) have continued the scholarly attention to Cascadia and we join this scholarly discussion with this case study of wildlife conservation and its dilemmas of political biogeography.

Two recent studies are particularly relevant to this report. Norman and Bakker (2005) examined the drivers and barriers to cooperation as described by stakeholders collaborating on transboundary watershed management. Pedynowski (2003) examined the limits and opportunities for continued ecosystem management in the Crown of the Continent Ecosystem (COCE) encompassing Glacier National Park and Flathead National Forest in the U.S., the Flathead Basin in B.C., and Alberta's Castle Integrated Resource Plan Area in Canada. This study found that transboundary cooperation is more supported in the Provinces and States than at the national level. In both studies, the researchers combined interviews, surveys, and management policy reviews. These mixed-methodologies rely on a case study approach that this project also utilized.

Methodology

In recent years, policy analysis has developed an increasingly influential body of work from an "interpretative" perspective (Dryzek, 1990; Fischer and Forester, 1993; Stone, 2002; White, 1994). Discourse analysis (Hajer and Verseeg, 2005; Lofland and Lofland, 1995; Wood and Kroger, 2000) is one kind of interpretative methodology that has recently been employed in studies of American environmental values (Kempton, Boster, and Hartley, 1995), climate change (Backstrand and Lovbrand, 2006), U.S. environmentalism (Brulle, 2005), transboundary environmentalism (Alper and Salazar, 2005), and environmental justice (Abel and Stephan, 2008; Taylor, 2000). In turn, our study

employed discourse theory and methods to identify how prevalent the language of the “new politics” of ecosystem management are in a sample of government agency reports and websites, interviews with key conservationists, and surveys of wildlife managers.

In particular, content analysis was utilized to identify perceptions towards the conservation problems, their possible solutions, and the identification of those responsible. Content analysis is a method to study written documents and uses recorded human communications as data (Berg, 2008). Various studies have used content analysis to examine the use of language and its relationship to environmental issues and the social beliefs of policy stakeholders (Abel and Stephan, 2008; Koski, 2007; Salazar, 2009; Kraft and Clary, 1991).

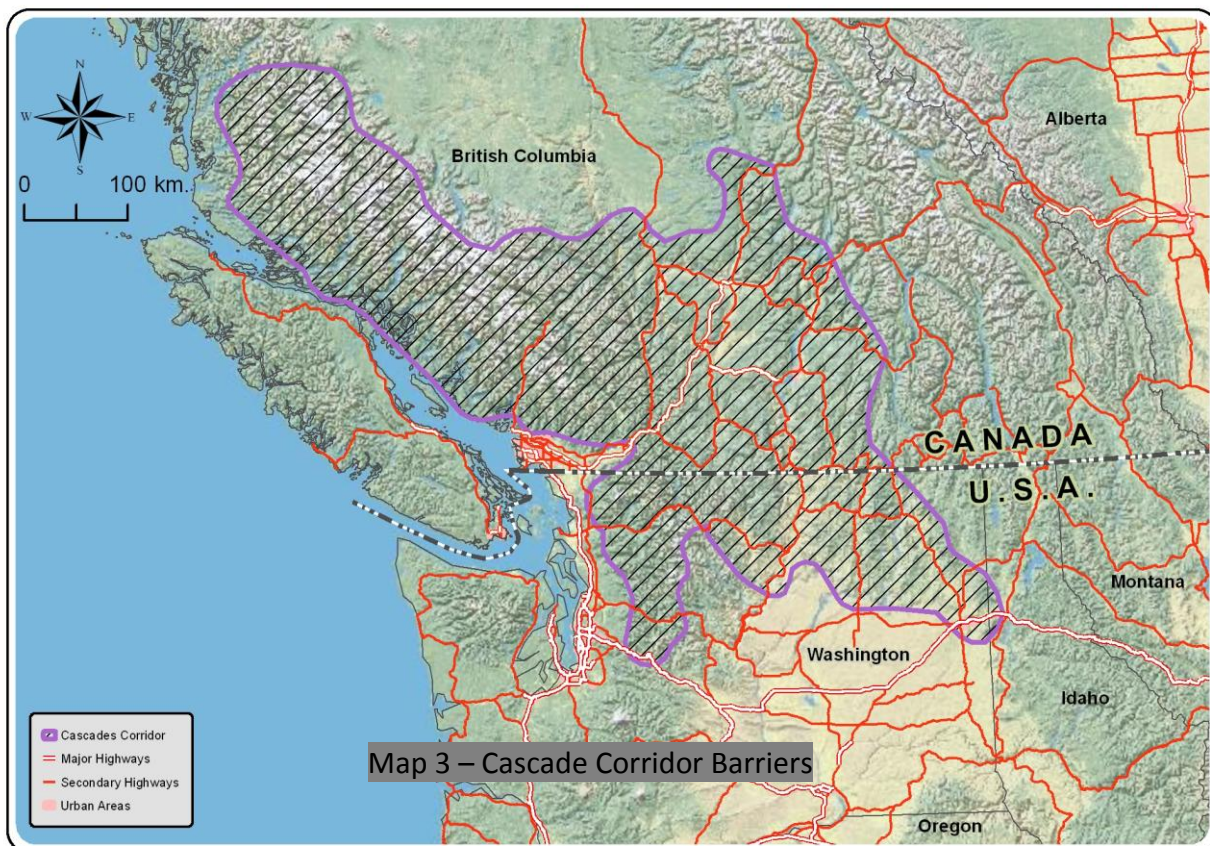
We first selected the websites of wildlife programs in British Columbia and Washington to perform our first content analysis. For our first survey, we sampled college students from Western Washington University and the University of Fraser Valley. Our second survey sample of transboundary conservation stakeholders was initially constructed from the participants in the annual wildlife conservation meeting *Wild Links*. Sponsored by the regional environmental organization Conservation Northwest, the 2009 *Wild Links* was “Thinking across borders: recognizing the needs of wildlife” and focused on the transboundary issues for habitat and wildlife between the US and Canada. The 2007 and 2008 meetings focused on the North Cascades in the state of Washington and the northern Washington wildlife landscape respectively. Participants were asked to identify other influential regional stakeholders to construct a snowball sample of more than 80 stakeholders in the region.

Research Questions

Fifteen years ago, a regional terrestrial ecosystem initiative met with vigorous protests outside of a “Nature Has No Borders” meeting. The Canada-U.S. border in Cascadia seemed to harden in the nineties. It hardened even more after the terrorist attacks of September 11th. One might even suggest that the policies, political culture, and institutions have subsequently been stuck in the nineties. However, the conservative ideologies behind these ever hardening borders seem to have receded with the decline of the Republican Party and its leaders. The election of Barack Obama brought change to national politics, but that may be fading. And the set of ideas constructing a regional ecological identity seem to be re-energized. The ideas of ecosystem management are a dominant discourse in several arenas. So which character better represents the future of regional ecosystem management in Cascadia? Does one really represent the past and the other an emerging future? Are we beginning a new era in regional environmental governance, or are we in store for a resurgence of adversarial politics and gridlock? The purpose of the proposed project will be to analyze the geographical, policy, and civic obstacles to transboundary wildlife conservation and management in the Greater North Cascades. We examined the following questions. How are federal and provincial wildlife conservation policies and management diverging and converging on both sides of the border? Is the discourse of ecosystem management more prevalent in contemporary policy debates and documents on transboundary wildlife conservation? What CPR institutional arrangements limit and potentially foster transboundary ecosystem management? We begin with the convergence of perceptions.

Cascadian Imaginations

Highways and roads cut across the Cascade Corridor as seen in Map 3. Moreover, the US-Canadian international border in the Pacific Northwest divides not only nations and wildlife habitat, but also political identities among Washington and British Columbia residents. However, this boundary is permeable to ideas, values and beliefs, and the environment because the borderland region frequently shares social, cultural, and economic ties on a daily basis. In addition to the various forms of interaction between the US and Canada across this borderland, another commonality that transcends the border are natural resources. Natural resources are often managed as common resources constrained by political boundaries that are not coincident with the domain of the resource (Giordano, 2003). As Ostrom (1999) observed, “Some of the most difficult future problems, however, will involve resources that are difficult to manage at the scale of a village, a large watershed, or even a single country. Some of these resources—for example, fresh water in an international basin or large marine ecosystems—become effectively depletable only in an international context” (p. 278). Extensive literature has been developed that examines the concept of a transborder ecoregion that is sensitive to the natural boundaries of the resources it contains (Alper, 1996; Alper, 2004; Sparke, 2000; VanNijnatten, 2009). A clearly recognized ecological region is the first institutional characteristic from CPR theory we explore. While the transboundary ecoregions are well recognized among wildlife managers and regional conservationists, we expected that other “publics” would be less familiar with a terrestrial wildlife commons. Such perceptual dissonance would present a significant institutional barrier to polycentric wildlife conservation.



The term Cascadia has been embraced by many scholars to describe a region extending anywhere from Oregon up through northern B.C. (Sparke, 2000). In the initial single large park advocacy, environmentalists spoke of “Cascadia Wild” and some variation of the term has been used throughout the literature to describe the ecoregion, an economic region, or some political identity. Sparke (2008) describes Cascadia as “not a state, but a state of mind.” For the purposes of policy, the recognition of a greater transboundary region, be it economic, environmental, or political, may perhaps be the first step in the formation of a re-bordered imagination that could perceive a cross border ecosystem. But recognizing a transnational geographic boundary is only the beginning. Fostering a deeper perception of civic and regional environmentalism will also be critical.

Ecological Citizenship

Recently, environmental ethicists have been discussing how to stretch civic obligations from the social realm to the natural world under the guise of ecological citizenship (Light, 2003) or environmental citizenship (Dobson & Bell, 2006). CPR management faces the challenge of enabling residents in and near a resource to see themselves as members of communities encompassing both humans and nature and hence, to recognize their civic responsibility not just to each other, but to ecosystems. But this kind of citizenship in Cascadia is challenging because it is transboundary and disconnected from any identifiable and legally bounded community.

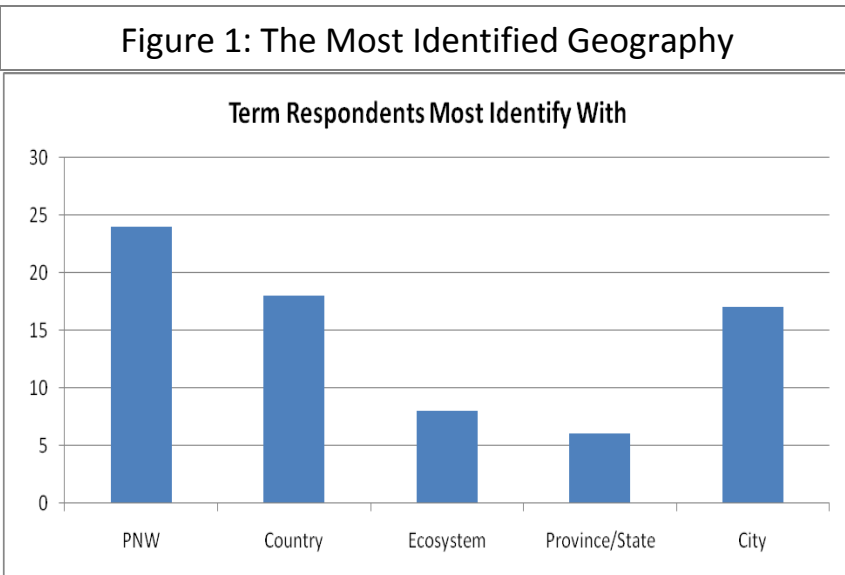
The idea of an emerging transboundary region may seem too good to be true and one of the roots of this imagined space is found in fiction. In 1975, Ernest Callenbach published *Ecotopia*, a story about a new nation forming when parts of northern California, Oregon, and Washington seceded from the United States. This and the other parts of the North America’s temperate rainforest zone would also be imagined as the Cascadia bioregion. Or, as Joel Garreau (1981) would provocatively argue, a geography whose features draw more attachment from its residents than their state or nation. He too would call the Pacific Northwest “ecotopia,” with a geography transcending the Canada-U.S. border. In the same year, Callenbach’s prequel *Ecotopia Emerging* would be published.

