

A monochromatic blue-toned photograph of a bear in a field with birds flying in the sky. The bear is in the center, looking towards the left. Three birds are flying in the sky above the bear. The background is a field of tall grass.

Yellowstone-to-Yukon

*Canadian Conservation Efforts
and Continental Landscape/
Biodiversity Strategy*

GARY M. TABOR

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FOREWARD

The subject of Dr. Gary Tabor's report is the future of the 2,500-kilometer region of the Rocky Mountains reaching from Yellowstone National Park at the southern end to the Liard Plateau in the Yukon Territory. This report is directed to those who have more than a casual interest in the Rockies cordillera, but others will be rewarded as well.

We asked Dr. Tabor, trained as a wildlife veterinarian (University of Pennsylvania) and in conservation biology (Yale School of Forestry), to visit the Canadian portion of Rockies in April, talk with as many informed people as he could, and prepare a report which describes the current situation and identifies strategies for sustaining the "wildness" of this region.

There is no need to obscure the value choice which underlies this report. Preserving native plants and wildlife is assumed to be a fundamental good--beneficial for natural communities of plants, vertebrates and non-vertebrates, **and** beneficial for human communities as well.

Plant and animal species in some areas of this region are at risk because of human developments, mainly transportation arteries and settlements. Thus, the most fundamental challenge of all to be addressed in the decades ahead is that of ensuring that human intrusions into this region are compatible with the goal of sustaining the integrity of the natural world. We assume that co-existence for humans and other forms of nature is possible, but we also know that the record on this is not encouraging.

The Kendall Foundation seeks to encourage those engaged in the process of defining a "desired future condition" for this region. Dr. Tabor's report is intended to be a constructive step along a road which reaches to the horizon of our collective vision.

Theodore M. Smith
Executive Director
Henry P. Kendall Foundation

Executive Summary:

The health of the Northern Rocky Mountain ecosystems and their threatened wildlife species in the United States is linked to the long-term integrity of contiguous wildlands in Canada. One female wolf, for example, has been tracked from the North Fork of the Flathead River near Montana to Northeast British Columbia close to Mile Zero of the Alaska Highway – a straight line distance of 840 km. Golden Eagles migrate from the Greater Yellowstone Ecosystem to the Yukon Territory. Some of the highest densities of grizzly bears are found in an area spanning from northwestern Montana to southeastern British Columbia. The habitats of these species are continental, not local, and certainly are not defined by political boundaries. Habitat fragmentation, land degradation and wildlife extirpation are undermining the ecological health of the shared landscape of Canada and the United States. At stake are the species and ecosystems that define many of the most treasured wildlands in North America.

The Yellowstone-to-Yukon Biodiversity Strategy (Y2Y) is an emerging Canada-United States partnership that provides a framework for conserving the natural properties of a vast landscape that stretches from the Greater Yellowstone Ecosystem in Wyoming, Montana and Idaho to the wild areas of the Yukon Territory. Y2Y is an ambitious undertaking in geographic and human terms. Initially conceived as a way to protect large carnivores in the Rocky Mountains (including grizzly bears, mountain lions and wolves), Y2Y has evolved into a vision to conserve large wildlands. It is a network of individuals and organizations, public and private sector, that seeks cooperative solutions in conserving the ecological characteristics of the region.

This report is a primer for those who view the Rocky Mountain region north of the Canada-United States border as pristine and secure. The assumption by citizens and natural resource management agencies in the United States, that nature “is taken care of” above the 49th parallel, is simply wrong. The state of protection along the Canadian Rockies from the border to the Yukon is less than optimal and in some places appallingly weak. The fate of wilderness and wildlands in the Northern Rockies of the U.S. is ecologically tethered to that of the Rocky Mountain region of Canada.