Callenbach’s books, according to one journalist (Tinberg, 2008), “. . . speak to our ecological present: in the flush of a financial crisis, the Pacific Northwest secedes from the United States, and its citizens establish a sustainable economy, a cross between Scandinavian socialism and northern Californian back-to-the-landism, with the custom—years before the environmental writer began his campaign—to eat local.” This research is not fiction however. Nor is it utopian because an emerging literature suggests that a Cascadian imagination is increasingly influential.

For instance, Cold-Ravnkilde, Singh and Lee (2004) did observe both economic and environmental interests successfully began to develop the perceptions supporting a Cascadia space. An entire issue of *Canadian Political Science Review* in 2008 was devoted to the rise of Cascadia as a North American border region. The papers grew out of a series of lectures at the University of Victoria from 2006-2007. Dupeyron (2008) found an “ecological positivism” at the center of the Cascadia discourse instead of an economic one at the center of two European borderlands. Moreover, Smith (2008) concluded that an ecological branding will more likely lead to a sustainable regionalism. Earlier, Alper (2004) identified a “normative/constructivist” discourse spurring collective transboundary environmental action around the Salish Sea. This work appeared in a special issue of the *Journal of Borderlands Studies* that contemplated a transparent border. We too wanted to know how transparent the border was to regional residents so we went to our classrooms.

This part of our study examines if college age students on either side of the border identify with this greater region in ecological terms. We administered an eight question survey to 46 environmental

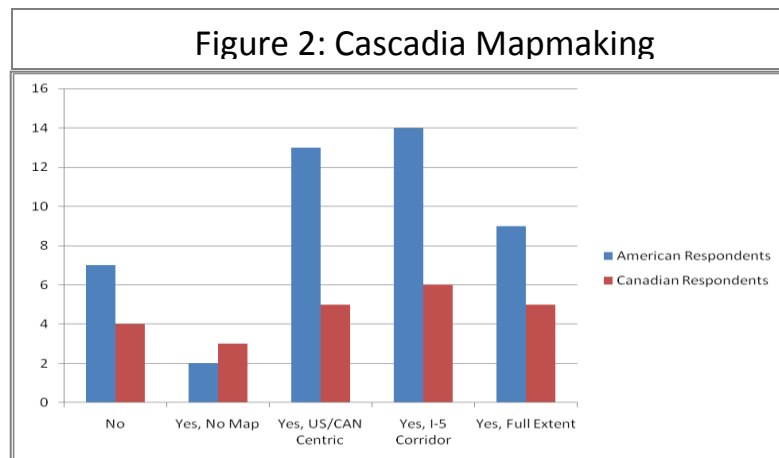
undergraduate students from Western Washington University in Bellingham, Washington and 23 students from the University of Fraser Valley in British Columbia, Canada to compare their identification between traditional political jurisdictions versus an ecosystem. The survey included both open and closed-ended questions and asked students to identify their boundaries of Cascadia on a map. We chose this age group because these students



are the next generation of natural resource managers, economists, and politicians. Successful Cross-Border Regions (CBRs) require cooperation, collaboration, and communication (VanNijnatten, 2009). If this generation of students does not yet identify with a greater transboundary ecological geography, than binational collaborations will be challenging.

We first asked what kind of geography respondents identified with the most between the Pacific Northwest (PNW), country, ecosystem, province or state, and city. Figure 1 displays the response frequencies for geographical identity and the PNW was what most students identified with followed by country and then city. Ecosystem and Province/State were the least identified terms by our respondents. On the one hand, an apolitical term resonated with most of our students while on the other, very few identified with the ecosystem concept. However, 77 percent of our sample did report hearing the term Cascadia. Among Canadians, the term was slightly more recognized compared to Americans (77 percent versus 72 percent). When asked about the relevance of the border to Cascadia, one Canadian connected the term with our shared mountains. “The Cascades span over the border.” An American responded that “Ecosystems cross borders. One country’s management system can affect the ecosystem in another country.”

We then asked if respondents identified with this term geographically, politically, environmentally, or personally. One out every three students (33.3 percent) associated Cascadia with geography while slightly less (31.9 percent) made an environmental association. Americans made more



environmental associations (36 percent versus 22 percent) while Canadians made more geography associations. Very few assigned a political, recreational, or even personal meaning to the term. Eighteen respondents (27.2 percent) didn't assign Cascadia with any meaning. Finally, when asked how strongly they related to Cascadia, the majority was neutral, but nearly one in four (24.2 percent) respondents made a strong association. Four students identified very strongly to Cascadia.

In our final query, we asked our respondents to sketch Cascadia's borders on a regional map. The majority (51 percent) of our mapmakers drew a transboundary region that included portions of U.S. and Canada. More anchored their Cascadia around the transportation corridor between Seattle and Vancouver. But nearly as many drew a U.S. or Canada centric boundary that did not cross the border. While the term Cascadia has been recognized by numerous scholars to describe a region extending from Oregon up through northern British Columbia, this recognition has extended only somewhat into the environmental undergraduate world on either side of the US-Canadian border in the Cascadia region. Cascadia has been used to describe an eco-region, economics, and politics, however this study revealed that among our participants, Cascadia, when recognized, is mostly of environmental and geographic importance by both Canadian and American participants. As demonstrated through the sketches of Cascadia, the boundaries vary greatly and support Sparke's (2008) conclusion that they are fluid. A Cascadian imagination did exist in some form among many of our student respondents. These perceptions could be enhanced with the right kind of institutional arrangements and we now turn to the civic nature of wildlife program in BC and WA government agencies.

Civic Environmentalism

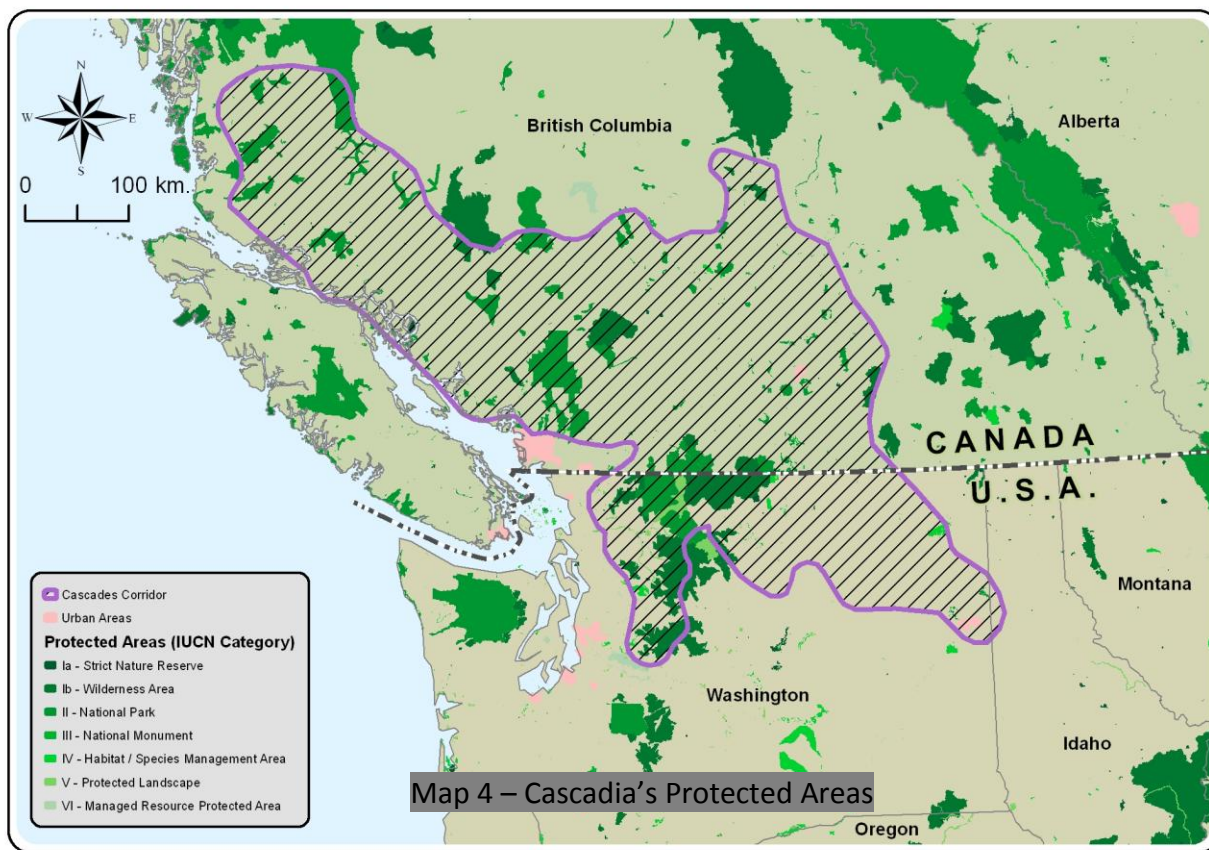
In a quick review of the most used environmental policy texts, they tend to focus on the laws and institutions at the national level (Kraft, 2010; Rosenbaum, 2010). Chapters in such books will be populated with background on the monumental legislative achievements of the seventies and eighties, contrasting treatments of environmental enforcement among different presidential administrations, overviews of the U.S. Environmental Protection Agency (EPA), and the interpretive role of federal courts. Yet, environmental policy unfolds within America's federalist system where authority rests both at the national level and in the states. Moreover, localities are increasingly important actors in environmental decisions (Knopman, Susman, and Landy, 1999; Shutkin, 2000; Sirianni and Friedland, 2001; Weber, 2003).

DeWitt John (1994, 2004) offers a more realistic environment policy geography than most texts by recognizing that governance is either universal (national) and situational (subnational), with a contrast in policy designs that are broad or narrow. These combinations provide four useful categories of environmental governance including plural, rational, protest, or the lower right quadrant, forms of civic environmentalism. These four quadrants provide a nice summary of the layers of U.S. environmental regulation. It is an important and pervasive force affecting nearly every aspect of modern society from the quality of the water we drink, the products we consume, and the habitats supporting wildlife. We are more aware of the several environmental layers around us like soil, atmosphere and here in the Northwest, it often seems like some kind of moisture layer. We also are, metaphorically of course, surrounded by many invisible layers of regulation and our objective in this section is to survey, peel apart, and provide a critical narration of those that are most relevant to the terrestrial wildlife that rely on the transboundary Cascadia ecosystem.

	<i>Policy Substance</i>	
	Narrow	Broad
<i>Policy Geography</i>		
Universal	Plural Governance Clean Air Act (CAA) Advocacy Coalitions	Rational Governance Endangered Species Act (ESA) Expert Coalitions
Situational	Populist Governance Environmental Injustice Protest Coalitions	Civic Environmentalism Ecosystem Management Participatory Coalitions

Table 2. Environmental Governance Geography adapted from DeWitt John (2004).

In Map 4, the conservation areas represent a direct manifestation of the contrasting regulatory layers between the U.S. and Canada. The Cascadia Corridor in particular is a contrast of protection. More contiguous acreage is formally protected south of the border. In the next sections, we turn to the public agencies carrying out these regulations and their programs attempting to influence the direction of transboundary wildlife policy. Combined, these institutional features allow us to characterize the regulatory flavors spanning the border and the extent it is beginning to shift towards a new and civic approach to managing and conserving wildlife resources.



U.S. Environmental Exceptionalism

U.S. environmental regulations were built in response to the very visible pollution problems of the late sixties and seventies. There were, according to Fiorino (2006), three reasons for the centralization of federal control in environmental governance: (1) pollution control advocates in the 1970's argued that pollution does not respect political boundaries and that national policies were necessary, (2) there was a fear that the states would lack the political will to regulate pollution if there was an economic tradeoff, and (3) without minimum national standards, there would be a 'race to the bottom' where states would compete for economic interests by implementing tax pollution control laws. The resulting laws and the institutions implementing them have been described as a policy style that is fragmented, legalistic, and hierarchical with an emphasis on deterrence and compliance. The landmark laws of this character include the Clean Air Act (CAA) and the Clean Water Act (CWA) falling into John's universal and narrow policy category.

The governance through the plural contest among advocacy coalitions was simplified by one author into "adversarial legalism" (Kagan, 1991), others called it a "public lobby regime (Harris and Milkis, 1989), and some attributed the institutional design to a pluralist impulse (Hoberg 1992). Melnick (1991) described the major paradox of environmental policy politics where the process became more centralized and more fragmented. He observed that the "growth of federal responsibilities has gone hand in hand with the dispersal of political power rather than the concentration of power in parties or the presidency" (1991, p. 365). In wildlife management, the dominant and historical style of in the United States could be described as "preserve-and-protect" or "fence-and-fine", the natural resource management equivalent of "command-and-control" described above. The U.S. regulation influencing the conservation of wildlife the most has been the Endangered Species Act (ESA).

Endangered Species Act

The first form of the ESA was passed by Congress in 1966, providing a means for listing native animal species as endangered and giving them limited protection. The Departments of Interior, Agriculture, and Defense were to seek to protect listed species, and, insofar as consistent with their primary purposes, preserve the habitats of such species. The Act also authorized the U. S. Fish and Wildlife Service to acquire land as habitat for endangered species. In 1969, Congress amended the Act to provide additional protection to species in danger of "worldwide extinction" by prohibiting their importation and subsequent sale in the United States. This act called for an international meeting to adopt a convention to conserve endangered species. One amendment to the Act adapted the title to the Endangered Species Conservation Act.

In 1973, eighty nations signed the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which monitors, and in some cases, restricts international commerce in plant and animal species believed to be harmed by trade. Later that year, Congress passed and Nixon signed the Endangered Species Act of 1973 which defined 'endangered' and 'threatened' and provided more intricate guidelines for managing and protecting threatened and endangered wildlife (www.fws.gov/endangered/esasum.html). As Thomas noted: "The ESA is sometimes called the pit bull of environmental laws because it has extraordinary teeth, particularly in federal courts" (2001, p. 106). Czech and Krausman (2001) would also observe that ". . . many people are troubled by the technocratic power that the Fish and Wildlife Service has over species listing. . . These controversies have more to do with the democracy-serving functions of ESA than with the technical aspects of conservation biology" (p. 5). Thus, the ESA could be characterized as rational governance in the

upper-right of John's framework in Table 2 above.

Section 9 of the act epitomized a command-and-control environmental regulation by prohibiting the "taking" of any endangered species by all persons and organizations in United States (U.S.) jurisdictions. Section 3 of the ESA defined a take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Moreover, additional regulatory rules through the U.S. Fish and Wildlife Services (FWS) would construe harm as any habitat modification that significantly impairs a species' behavioral patterns. The ESA created serious political tensions.

"This near-absolute ban on take posed economic, political, and ecological problems. Economically, if one knew about the presence of an endangered animal species on private property, the ESA essentially implied an order to cease activities that might cause take. Although the FWS lacked staff to monitor such activities, environmentalists stood in the wings waiting to sue landowners and developers for such infringements, and to sue local and state agencies for permitting them to occur" (Thomas, 2001, p. 107). Expert coalitions were the most influential actors in the political arena framed by the ESA.

This political setting became ripe for reform and in 1982, Congress laid the foundation for the antithesis of "America's Best Idea" (Burns, 2010) to protect critical habitats with federal control. The FWS was now authorized to issue an "incidental take permit" to nonfederal actors if they developed a satisfactory Habitat Conservation Plan (HCP). This effectively devolved policy control from the federal government to states and localities as well as increasing the opportunity for citizen participation, the two components of civic environmentalism according to Abel and Stephan (2000).

This experiment in devolved and participatory environmental planning initially moved at a snail's pace. Only fourteen plans occurred between 1982 and 1992. During the Clinton administration, you might say HCPs began proliferating at the speed of a snail-darter, the small fish infamous in the Tennessee Valley for stopping a nearly completed dam after an ESA listing. In Clinton's first term, 179 HCP permits were issued and by the twilight of his presidency, 313 approved HCPs were in place. While describing HCPs as empowering and deliberative for nonfederal stakeholders, Thomas (2001) did question their democratic character. The *Seattle P-I* was even more skeptical and reported that a large HCP approved in Washington was a "License to Kill" (McClure and Stiffler, 2005). Nonetheless, HCPs resemble the policy geography of civic environmentalism. In the second phase of our research, we looked for evidence of civic environmentalism in the wildlife programs of British Columbia and Washington.

Building Participatory Coalitions?

In 2007, the Washington Biodiversity Initiative (WBI) was launched and included a principle to "foster local decision making." The strategy even proclaimed that ". . . all biodiversity is local. While the benefits of biodiversity resources may be regional and even international in scope. . . this strategy seeks to give local decision makers, both public and private, the capacity, tools, and understanding to make sound decisions about their biodiversity resources and best to conserve them" (p. 11). The initiative committed to promoting meaningful public involvement and effective participatory techniques in wildlife conservation. Washington's Department of Fish and Wildlife (WDFW) director further stated that ". . . lasting solutions to complicated natural resource issues require collaborative processes with our many conservation partners."

The WBI also proclaimed that “Effective and efficient natural resource policies and programs must necessarily be based on sound science” (p. 11). Thus, it appeared that WA wildlife policy would continue to simultaneously emphasize more accessible decision making and scientific analysis. But many suggest that these concurrent means—participation of citizens and use of technical expertise—amount to an irreconcilable tradeoff. Several researchers call this the “technical information quandary” (Cline and Lamb, 2005; Pierce and Lovrich, 1986) that has increased in the “age of ecology” (Press, 1994). For instance, in a study of the implementation of California’s Marine Life Protection Act, Weible et al. (2004) compared the preferences of scientists, environmentalists, and state agency officials for the technocratic, and top down approach versus a deliberative, and bottom up process. The former was preferred over the latter and we expected to find similar preferences in wildlife programs being implemented in BC and WA.

Conservation Frames and Discourses

Wildlife and habitat conservation in the northwest remains as contentious as it was in the early nineties. According to environmental discourse theory, conflict arises from the communicative dissonance among stakeholders’ assumptions, judgments, and contentions over the causes and remedies for wildlife and habitat degradation. An environmental discourse is a group’s “shared way of looking at the world,” according to Dryzek (1997, p. 8), and the differences across discourses have political consequences. Different groups hold divergent assumptions that frame their perceptions about environmental problems and their policy preferences. Others also use “framing theory” to explain that environmental conflict comes from perceptual differences towards the dispute, the possible solutions, and the identification of those responsible (Lewicki, Gray, and Elliot 2003). Moreover, conflicting frames are a main cause of the perpetuation of environmental disputes according to one group of scholars (Environmental Framing Consortium 2008).

Yanow explains:

Frame conflicts occur not only because different interpretive communities focus cognitively and rationally on different elements of a policy issue, but because they value different elements differently (Yanow 2000, p. 11).

These different environmental frames result from distinctive political, social, and economic contexts and experiences of stakeholders. Because discourses and frames are very similar concepts, this study treats them as synonymous.

In recent years, policy analysis has developed an increasingly influential body of work from an “interpretative” perspective (Dryzek 1990; Fischer and Forester 1993; Stone 2002; White 1994; Yanow 2000). One kind of interpretative methodology, discourse analysis (Hajer and Verseeg 2005; Lofland and Lofland 1995; Wood and Kroger 2000), has recently been employed in studies of American environmental values (Kempton, Boster, and Hartley 1995), climate change (Backstrand and Lovbrand 2006), federal environmental justice policy implementation (Abel and Stephan, 2008), and the environmental justice social movement (Taylor 2000). In turn, we apply discourse analysis to state and provincial wildlife conservation policy programs described on agency websites.

Talking Environmental Politics

Two influential studies applying discourse analysis to environmental politics appeared in the mid-nineties. First, Williams and Matheny (1995) tested the postulate that hazardous waste policy is prone to gridlock because government officials, business interests, and grassroots activists all speak from discourses incomprehensible to the other. In particular, the authors identified three kinds of

languages swirling underneath the politics of risk: (1) a managerial discourse that privileges questions and answers advanced by experts and scientists; (2) a pluralist discourse that favors a presumably open and fair competition among stakeholders as the preferred route to policy adoption; and (3) a communitarian discourse that emphasizes the knowledge of community experience to drive policy decisions.

In a parallel fashion, Dryzek paints nine distinctive environmental discourses that lead to miscommunication during environmental problem solving. Three of these mirror Williams and Matheny. First, “administrative rationalism” emphasizes the role of experts for social problem solving rather than the citizens or producers and consumers. “Democratic pragmatism,” a second discourse, focuses on the public interest served by competitive group representation. Dryzek describes a third and emergent discourse linked to the environmental justice movement, “green rationalism.” This discourse emphasizes decentralized organization and cooperative networks to respond to environmental problems; the preferred location of policy processes are communities instead of bureaus or markets. This is where discourse theory converges with the CPR perspective.

Table 3: Environmental Discourse Perspectives

(Williams and Matheny)	<i>Agents and Structures</i>	<i>Rules & Tools</i>	(Dryzek)
Managerial	Experts Hierarchy Vertical	Scientific Technical Information	Administrative Rationalism
Pluralist	Representatives Competitive Vertical	Democratic Organizational Legal	Democratic Pragmatism
Communitarian	Residents Networks Horizontal	Community Civic	Green Rationalism

The managerial or administrative rationalism discourse stems from the progressive movement’s search for order at the end of the nineteenth century (Fischer 1990; Hays 1959; Wiebe 1967). A host of new scientific bureaus gained the institutional power to inventory and oversee America’s natural resource endowments. Administrative and rational values dominated these conservation agencies as a national “conservation” movement began. Moreover, specialization transcended representation in these new institutions. According to Dryzek (1997, p. 63), “administrative rationalism may be defined as the problem-solving discourse which emphasizes the role of the expert rather than the citizen..., and which stresses social relationships of hierarchy rather than equality or competition.” Schneider and Ingram describe the rationality frame as a prism through which reality must pass. They add: “Scientific and professionalized designs also reduce participation because they structure the rules of discourse about policy in such a way that citizens’ points of view do not matter” (Schneider and Ingram 1997, p. 201).

Technical specialists dominate in the creation of rational information. In the parlance of Hugh Hecló’s (1978) notable contribution to social science, “issue networks” evolved into a powerful feature of the new American political system that emerged in the seventies. These groupings of technical experts and issue specialists greatly influence policy discourses. His groundbreaking article

also confronts the political implications of the evolution of issue network power. “There is a deeper problem of connecting what politicians, officials, and their fellow travelers are doing with what the public at large can understand and accept” (Hecl 1978, p. 88). Moreover, he forcefully critiques the issue network effect on political efficacy as increasing the distance between policy specialists and ordinary people. The influence and technocratic nature of issue networks, according to Abel (2008) is evident in much of the published research on environmental injustice.