In the course of traveling through the Rocky Mountain region of Alberta and British Columbia from the Canada-United States border to Prince George in central British Columbia and conferring with almost 150 conservationists in preparing this report, several factors that contribute to the loss of biodiversity and habitat in the region came to light. These include:

- 1) Land protection in the Central and Southern Canadian Rocky Mountains is skewed heavily toward higher elevation areas (rocks and ice) that do not support many species and do not function to link wildlife populations, or ecosystems;
- 2) Many low elevation valleys and riparian areas that contain the highest biodiversity and upon which many wildlife species rely for winter range, migration, and sustenance, are rapidly being developed, fragmented and isolated;
- 3) Human transportation corridors act as wildlife mortality zones and block migration and genetic and demographic exchange between populations;
- 4) Public, private, provincial and national laws, regulations, and practices work at odds with regional level conservation;

- 5) Protected area mandates work at cross-purposes, especially when viewed from a larger scale perspective.
- 6) Increasing ecosystem management portfolios and decreasing budgets of federal and provincial park agencies threaten to undermine public institutions responsible for land protection.

The symptoms of a resulting environmental pathology include: 1) a loss of ecological connectivity across the landscape; 2) increasing isolation of habitats, wildlife populations and ecosystems; 3) a continual decline in wildlife numbers, especially large carnivores; and 4) increasing conversion of natural landscapes to humanscapes. Footprints of human resource demands and development are creating an archipelago of isolated natural areas. Isolation raises the risk and impact of species extinction.

The challenge of Y2Y will be its ability to address the ecological requirements of this large wildland area, while at the same time sustaining human needs. Natural processes are dynamic and exist in a medium of constant change and resilience. Human social processes work to create stasis and order when faced with change and uncertainty. We mistakenly seek static solutions to dynamic patterns. This is reflected in the fact that our present conservation and natural resource management methods do not match our goals for ecosystem protection. We create parks and assume the job of conservation is done, but in fact the maintenance of the ecological integrity of these protected areas requires adaptive management and flexible land conservation strategies.

The specifics of the Y2Y agenda are still evolving. Conservationists in Canada and the United States, from local grassroots activists to national environmental group representatives, have been meeting twice a year for over two years to establish the groundwork for the effort. A rapid assessment of the region will be performed in order to establish a list of conservation priorities and to define areas of cooperation. Educational and extension efforts are being designed to reach beyond the conservation community and embrace other interests including the region's local residents. A coordinator will be hired to facilitate communication among Y2Y participants and to oversee implementation of defined tasks. The Crown of the Continent Electronic Data Atlas at the University of Calgary will serve as the information hub for Web and Internet services.

Y2Y is dedicated to making reconnections: the human connection to the landscape, ecological connection between land-uses, and local connection to regional and global conservation efforts. Landscape connectivity needs to be established in this mosaic of mixed patterns of land ownership and land-use management objectives. Y2Y gives context to local conservation initiatives, encouraging support and recognition by a broader constituency. When viewed from a large scale perspective, local initiatives no longer appear to be parochial concerns but can be seen as critical keystone efforts.

Canada and the United States share the longest and perhaps the most peaceful border in the world. Conservation cooperation has been a cornerstone of this relationship, including the formation of the Waterton Lakes-Glacier International Peace Park, the North American Waterfowl Management Plan, the Migratory Bird Treaty Act, and intergovernmental efforts to restore the ecological integrity of the Great Lakes region. The Yellowstone-to-Yukon

Biodiversity Strategy builds upon this cooperative spirit. What initially began as a friendly political gesture to manage Waterton Lakes and Glacier as a binational park is now poised to become a strategy for large scale action based on a new understanding of conservation biology and ecosystem management. Y2Y helps North Americans to view their common landscape not as several countries but as one continent.

1.0 Report:

The purpose of this work is to introduce the Yellowstone-to-Yukon Biodiversity Strategy (Y2Y) to an audience outside the Y2Y conservation community and to report on conservation activities north of the U.S.-Canada border from Waterton Lakes National Park, Alberta, to the Prince George area of British Columbia. During the month of April 1996 I met with over 150 conservation, community, government and industry representatives in order to learn first hand about the Y2Y concept from the Canadian perspective. (A complete list of people met, a list of Y2Y hot spots, and a succinct Y2Y vision statement are attached as addenda.)

My trip began with a three day meeting of the Y2Y Science and Steering Council at the Kananaskis Field Station of the University of Calgary on April 11 to 14, 1996. I next traveled along the eastern slopes of the Rockies in Alberta to Waterton and then headed northward along the Rocky Mountain trench through the towns of Sparwood, Fernie, Cranbrook, and Invermere to Golden, British Columbia (following the Kootenay and the upper Columbia Rivers). I then traveled onward from Kootenay, Yoho and Jasper National Parks to the Robson Valley and upper Fraser River near Prince George, British Columbia before returning south to Banff and Calgary. I retraced my steps at the end of the stay to attend a workshop on the management of the Purcell Wilderness Conservancy in Cranbrook, British Columbia on April 26 and 27, 1996. In all, I logged over 4,000 km.

2.0 Introduction - Problems and Threats

The Yellowstone-to-Yukon Biodiversity Strategy (Y2Y) is a joint Canadian and US conservation initiative to protect many of the last regions of large wilderness and endangered wildlife areas in the Rocky Mountain cordillera of North America. This large-scale conservation effort seeks to establish a continuous network of protected areas and buffer zones from the Greater Yellowstone ecosystem and the Idaho wilderness in the United States to the MacKenzie-Selwyn Mountains in the Yukon Territory of Canada (see Map 1).

As a concept, Y2Y reflects the growing concern of scientists and conservationists that the free-ranging populations of large carnivores, "umbrella" species of Rocky Mountain ecosystems, are severely threatened. At risk is the unique large carnivore assemblage (grizzly bears, black bears, gray wolves, wolverines, mountain lions, and lynx) that formerly existed throughout much of western Northern America and in the foothill-prairies to the east. These species require large areas to maintain viable populations, and the protection of their habitat provides an "umbrella" for many other species. Evidence collected by ecologists indicates that human pressures on large carnivore habitats (and on the animals directly) endangers these species and the whole ecosystem.¹

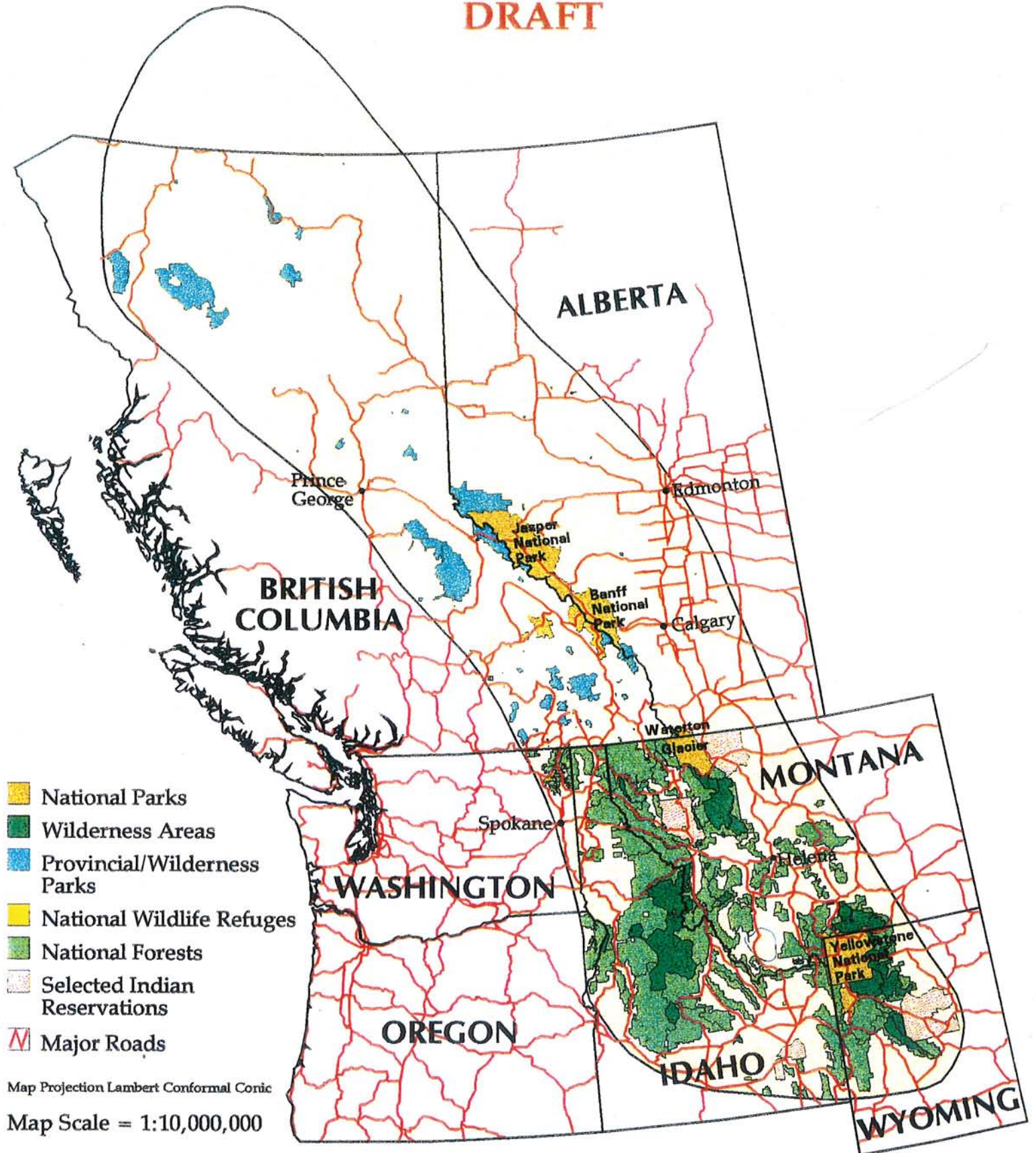
By mapping carnivore movements and home ranges, scientists have been able to delineate wildlife usage of the landscape and the importance of a contiguous wildland matrix, interconnected by habitat corridors linking core protected areas.² The large-scale result of this carnivore mapping exercise delineates an area from the Greater Yellowstone ecosystem to the