A variety of voices have emerged in the last fifteen years in a critical response to administrative rationalism and the concentration of environmental policy power at the national level or in subnational government agencies. The resisting discourse has a communitarian tone and emanates from the local level. “Communitarian thought suggests that ... a common public interest can be discovered if an enlightened citizenry governs directly in its own behalf. The delegation of authority to experts or the reliance on competing pressure groups distances government from the people.” (Williams and Matheny 1995, p. 27). Dissatisfaction with the centralization of power led to the emergence of hundreds of locally led environmental initiatives. Several researchers have called this approach civic environmentalism (John 1993; John 2004; Knopman, Susman, and Landy 1999; Shutkin 2000; Sirianni and Friedland 2001).

Such community-based environmental initiatives have been growing in the last two decades. “Beginning in the 1980s, more participatory alternatives to top-down environmental regulation and the public lobby model of formal citizen participation, which often enhanced the rigidity of regulation, started to emerge in the United States” (Sirianni and Friedland 1995, p. 5). Civic environmentalism requires the increase of local citizen participation and authority in environmental decisions (Abel and Stephan 2000), offering not just pluralistic participation, but more influence. For instance, Laird (1993) advocate for a “participatory policy analysis” with the full and independent participation of individuals in setting policy.

The central question for this phase of our research was: How do various wildlife conservation parties frame their issues through the distinctive discourses? This study has investigated the presentation and construction of the different discourses about wildlife conservation through an analysis of agency and environmental group websites. First, we hypothesized that both state and provincial programs and the groups seeking their support are most accustomed to the administrative rationalism discourse. They would, therefore, favor the achievement of wildlife and habitat conservation through technocratic efforts. Thus, more funded programs would exhibit rationalistic tools such as scientific analysis. This study also considered a second postulate. Because Washington wildlife strategy documents used participatory language, some programs would also include efforts to foster pluralistic community participation. We content analyzed the websites of the Washington Department of Fish and Wildlife (WDFW), the British Columbia Ministry of the Environment Fish and Wildlife Branch (BCFW), Pacific Wild in British Columbia, and Conservation Northwest in Washington. We also focused on programs involving two transboundary species: grizzly bears and grey wolves. Each website was evaluated following Abel and Stephan’s (2008) four categories of capacity-building that agencies or organizations foster regarding transboundary wildlife: technical, informational, organizational, and civic.

WDFW displayed no formal grizzly bear conservation program information on their website (Table 4). In contrast, the BSWF provided both technical and informational programs through their website. Both non-governmental organization (NGO) websites provided information on technical, informational, and organizational grizzly bear conservation efforts (Table 5).

Table 4: Government Agency Grizzly Bear Programs		
Criteria	Washington Department of Fish and Wildlife	British Columbia Ministry of the Environment Fish and Wildlife Branch
Technical	X	Regulate hunting quotas, compile population reports
Informational	X	Fact sheets, Bear Smart Campaign, hunting guides, information regarding hunting regulations
Organizational	X	X
Civic	X	X

Table 5: Non-governmental Grizzly Bear Programs		
Criteria	Conservation Northwest (Washington)	Pacific Wild (British Columbia)
Technical	Conducts field work in the North Cascades	Conducts field work
Informational	Fact page, videos, contact information and encouragement to contact legislators, discusses the transboundary civic responsibility to grizzly recovery and stressed citizen support for the ESA	Stop the Trophy Hunt Campaign: published ads, provided legislator contacts, posted videos and photos of grizzly hunting
Organizational	Works with the Grizzly Bear Outreach Project for education	Rallied numerous NGOs to join the campaign
Civic	X	X

BCFW provided no information on grey wolf conservation programs while two types appeared on WDFW’s website. In particular, a civic form was featured for Washington’s grey wolf conservation approach (Table 6). In October of 2006, WDFW requested applications and nominees for a Citizen Working Group (CWG) to inform the agency on the development of a wolf conservation and management plan. A separate technical group was also formed to provide the CWG with information and expertise. WDFW director Jeff Koenings announced that: “We want to make sure this new working group reflects those various viewpoints. My goal is to involve those potentially affected by a resident wolf population in the department’s decision-making process. We want to listen and learn.” Eighteen citizens were selected three months later and included ten members from eastern Washington and eight from the west side who represented a broad range of interests from ranchers and timber companies to environmentalists and local governments.

Table 6: Government Agency Grey Wolf Programs

Criteria	Washington Department of Fish and Wildlife	British Columbia Ministry of the Environment Fish and Wildlife Branch
Technical	X	X
Informational	Wolf FAQ, facts page, links to news about gray wolves in WA, photo gallery, public meeting audio, links to other regional state’s wolf management websites	X
Organizational	X	X
Civic	Wolf Working Group of 17 citizens from different perspectives that contributed to creating a Wolf Management Plan	X

Table 7: Non-governmental Grey Wolf Programs

Criteria	Conservation Northwest (Washington)	Pacific Wild (British Columbia)
Technical	Part of the conservation planning involved in creating a WA wolf management plan	X
Informational	Animated map of historical/current distributions, fact page, contact information and encouragement to contact legislators	Published a book, <u>The Last Wild Wolves</u> , with photography of and information about BC wolves
Organizational	Provides links to westernwolves.org for more information, works with the WDFW	X
Civic	X	X

Between the two NGOs, Washington’s Conservation Northwest had three wolf programs of a technical, informational, and organizational character (Table 7). Only an informational effort was evident on the Pacific Wild website. Federal efforts to recover the wolf began in the nineties and their success has led to a reappearance of the species in Eastern Washington. Moreover, grey wolves have been identified as an endangered species in Washington which requires WDFW to develop a plan that identifies objectives for the targeted population and design appropriate conservation and management strategies. This plan is also important if the federal government pursues a de-listing of grey wolves from the endangered species list.

These conditions probably explain why U.S. conservationists are giving more attention to wolves than their Canadian counterparts. Table 13

displays the combined programs and their content. Informational programs were slightly more popular than technical and organizational. The civic wolf program was an exceptional effort among the 14 wildlife conservation programs we reviewed.

These findings have provided tentative support to the thesis that most programs supported by wildlife management agencies and NGOs reflect the tenets of the administrative rationalism discourse. The evidence did not support the expectations that wildlife conservation in Cascadia was making a transition to participatory policy. While civically-minded management appeared in WDFW's wolf program, truly participatory efforts have yet to significantly materialize. We conclude that a significant *civic* challenge remains for wildlife conservation practitioners both in and out of government. The dominant wildlife management programs to date presume that information dissemination will stimulate community action. But knowledge of local environmental conditions, such as habitat conditions, is only one variable potentially influencing community actions. Some localities have more capacity to act on environmental information than others, and future wildlife conservation efforts could, like Washington's grey wolf management program, address these deficiencies by supporting capacity building beyond just informational programs.

The civic environmentalism of CPR management builds on the assumption that the most effective way to define community problems and develop solutions may be to enhance local decision

Table 8: Wildlife Conservation Discourses

Criteria	WA	BC	Total
Technical	2	2	4
Informational	3	3	6
Organizational	2	1	3
Civic	1	0	1

making capacity. Information is but one kind of resource that will improve community-based, environmental problem solving. Several programs reviewed here illustrate additional capacity building tools such as technical, organizational, or civic program designs. Information may be a necessary resource for empowering communities to take the lead on environmental decisions, but knowledge alone may not be sufficient to bring citizens to the table in any meaningful way. *We recommend conservation policies that both produce better information and more*

participatory opportunities. Cascadia's wildlife conservation programs examined here illustrate a significant "implementation deficit" (Fiorino, 2006).

Another policy challenge will involve navigating the policies and governance forums north and south of the border that are diverging instead of converging.

Polycentric Convergence?

In his *Continental Divide* book, Lipset (1990) compared the values and institutions of Canada and the United States. He also used the two nations as a prism to explore a popular social science perspective called convergence theory. Proponents of this approach see national differences diminishing because of the convergence of economic systems. But Lipset would observe that Canada and the U.S.: "... are like trains that have moved thousands of miles along parallel railway

tracks. They are far away from where they started, but they are still separated” (p. 212). Yet the “convergence” thesis is a prominent feature of scholars comparing North American environmental policy. For instance, one year after Lipset’s influential publication, Hoberg (1991) concluded that “American influence over Canadian environmental regulation is pervasive” (p. 107). He would specifically note that after a decade, Canada was embarrassed into emulating U.S. automobile emission standards.

However, this old and very centralized style of regulation is rigid, prescriptive, adversarial, and emphasizes compliance. Many new voices instead suggest reforms that “inform and encourage”; a kind of governance where government and other organizations manage environmental resources more effectively (Durant, Fiorino, and O’Leary 2004; Fiorino 2006; John 2004). Or, in the vernacular of CPR theory, polycentric governance instead of centralized regulation. Polycentric governance is:

“ . . . many centers of decision making that are formally independent of one another. To the extent that they take each other into account in competitive relationships, enter into various contractual and cooperative undertakings or have recourse to central mechanisms to resolve conflicts, the various political jurisdictions in a metropolitan area may function in a coherent manner with consistent and predictable patterns of interacting behavior. To the extent that this is so, they may be said to function as a ‘system’” (V. Ostrom, Tiebout, and Warren, 1961).

Instead of centralized regulation, CPR governance involves collaboration among many organizations, government and non-government, and has been described by others as adaptable, reflexive, collaborative, and emphasizing performance instead of compliance (Fiorino, 2006). And several comparative environmental policy studies have explored how much the U.S. and Canada may be converging towards this new environmental governance.

For instance, Rabe (1996) examined how alternatives to the fragmented and medium-based environmental regulation characteristic of the Clean Water Act developed subnationally in the Great Lakes basin. Traditionally, different laws addressed pollution from point sources for different media like the Clean Air Act or the Clean Water Act. Likewise, the U.S. Environmental Protection Agency (EPA) is organized with an office for water and one for air. Ironically, one program’s regulations sometimes created pollution for the other. But during the eighties and nineties, several states bordering the Great Lakes (MI, WI, OH, NY) began supporting a variety of cross-media policy initiatives like pollution prevention, integrated permitting, and agency reorganization to deal with the basins nonpoint sources. These were not your traditional “end-of-the-pipe” programs found in the EPA. However, Rabe did note that “Ontario. . . has made only halting steps toward integration of any sort, in many respects maintaining the medium-based regulatory approach dominant in most Basin states a decade or more ago” (1996, p. 380). The Great Lakes states were supporting integrated environmental management sooner than their Canadian counterpart.

Decentralized, less Democratic, and Trailing in Canada

Environmental governance, particularly natural resource management, north and south of the U.S.-Canadian border is markedly different and is a direct reflection of the respective political systems. In the Canadian Parliamentary System, the Legislative and Executive branches are fused. This is true at both the national and provincial level. Conversely, the U.S. system institutionally separates the legislative and executive branches. Moreover, regulation and natural resource management in Canada rests largely in the hands of the provinces (Alper 2004; Bernstein 2002). But

there is insufficient legislation to support that regulatory power. For instance, environmental governance in Canada is comparatively young. The majority of the legislation surrounding wildlife conservation and habitat management did not emerge until the late 1990's and early 21st century. In the U.S., the environmental governance framework emerged in the 1960's and 1970's (Fiorino, 2006). In short, many more layers of governance have developed over several decades south of the border. U.S. Wildlife conservation might be described as a collection of middle-aged institutions and experience, but Canada's just reaching its teens. *This lack of institutional history north of the border is a major barrier to polycentric wildlife management in Cascadia.*

Multiple studies have found Canada trailing its southern neighbor in the development, implementation, and enforcement of environmental policy. Harrison (1995) found pulp and paper compliance in Canadian mills to be well below similar facilities in the U.S. She blamed Canada's cooperative enforcement approach that diverged from the more adversarial American form. A year later, she would describe environmental inaction at the national level in Canada caused in part by little political backing, restricted administrative resources, and an absence of cabinet support (Harrison, 1996). But there are constitutional sources of resistance as well. The provinces, according to Harrison (1996), gained power to resist national environmentalism from the "resources clause" of the 1982 Constitution Act which assigns them the exclusive but not unlimited jurisdiction over resource production and conservation. This pattern was broken only in the early seventies and again in the late eighties. But as public concern waned, so too did national environmental efforts.

In 1999, a symposium in the *Policy Studies Journal* gave a fuller treatment of US and Canadian environmental policy convergence and divergence. As Rabe and Lowry summarized, "The environmental policy process in Canada and the United States may be quite similar at the beginning and even comparable at the end in terms of limited success. What happens in between often is quite different in the two nations, shaped by the important institutions of federalism, legislative-executive relations, and regulatory style" (p. 265).

For instance, in a comparison of forest policy between the Northwestern U.S. and B.C., Bryner (1999) found failures on both sides but for different reasons. South of the border, forest policy and agencies were caught between the legislative and executive politics between a Democratic president and Republican control of Congress. Bryner would simply describe U.S. forest management on public lands a policy trainwreck (p. 312). Likewise, he would conclude that BC's forest policies also were unsuccessful but because provincial institutions were more influenced by economically powerful interests. "The Canadian policy of liquidating its forests continues, despite new laws and programs. . . This is particularly true in B.C., where two-thirds of its coastal rainforest has been logged and developed" (p. 319). He did find one important convergence however. Both forest policy systems have become more susceptible to influence from environmentalists and policymaking became more difficult and more contentious.

In a contrast of participatory environmental policy opportunities, VanNijnatten (1999) found more divergence than convergence during the nineties. While civic environmentalism was stable in the U.S., she found that not only were participatory opportunities declining in Canada, environmental regulation was being scaled back. This trend was facilitated by Canada's institutional structure that provides more centralized power to executives at both the national and provincial levels. "Policy has tended to emerge from a relatively closed network of relations between higher-level departmental officials, Cabinet ministers, and particular societal interests. Informal, cooperative, and exclusive patterns of bargaining among government executives and economic elites traditionally have been the norm" (VanNijnatten, 1999, p. 270). Similarly, Rabe (1999) found little

emulation of American state environmental innovations in Canadian Provinces. While pollution prevention, regulatory integration, and information disclosure initiatives grew in Arizona, Minnesota, Oklahoma, and New Jersey, few, if any, similar policy innovations were occurring in Alberta, Manitoba, Newfoundland, or Ontario. In particular, “. . . policy entrepreneurship appears far more likely to flourish in the American state setting than the Canadian provincial one” according to Rabe (1999, p. 304). In a 2001 review, Michael Howlett described Canada’s natural resource and environmental policy “implementation gap” where the government’s rhetoric far exceeded the reality (Howlett, 2005). Throughout the eighties and nineties, Canadian environmental policy trailed its southern neighbor.

In more recent research, scholars again found Canada’s environmental efforts remain well behind the U.S. system. Olewiler (2006) concluded that while provincial governments were not racing to attract investors with lower pollution standards, they also weren’t racing to be leaders in environmental protection. They had become “stuck at the status quo” (p. 142) or even worse, “stuck at the bottom” (p. 137) as the provinces have converged or harmonized their environmental policies to a lower common denominator than the U.S. states. In a comparison of rainforest protection between Alaska and British Columbia, Brooks and Hoberg (2007) found a significant disparity across the border. U.S. policies led to protection of eighty percent of the Tongass rainforest while only thirty-three percent of the Great Bear Rainforest in B.C. was protected. Finally, Illical and Harrison (2006) described how Canadian businesses successfully lobbied for not emulating the American Endangered Species Act in the 2002 Species at Risk Act (SARA). It is the antithesis of ESA’s command-and-control style because of its reliance not on regulation, but on public expenditures to support stewardship programs.

In sum, the comparative environmental policy literature reviewed above leads one to conclude that while Canada’s version of federalism may be more decentralized, the policymaking is less accessible to external groups and particularly citizens than the centralized U.S. version. Moreover, American state government structures follow the national model of dividing political power among many branches. Thus, the U.S. system, and the states in particular, have been a more fertile institutional system for environmental policy innovation than Canada’s provinces. Not surprisingly then, the states have become the home to several promising examples of polycentric wildlife conservation initiatives.

Polycentrism below the 49th

Some seeds of polycentric and transboundary governance in Cascadia can be traced to meetings in 1994. One was called the *BC/WA Symposium on the Marine Environment* and the other *Nature Has No Borders*. The latter focused on the terrestrial ecosystems of the North Cascades and Okanogan and did not lead to the institutional development seen in the former; or what we now call the Salish Sea. Two years later, a Washington meeting convened U.S. and Canadian scientists and activists to exchange research in *Our Living Estuary Conference*. In Canada, the Fraser River and its basin became the focus of a series of *State of the Basin Conferences* in 2000 and 2003. These set the stage for the first ever Georgia Basin and Puget Sound Research Conference in 2003. This meeting gathered federal, state, and provincial authorities, environmental groups, indigenous leaders, and scientists from both sides of the border that laid the foundation for transboundary environmental cooperation.

However, no binational conferences on wildlife followed in the wake of the terrestrial conservation initiative. But attention on the marine side grew and transboundary marine ecosystem issues found an institutional and subnational home in the BC/WA Environmental Cooperation

Council (ECC). Established in 1992, the ECC's "purpose is to ensure coordinated action and information sharing on environmental matters of mutual concern" (<http://www.env.gov.bc.ca/spd/ecc/>). Five task forces have been formed to address mutual issues like the Abbotsford – Sumas Aquifer, flooding along the Nooksack River, air quality in the Fraser Valley/Pacific Northwest airshed, Columbia River Basin air and water quality issues, and coastal and ocean issues in the shared waters of the Georgia Basin and Puget Sound. No task force yet exists for terrestrial wildlife in the ECC, but other institutional venues for transboundary wildlife governance are emerging.

South of the border, The Western Governor's Association (WGA) offers an institutional venue for polycentric wildlife management. It is an organization of 22 state governors from the Western region of the United States and a non-partisan forum to address regional policy and governance issues on natural resources, economic development, and international relations. On the latter, the WGA may be most recognized for their support of the Western Climate Initiative (WCI); a Greenhouse Gas (GHG) reduction effort that includes several Canadian Provinces. And in 2008, the WGA established the Western Wildlife Habitat Council (WWHC) to coordinate and manage implementation of the recommendations from the WGA Wildlife Corridors Initiative Report.

In the next two years, this council has coordinated the development of a habitat database and wildlife assessment for Alberta and British Columbia Canada, and Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. Habitat maps for each state include the categories of highly sensitive areas, sensitive, and insufficient data. However, the initial maps were created to support decisions about the development of renewable energy infrastructure in the western region. Consequently, the Washington data includes no assessment of wildlife habitat in the North Cascades. But the initial strategy does recognize the importance of the border and transboundary wildlife corridors.

According to the 2008 strategy, "Continued development near the border further frustrates border security efforts—and also compromises important habitats and corridors. Prevention of development and protection of open space near the border can help protect important wildlife habitat and help ensure that our border agents have the response space and time needed to intercept illegal immigrants" (WGA 2008, p. 82). This convergence of policy objectives for border and wildlife habitat protection provides an important opportunity for the further development of transboundary wildlife governance. The WGA further recommended that "Governors should support open space protection near the international borders. . . [and] partner with the border enforcement authorities to seek and support strategies for achieving secure borders while maintaining, to the extent possible, permeability for vital ecological functions and wildlife, and protecting sensitive habitats" (p. 83).

The sage grouse effort is touted as one of the successful efforts by the WGA. Multiple state fish and wildlife agencies have crafted an outreach program for private landowners. Moreover, the WGA's continue to promote reforms to the Endangered Species Act including an increased role for states, more technical assistance, and more funding for incentives to encourage landowners to conserve habitat (Cooper, 2005). While promising, these initiatives do not yet include formal governance participation from British Columbia and Alberta, only data sharing. At two years old, the WGA's wildlife corridor is a relatively new addition to the family of wildlife conservation institutions. This WGA Corridor initiative will be an important polycentric venue for Cascadian wildlife managers and activists. As Ostrom and others would observe, "Some of the most difficult future problems . . . will involve resources that are difficult to manage at the scale of a village, a large

watershed, or even a single country” (Ostrom et al., 1999, p. 278). The lack of polycentric venues north of the border exemplifies this challenge.

Conservation Views Above and Below the 49th

To complement our secondary research described above, we completed interviews and surveys of wildlife conservation stakeholders in the U.S. and Canada. Respondents were identified in two stages beginning with eight prominent stakeholders from the Cascadia region. We identified and asked them to participate in voluntary, confidential open-ended interviews about their views of the international opportunities and barriers to transboundary wildlife conservation. Second, we compiled our sampling frame from participants in a September 2009 international meeting of wildlife managers in Osoyoos, British Columbia. A total of 65 individuals were contacted to participate in an internet survey administered with the website Survey Monkey (www.surveymonkey.com). Twenty-seven participated for a response rate of forty-one percent.

For the interviews, we presented five main questions followed by a number of prompts to more fully capture the respondent’s perceptions. The questions and their prompts are provided in Appendix A. Five interviewees identified habitat connectivity as one of the key issues facing regional wildlife conservation. But connectivity, as one U.S. respondent described, also involves policy and management on both sides of the border.

I definitely think some of the levels of protection for various species across the Canada/U.S. border are completely disparate, and finding common ground between the way species are managed here and there is very difficult. For example, parks don’t match up across borders. You have [Canadian] Highway 3 across the border that gets a fair amount of traffic from the Pasaytan Wilderness which is as wild as it gets on this side of the border. What’s wild here versus what’s wild there?

And for one Canadian, the key is “large landscape connectivity, finding the fragmented areas and the ways to link them up.” Moreover, this official described this challenge to conservation.

In Canada and the United States, coexistence with ecosystems is important. Not just making parks but working in the areas between the parks, called the matrix. These are the multiple use lands in U.S. lingo. Protected areas are not enough, we need to manage the whole landscape. Many people think that just because we have created parks the problem is over with.

Canada’s lack of federal endangered species policy was the second most common issue appearing in four of our interviews. Putting it bluntly, one Canadian said “British Columbia has the worst levels of protection for our species compared to our neighbors. We have a federal Species At Risk Act (SARA) but it does not protect most species on public land.” According to a U.S. conservationist, “If Canada had a piece of legislation as powerful as the ESA, it might encourage more collaboration. The pressure is not on Canada to take things as far as it should.” Likewise, another Canadian counterpart discussed a specific ecosystem under threat.

The antelope brush plant community is abundant in the U.S. but very limited in Canada. The Similkameen Valley is a hotspot because they occur nowhere else in Canada but they are not protected. The federal Species at Risk Act protects individual species but not the plants they rely on. Grassland is one percent of the land base but that’s where most of the people go to live making it very threatened in B.C. There is a lack of understanding that these places are special and that 30 percent of the endangered species rely on grasslands for survival. There are so many species you cannot take a species approach, you have to take an ecosystem approach to conservation. The grasslands of B.C. are critical and underrepresented.

A third Canadian even described the lack of a Canadian ESA as a barrier to policy innovation. There is not “a lot of teeth in SARA” and “in the Okagogan there is a lot of concern because all of the species at risk there.