¹ (see Hummel and Pettigrew, 1991 and Paquet and Hackman, 1995)

² Most large carnivores occupy large home ranges (and areas removed from human disturbance). A protected area patchwork from the Southern Canadian Rockies to Yellowstone is considered "sufficiently large enough to ensure the long term survival of these species" (Paquet and Hackman, 1995).

YELLOWSTONE TO YUKON Conservation Planning Region

DRAFT



- National Parks
- Wilderness Areas
- Provincial/Wilderness Parks
- National Wildlife Refuges
- National Forests
- Selected Indian Reservations
- Major Roads

Map Projection Lambert Conformal Conic
Map Scale = 1:10,000,000



Peace River in the Northern Rockies of Canada.³ The inclusion of the Yukon recognizes the importance of large undisturbed areas as sources for wildlife in the Rocky Mountain region.⁴ Large carnivores are not the only indicators of this bioregion that is more than 2,500 km long and 250 km wide. Recent research indicates that migratory Golden Eagles truly shadow the entire cordillera from Yellowstone to Yukon. The region's topography and wind patterns enable as many as 8,000 to 13,000 eagles to use the mountains as a migratory conduit -- an eagle highway.⁵

Two assumptions underlie strategies to conserve these imperiled carnivore populations: 1) Interconnecting wildlife corridors will maintain large carnivores; isolated protected areas will not -- especially small isolated areas; and 2) If large carnivores are protected, other species and ecosystem functions will be protected as well, i.e., the umbrella effect.⁶ The Y2Y concept provides a coherent protected area framework for large carnivore and large landscape conservation along the Rockies.

From, the ground or from the eagle's height, the Y2Y landscape is spectacular. It contains some of the most beautiful country in the world and is the birthplace of national parks for the United States and Canada. Yellowstone was the first national park established in North America in 1872; Banff was the first Canadian national park, established in 1885, and Waterton Lakes-Glacier National Park, a binational protected area crossing the border of Alberta and Montana, was the first International Peace Park, established in 1932. Waterton Lakes-Glacier is also a United Nations-designated Biosphere Reserve. In addition, Banff National Park and the three other Canadian Rocky Mountain national parks, Jasper, Yoho and Kootenay, are a combined World Heritage Site. Yellowstone has recently received a similar designation.