Climate change, interagency coordination, and carnivores all tied for the third most mentioned issue with three respondents devoting a significant share of their interview to the topic. Two Canadians focused on the species impact of climate change. “All of the migratory bird species are going to be important as climate change comes forward.”

I think right now we have to understand the impacts that climate change is having on species in B.C. We should be doing more to protect habitat envelopes of species that we can predict climate change will have the most impact on. I guess that would sound like a fashionable thing to say but I do think it will have a major impact on transboundary issues because of northward migration.

The American counterpart saw this issue as a threat and opportunity. “Climate change is important. “It’s a massive, looming disaster but it is also a tremendous opportunity because people can begin to understand what large landscape planning is and what we can do to get there.”

Table 9: Stakeholder Views		
Major Issues	Canada (5 respondents)	United States (4 respondents)
Connectivity	2	3
Canada’s lack of ESA	3	1
Climate Change	2	1
Interagency Coordination	3	0
Carnivores	2	1
Funding	2	0
Science	1	0
Imagination	0	1
People Management	1	0
Inconsistent Map Layers	0	1
Outreach and Education	0	1

Another issue mentioned only among Canadians was their interagency barriers.

“It was just as much trouble going between provinces and states as country to country. Interjurisdictional differences are a big issue” as one Canadian conservationist put it. Another made these observations

In B.C., we have good legislation in spite of the lack of an Endangered Species Act. There is lots of legislation to protect environmental values but there is not enough staff or resources to enforce it all of the time. We have a lot going in terms of policy and procedure, it is just having the ability to use it. The conservation framework is being established in B.C. too, applicable to all agencies in the province. Some agencies had not even heard about it, so it is not doing so well at being a cross-agency initiative.

Funding was another one-sided issue with two Canadians mentioning it in their interviews. “We go up and down in cycles of funding,” according to one respondent, “and it is very difficult to fund any long term work because of that.” Likewise, another described it as the main barrier.

Science, people management, imagination, inconsistent map layers, and community outreach received one mention each in different interviews. For instance, one U.S. respondent focused mostly on how agencies don’t follow good science.

The major issues are the science, because I’ve been bringing together scientists and conservationists to bridge the gap between science and conservation. I think part of the problem is that a lot of the people who are trying to protect wildlife or connectivity don’t really have a grasp of their goals and objectives and how to get there. They often don’t do problem statements so when they do set goals and objectives it’s based on incomplete data.

However, another respondent held the opposite view.

It’s funny because I think a lot of the information is already out there. A lot of the work has been done. The web of knowledge is complete, the question is not what else we need to know, the question is how do we stop the bad things from happening?

Finally, our collective Cascadia imagination, or the lack thereof, really stood out in one interview.

If there were more highways running north/south—thank goodness there are not—we might seem more connected. Because people don’t cross the border much they do not see each other as neighbors. It is tough to build an emotional connection across two countries. If you can get people from all areas into the same room shaking hands and smiling at each other it builds bridges and common ground. It does not happen enough, we are becoming increasingly more isolated. In the world of social media, the disconnect is only going to get worse.

These disconnections were specifically addressed in the interviews by asking about community involvement.

Community involvement

Only one interview respondent mentioned community involvement as a major issue without a prompt. This U.S. stakeholder reported that: “We do outreach and education into communities so that’s another major issue I am working on, that and then raising awareness of the importance of carnivores and connectivity”. The rest only discussed community involvement when asked if it played a role. While three alluded to influential involvement, six interview respondents described the more traditional avenue of outreach and education. For instance, a second U.S. respondent drew from the traditional pluralistic frame to describe the role of community involvement.

It could be the most important for good or bad. Generally most people want to protect their backyards. When local communities really get upset or excited about something, government responds to that. Communities have tremendous power to change things if they get involved. If they don’t keep pressuring government, the issue goes away. There is nothing more powerful than people speaking out that are not part of an advocacy coalition. Those people have a lot of influence on government because they can

get a lot of good media, generate disproportionate interest to their numbers. Their stories are personal and that is powerful.

In a third interview, getting media attention to generate interest was also mentioned.

[This outreach program] is a good representation of pulling community members into wildlife conservation. If we had more funding it would mean a lot more staff, a lot more representation in rural communities in both the U.S. and Canada, tailor made products for communities and small regions. A lot more media attention.

Likewise, a Canadian described this view a fourth time on how “media and public support really do influence the way things work here. [It’s] a big impact on how government decides to approach issues.” In a fifth interview, one respondent described involvement as a function of knowledge, not participation. “If society doesn’t care then the research is irrelevant. The community leaves it to scientists to tell them the challenges because they cannot see them.” Finally, another Canadian joined in describing the necessity of helping residents learn about the importance of wildlife.

We have found through our work that the places with the highest number of species at risk in BC are the places that have the most people in them. We have a lot to lose when these species disappear in terms of ecosystem services, when they disappear it does a major disservice to the people living in the same place. Community involvement is really important because people have a vested interest in protecting these species.

While these six interviews fell into what was described above as support for more informational programs, three respondents did seem to lean to a somewhat civic view of community involvement. Consider this view from one Canadian wildlife manager.

If climate change has the effect that we have modeled it to have then it only makes sense that we enable north—south linkage to allow for migration north. . . when you get into the agricultural communities if you want n/s linkage you have to involve them. For example, a [sanctuary] along the border puts [wildlife] in the agricultural fields. . . We get after the cooperative initiatives with folks to try to maintain conservation values.

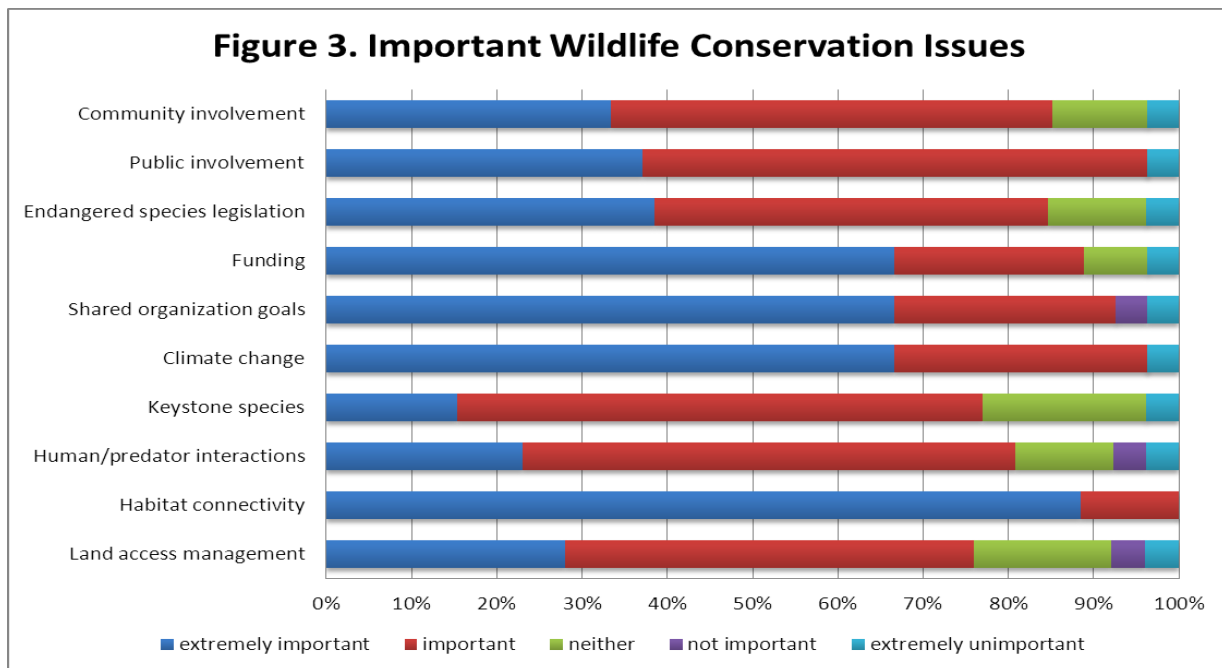
Another Canadian interview respondent described a specific kind of participatory initiative—restoration. They described how they involve the community in land clean ups such as invasive species removal. Finally, a third Canadian discussed the role public forums play as a parallel to government programs.

The time that I spend in the field is important because people come out and watch the research, getting enthused about it. I do a lot of talks and I try to include people in the discussion about bears. If I go to the citizens group and the government is not there, they agree with everything and have the same value but if the government is in the room he gets nothing out of them. It seems that there is a general distrust of the government. In many cases things are happening without the government even at the table. People will say that they care about the wildlife just as much as he does but they do not feel like part of the process if the government is in the room. Keep the government out of the room, call them up later and tell them what happened.

Questionnaire Results

Our surveys (see Appendix B) encompassed nine questions beginning with a prompt about the respondents location. Six respondents (22 percent) were from Canada and the province of British Columbia while twenty-one (78 percent) were from the United States. Three were from Montana and the remainder from the state of Washington. Yet, forty percent of our sampling frame included Canadians while sixty percent were from the United States. Therefore, our survey responses are skewed towards a U.S. perspective. When describing their organization, most were from NGOs (14 or 51.9 percent) followed by State or Provincial governments (10 or 37 percent) with the fewest from national governments (3 or 11.1 percent).

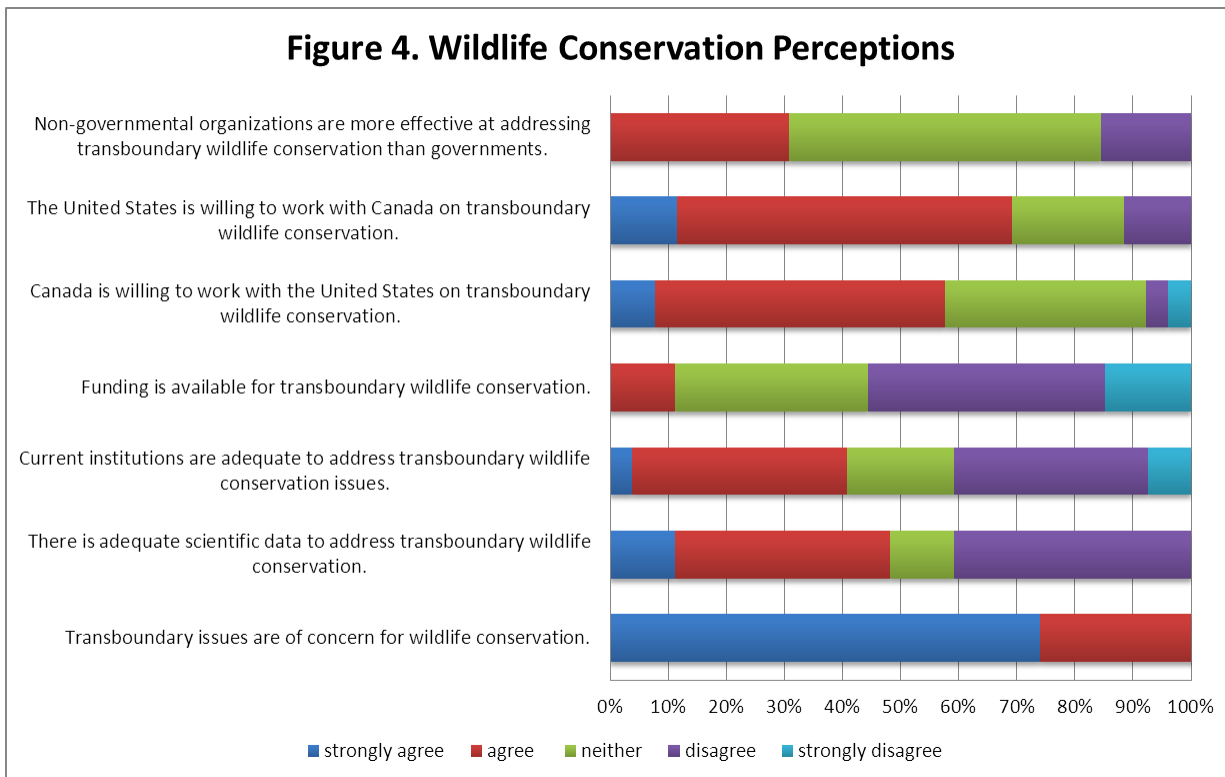
We also asked them to identify the importance of different wildlife conservation issues (see Figure 3). Habitat connectivity was the top issue receiving extremely important ranking in both the interviews and among 88.5 percent of our survey respondents.



Funding, shared organizational goals, and climate change fell into the second tier of issue importance with extremely important ratings among two-thirds (66.7 percent) of our survey respondents. Third level issues included endangered species legislation, and public involvement, while community involvement rated extremely important by one-third of our survey respondents. Land access management and human predator interactions were in a fourth tier of importance with less than one in three ranking them as extremely important. Keystone species fell into the bottom of importance for wildlife conservation issues. We then asked our respondents about their agreement with a series of statements about wildlife conservation.

Nearly three-fourths of our survey respondents strongly agreed that transboundary issues were of concern for wildlife management (see Figure 4). Much more discord was evident in their perceptions about transboundary wildlife conservation research. Fifty-two percent agreed that there is adequate scientific data while thirty-six percent disagreed. There was nearly as much divergence about institutional capacity with forty-four percent believing that it was adequate and forty-percent disagreeing. A majority disagreed that funding for transboundary wildlife conservation was adequate.

In our final set of survey questions (see Figure 5), we focused on public education and

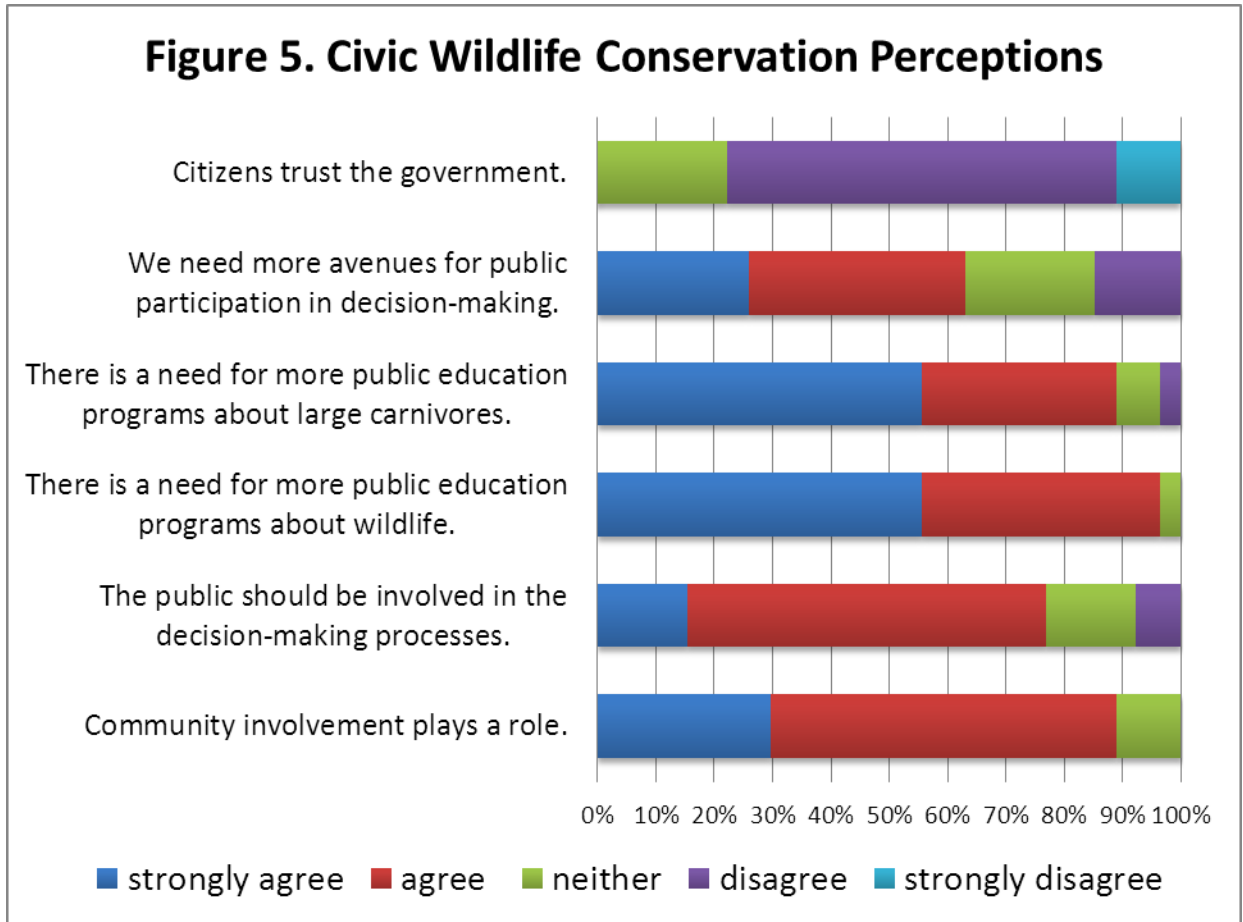


involvement. The former produced the strongest responses with 56 percent and 60 percent strongly agreeing that the public needs more education on wildlife and large carnivores respectively. But our question about citizen trust achieved the greatest agreement intensity as 68 percent of respondents strongly disagreed that citizens trust government.

Slightly less intense agreement emerged on whether the public should be involved in the decision-making processes—only 16.7 percent strongly agreed but 58.3 percent agreed. Likewise, 60 percent agreed that community involvement plays a role in wildlife conservation while only 28 percent strongly agreed. Finally, and perhaps most telling, were the uneven responses to the statement that we need more avenues for public participation in decision-making. Almost one-third (32 percent) of our respondents agreed and 28 percent strongly agreed but many were undecided (24 percent) or disagreeable (16 percent).

Avoiding the following perception was mentioned as one of the dysfunctions of our current wildlife conservation system.

Local landowners, especially owners of working lands, seem to feel like they are being railroaded rather than included from the beginning. Ranchers and other large private landowners provide open space for wildlife despite all the negative press they get for grazing and other "destructive" management practices.



Discussion and Conclusions

Ironically, in one Lonely Planet guide, the Pacific Northwest is introduced as follows: “Unified by the Cascade Range, it’s a region (often referred to as Cascadia) defined less by its national borders than by its spiritual and environmental similarities” (McRae, Jewell, and Snarsky, 1999, p. 14). As described here however, Cascadia’s political biogeography resembles an archipelago of terrestrial islands facing the challenges wrought by several kinds of divisions. The border is one, as it cuts across several ecozones home to more than 70 mammals, hundreds of birds, majestic forests, mountain ranges, and waves of grassland. The *New York Times* for instance would report that “Dreams of a Unified Northwest Are Halted at the Border” as tighter security and a recession fragmented our Cascadia connections (Yardly, 2010). Here, we have focused on understanding the challenges of wildlife conservation in the transboundary habitats criss-crossing the northwestern border of the U.S. and Canada.

This landscape is analogous to a traditional Salish rug that has been sliced, faded, and frayed by human developments, highways, forest clearcuts, and agricultural fields. Yet there is enough possibility of recovery here to unite a small army of ecologists, biologists, and wildlife managers who are studying and planning how to stop the Cascadia ecosystems from unraveling even more. Using the lens of CPR dilemmas, we examined the following questions. How are federal and provincial wildlife conservation policies and management diverging and converging on both sides of the border? Is the discourse of civic ecosystem management becoming prevalent in contemporary policy debates and documents on transboundary wildlife conservation? What institutional arrangements limit and potentially foster transboundary ecosystem management? We offer our preliminary answers here with a combination of stakeholder interviews and surveys, content analysis of conservation program documents, and a compilation of maps that explore the policy challenges and possibilities confronting wildlife managers.

We conclude that the Cascadia wildlife corridor needs some CPR, or the resource, institutional, and stakeholder characteristics that have been identified as essential to the successful management of CPR. We offer the following three modest policy prescriptions based on our research from the past year.

Education and communication efforts should be expanded and developed to foster the public's perception of the geography of the terrestrial Cascadia Corridor.

There are several prerequisites for CPR management success according to Ostrom (1990) and Schlager (2004). The improvement of the resource must be feasible; reliable and valid indicators must exist; resource flows must be predictable; and the borders or spatial extent of the resource must be comprehensible. While many of these conditions appeared to converge in 2009, the public's comprehension of our terrestrial biogeography lags behind the region's scientists and wildlife managers.

Our survey respondents overwhelmingly agreed strongly that the public needs more education about terrestrial wildlife and large carnivores in our region. Public understanding was also emphasized across our nine in-depth surveys and particularly striking in one view. A U.S. stakeholder described a social-psychological divide magnified by the border and its hardening will only increase the isolation between publics in the U.S. and Canada. We also discovered that a Cascadia region is well recognized among college students on both sides of the border, but it is rarely perceived in ecological terms. Rather, a regional identity is more identified with traditional conceptions of political places like a city, state, or province before an ecosystem. We concur with the communications subgroup of the Washington Wildlife Habitat Connectivity Working Group who recommended that conservationists must "Develop a robust communications strategy and inform the people. . . about the importance of habitat connectivity to build support for implementation of connectivity conservation". Many would conclude that education represents a necessary first step in cultivating the public's interest and engagement in wildlife conservation. However, we argue that it is not sufficient and any informational strategy must be complemented by building new avenues for public participation and influence. A civic deficit in our region's wildlife conservation governance arrangements was striking in our analysis of policy programs and regulations on both sides of the border.

We call for more effort in developing civic wildlife conservation programs.

The dominant tools and strategies found in our region's wildlife conservation programs were manifestations of the administrative rationalism discourse instead of civic ones. One of the striking exceptions was the relatively new initiative in Washington formed to influence wolf conservation. Washington's Department of Fish and Wildlife (WDFW) initiated a Citizen Working Group (CWG) to inform the agency's development of a wolf conservation and management plan. A separate technical group was also formed to provide information and expertise to the CWG. Therefore, the citizen groups was put on equal footing, or in other words, the citizen and technical working groups were structured in a horizontal relation instead of a vertical one. In our review of the prevalence of civic wildlife efforts in Washington and British Columbia, venues with horizontal structures and relationships were sorely absent from the policy geography of wildlife conservation in Cascadia.

The rise of grass roots ecosystem management in the West (Weber, 2000) is one of the manifestations of a civic approach to conservation. It involves place-based projects and policies aiming to "meld ecology with economics and the needs of community in pursuit of symbiotic sustainability" (Weber 2000, 238). Yet, we detected some of the highest dissonance among wildlife managers for their support of public participation and new avenues for it in our survey results. While a majority agreed that the public should be involved and there is a need for more avenues that provide it (76 percent and 63 percent respectively), there were nearly one-quarter and one-third of our survey sample that were ambivalent or even disagreeable towards public participation and new venues. Likewise, some scholars find environmentalists resisting grass roots ecosystem management the most (Bryan, 2004; Hibbard 2003). Our stakeholder interviews were mildly consistent with this characterization, but there seems to be a fair amount of support for a civic turn in wildlife conservation. Therefore, grass-roots ecosystem management presents a significant opportunity for policy innovation in the region. We recognize that such venues will require significant investments so our final recommendation provides more tangible and immediate opportunities.

Cascadia's wildlife managers should carefully cultivate their presence in a number of regional governance forums

We identified several existing polycentric venues that are not polyannaish. First, the Environmental Cooperation Council (ECC) shared between British Columbia and Washinton provides one opportunity for transboundary wildlife conservation. The ECC now includes five task forces and its "purpose is to ensure coordinated action and information sharing on environmental matters of mutual concern." No task force exists yet for terrestrial wildlife and their ecosystems. Therefore, leading wildlife managers should initiate a new task force. Second, the Western Governor's Association (WGA) established the Western Wildlife Habitat Council (WWHC) that is now organizing regional wildlife habitat databases. This WGA venue presents a significant institutional opportunity for the region's wildlife managers. However, both of these opportunities stop at the border. Canada has been a relatively infertile institutional arena for polycentric wildlife governance.

Conclusion

Our portrait of Cascadia's political biogeography presents a picture of uneven management, fragmentation on both sides of the border and because of it, very few efforts in civic ecosystem management. However, the CPR lens illuminates several opportunities for innovations to pursue in the resource, institutional, and stakeholder arenas across Cascadia. Ostrom and others have shown that CPR and their users are not doomed to tragedy, but instead can succeed with more of the right resource conditions, resource user attributes, and a combination of institutional features. We focus here on the latter and our research points to three that are critical in the Cascadia wildlife corridor: (1) clearly defined resource boundaries; (2) participatory collective choice arrangements; and (3) networking multiple levels (regional and local) of organizational involvement in transboundary governance. We found the development of local polycentric governance to be not only in its infancy, but facing major institutional barriers north of the border. Wildlife conservation in Cascadia begins inside of our protected areas, governments, and non-governmental organizations but will be finished, for the good or the bad, outside of them in the places and spaces between the region's parks and nature sanctuaries.

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Appendix A. Student Questionnaire

1. Please rank how closely you identify with each of the following, 1 being the choice you most identify with and 5 being the choice you least identify with. Pacific Northwest, Country, Province/State, City.
2. Have you heard the term Cascadia?
3. If yes, how would you identify yourself with this term? Choose the answer that best describes your opinion. Geographically (i.e. a place on a map), Politically, Recreationally, Environmentally (i.e. a regional ecosystem), Personally, or Other (Please Specify).

Appendix B. Interview Questions

4. What major issues are you and other in the wildlife conservation field occupied with the most? Can you list them in order of importance? Why do you think these are receiving attention? Are transboundary issues of concern? Does community involvement play a role?
5. Should some issues receive more attention from wildlife conservation scientists? More funding?
6. What is driving or should drive the science of wildlife conservation?
7. What is prohibiting scientific innovation and data gathering in wildlife conservation?
8. Where are the opportunities for innovation in wildlife conservation science?
9. What is driving, or could drive, policy innovation in the wildlife conservation field? Can you list them in order of importance?
10. Why do you think these are receiving attention?
11. Are transboundary issues of concern?
12. What is preventing policy innovation in wildlife conservation? Can you list them in order of importance?
13. Why do you think these are receiving attention?
14. Are transboundary issues of concern?
15. Where are the opportunities for innovation in wildlife conservation? Regionally? States? Provinces? NGOs? Organizations and networks?
16. What agencies/departments do you interact with when performing transboundary work? Are these long term relationships or are they project specific? Are these relationships vertical? Horizontal? Both? Does one jurisdiction tend to take the lead?
17. Who were your interactions accountable to? Other groups? Province/state? Federal government?
18. What programs and new approaches are you and other in the field working on to facilitate transboundary work. Can you list them in order of importance? What is your role in this effort? How long have you been involved?
19. What transboundary wildlife management and conservation issues might be important 2-5 years down the road?
20. How much support are you getting for transboundary work? Who? Financial? Staffing?
21. Are the current institutions sufficient to pursue transboundary work?

22. Do you feel there is a need to pursue more transborder collaboration in the future? In science? Policy? Both?
23. Should future funding be directed towards more field studies and scientific research or policy implementation?
24. If the wildlife community had unlimited resources, what strategies would you envision this organization/department adopting in the next five years to effectively promote wildlife conservation? Would it be a transboundary effort?
25. What geographic areas or individual species, in your opinion, deserve more attention in current conservation programs?
26. What education or media programs do you believe would most contribute to improving the public's perception of and attitude about large carnivores?

Appendix C. Stakeholder Survey Questions

1. Please indicate where you are located.
2. What type of organization do you work for?
3. Please tell me how important each of these issues is to transboundary wildlife conservation. The categories included extremely unimportant, not important, neither important or unimportant, important, extremely important.
 - Land access management
 - Habitat connectivity
 - Human/predator interactions
 - Keystone species
 - Climate change
 - Shared conservation goals between organizations
 - Funding
 - Endangered Species legislation
 - Public involvement
 - Community involvement
4. The following statements are about wildlife conservation. Please indicate your level of agreement with each. The categories included strongly disagree, disagree, neither agree or disagree, agree, strongly agree.
 - Transboundary issues are of concern for wildlife conservation.
 - There is adequate scientific data to address transboundary wildlife conservation.
 - Current institutions are adequate to address transboundary wildlife conservation issues.
 - Funding is available for transboundary wildlife conservation.

- Canada is willing to work with the United States on transboundary wildlife conservation.
 - The United States is willing to work with Canada on transboundary wildlife conservation.
 - Non-governmental organizations are more effective at addressing transboundary wildlife conservation than governments.
5. Please also indicate your level of agreement in the following statements. The categories included strongly disagree, disagree, neither agree or disagree, agree, strongly agree. In terms of wildlife conservation:
- Community involvement plays a role.
 - The public should be involved in the decision-making processes.
 - There is a need for more public education programs about wildlife.
 - There is a need for more public education programs about large carnivores.
 - We need more avenues for public participation in decision-making.
 - Citizens trust the government.
6. What is working in transboundary wildlife conservation? This question was open-ended.
7. What is not working in transboundary wildlife conservation and needs the most attention? This question was open-ended.
8. What species are most at risk for a lack of transborder management? This question was open-ended.
9. Did we miss anything? Additional comments? This question was open-ended.

Responses for the question “What is working in transboundary wildlife conservation?”

1. Conservation NW (and other NGOs) seem to be making strides in transboundary coordination/collaboration through venues such as Wild Links. Washington Dept. of Fish and Wildlife is also progressing with Wildlife Habitat Connectivity Workgroup process, and, concerning Canada Lynx, my own progress as facilitator of the Lynx Working Group in Washington State.

2. Conservation organizations; Landscape Conservation Cooperatives hold great promise; WGA Wildlife Corridors Initiative is also very important for transboundary conservation

3. Individuals working together through personal partnerships and working relationships - data sharing etc

4. People are beginning the discussion and there is beginning to be good collaboration among transportation and wildlife management in each region or state

5. You need a column in the above questions that says, Don't Know. Some are willing to work across border

6. Work with mountain caribou in the Southern Selkirk Mountains

7. Crown Managers Partnership in Glacier Waterton; Grasslands Partnership in Eastern Montana and Saskatchewan; Flathead Wild Initiative with WildSight and NPCA; Yellowstone to

Yukon effort;

8. Coordinated strategies between US government & independent biologists and ENGOS to achieve habitat connectivity for grizzly bears in S.E. British Columbia. Some cooperative efforts to protect arid lands in Okanagan area.

9. don't know. I only know of one group that is working with transborder issues and they are doing a fabulous job Conservation Northwest trying to break through the boundary issues.

10. Intergovernmental agreements, e.g. Western Governor's Association

11. WA state fisher reintroduction (fishers from Canada)

Conferences such as Wildlinks last year which focussed on Canada/US

12. Cross-border participation on formal committees addressing species considered at risk on both sides of the border (ex. grizzly bear committees for transborder recovery areas).

13. Dialogue. Baseline studies.

14. Non-profit organizations like Conservation Northwest gathering researchers, managers, and interested folks from both sides of the border to discuss these issues is extremely beneficial.

15. NGOs and Government organizations seem to be working well on both sides of border.

16. MOUs are a good start, but we need real action.

17. Several efforts that pair NGOs and government across the international border (e.g. Y2Y and Transborder Grizzly Bear Project)

18. Climate change is making many government agencies and officials look beyond our borders at these issues, and so is the science and policy discussions around habitat connectivity.

19. Awareness, willingness to act

20. Many of the folks on the ground are collaborating, sharing information and data.

21. scientists are working together to share data and goals. Symbolic MOUs between countries have been signed but that's about it.

22. There is beginning to be some conversations across the borders between Canada and the US.

23. Cooperative research endeavours

Responses for the question "What is not working in transboundary wildlife conservation?"

1. We need more funding for lynx and boreal ecosystem research and conservation efforts. Current management of lynx in Canada is not conducive to long-term conservation of lynx in Washington. WDFW is in process of developing a BC/US workshop to address shared challenges/concerns for lynx and other boreal species.

2. My observations are that we are at early stages of an improving trend in transboundary wildlife conservation; a huge challenge however is tight budgets along with stretched capabilities of persons involved.

3. Government to government recognition of issues

4. Agencies and organizations are silo'ed and there is not always reward or accountability system for true collaboration

5. Funding and will and understanding the critical importance. Maybe we need to articulate what happens when we don't work cross boundary? What are the impacts? Maybe we need to see examples of what went wrong when we didn't work together and how it could have been avoided if we did. This might help funders and others on the ground.

6. Habitat protection along transboundary linkage corridors; access management in the corridors and providing safe-passage corridors across highways and urban/rural settlements that parallel the boundary.

7. Homeland Security; BC Government; Transboundary Governance entities

8. Differences in hunting/trapping regs where one country is killing species that are protected in the other. Coordinated proactive conservation/recovery efforts particularly with regard to carnivores & aquatics. Comprehensive ecosystem integrity conservation that coordinates management actions & science on a landscape level internationally.

9. what we are doing now

10. incompatible or inconsistent data across borders, inconsistent species management objectives across borders, lack of macro (landscape-level) planning and policy prioritization within government agencies

11. GIS data layers are quite different across borders. For landscape wildlife habitat and connectivity mapping this creates challenges for transboundary work. In addition, on both sides of border, biologists are stretched very thin.

12. Lack of coordination compatible management of species at risk on only one side of the border (ex. lynx, wolves, badgers, shrub-steppe herps). Also lack of funding for cross-border efforts.

13. Political momentum. Funding.

14. We need to get better at sharing basic information like maps and GIS layers to information on species of concern across borders. Data is collected differently across borders making any habitat connectivity modeling difficult.

15. Local landowners especially owners of working lands seem to feel like they are being railroaded rather than included from the beginning. Ranchers and other large private landowners provide open space for wildlife despite all the negative press they get for grazing and other "destructive" management practices.

16. Translation from big picture thinking to on-the-ground conservation.

17. Habitat protections and access management on the Canadian side.

18. There is no government to government documents focused on wildlife conservation, like an MOU that provide the authority to all agencies below to spend time and resources on these issues.

19. Consistent mapping, agency coordination re: goals and objectives, sufficient communication.

20. Legislation, funding, programming, focus from government agencies is not necessarily complimentary.

21. Actual on the ground projects demonstrating the commitments laid out in MOUs need to be more common. Homogenous management for sensitive species must occur in transboundary

regions as wildlife dont get political borders. The border wall.

22. These conversations are at the personal level rather than between managers or executive. We need commitment (on the Canadian side) for cooperation. At this time we are barely allowed to travel outside of the province.

23. Independent, non-cooperative efforts with data and idea sharing.