Yet this national and international recognition hides the fact that most of the landscape under protection is in the high elevation "rocks and ice" zone and that the parks primarily protect scenic and geologic features. Middle and lower elevation areas, important for biodiversity conservation, are largely unprotected. This poses a serious threat to the long term ecological integrity of the region. Oil and gas development, coal and mineral extraction, logging, livestock grazing, off-road vehicle use, transportation and energy corridors (roads, railroads, pipelines and transmission lines), industrial tourism (resort development), urban development, and growing recreational use of the backcountry are degrading much of the Y2Y landscape both inside and outside protected areas. The growing needs of the Canadian and American populations have created a conflicting array of land-use demands. Calgary, a city of over 800,000 people and the fourth largest economic center in Canada, stands at the doorstep of the region and its footprint extends into Montana and British Columbia, influencing development on both the east and west slopes of the Rockies. Collective human impacts are transforming the terrain through destruction and fragmentation of habitat, alteration of wildlife migratory and plant succession patterns, and the introduction of non-native species.

³ (Paquet and Hackman, 1995)

⁴ While the Liard Plateau on the B.C.-Yukon border does create a natural break in the Rocky Mountain Cordillera, the rich wild areas of the Yukon serve as source for wildlife and are woefully underprotected from a conservation standpoint.

⁵ Peter Sherrington - Y2Y Science meeting, 1996. Swainson's Hawk also use the Rockies for their extended migrations between North America and South America (P. Sherrington, pers. comm.). Migratory birds do not feed, but only soar and glide over the landscape.

⁶ Rich Walker - Y2Y Science meeting, 1996

Developing a conservation strategy to maintain the ecological integrity of the landscape and sustain human needs is the long-term challenge of Y2Y. The ultimate goal is a comprehensive and coherent land-use strategy for this vast area. The need for this is demonstrated by the inadequate protection status of many critical habitats in the region, the lack of ecosystem priorities in present land management regimes (even in lands that have conservation protection), and the incremental erosion of biological resources. In the United States, severe habitat fragmentation has virtually isolated the Greater Yellowstone Ecosystem and the critical wilderness areas of central Idaho from other continental wildlands in Canada. This has created an archipelago of disconnected wildlands in the Northern Rockies of the U.S. Once isolated, these areas are subject to elevated extinction rates, diminished gene flow and threats from environmental catastrophe and disease. Many Americans assume that the Canadian Rockies are part of an intact wilderness continuum extending from the border up into the Arctic, but nearly impenetrable corridors of transportation and land development now threaten to repeat the American experience and create isolated ecosystem fragments in the heart of Canada's Wild Rockies.⁷

2.1 Y2Y - A Rough History

Y2Y was born out of the conservation biology thinking engendered by The Wildlands Project, a U.S.-based conservation organization, and the Canadian Parks and Wilderness Society (CPAWS). It is the coalescence of ideas developed by Reed Noss at Oregon State University, Monty Hummel and Arlin Hackman of World Wildlife Fund/Canada, Steve Herrero at University of Calgary, John Weaver and Louisa Willcox from Montana, Tim Clark in Wyoming, and Paul Paquet in Saskatchewan, and then brilliantly synthesized by Harvey Locke in Calgary. In Harvey Locke's eyes, Diane Boyd's radio-collared wolf data help to delineate the scale of wildlands conservation. This young, female wolf was observed moving between the Flathead River in British Columbia near Montana to an area near Mile 0 of the Alaska Highway in Dawson Creek, Northern British Columbia – a straight-line distance of 840 km.

The Y2Y Biodiversity Strategy is in an early phase of conceptualization. Four planning meetings have been convened by the environmental community in Canada and the U.S. over the past two years. In terms of institutional design, the organizational structure of Y2Y is a work-in-progress. A Steering Council will serve as the body for individual and organizational membership. It is an inclusive entity that welcomes new members. A Coordinating Committee (presently 14 people), a subset of the Council, will provide administrative and policy support. A coordinator will be hired to assist with networking and information gathering and to work with Council members in attaining goals set forth through a common agenda.

These planning meetings have created interest and energy for the comprehensive vision, with a proposed sub-regional project approach as a possible mode of implementation. Given the vast scale of the region, the Y2Y concept is predicated upon the support, linkage, and coordination of existing conservation initiatives – the tactical efforts that can make the strategy succeed. And thus the organization is a metaphor for wildlife conservation: the need for home base focus and interlinking corridors/connections between populations of stakeholder individuals

⁷ Transcontinental road corridors in Crowsnest Pass in Southern Alberta (Highway 3 area) and the Banff/Bow Valley region in the Central Canadian Rockies (Trans-Canada Highway) have become barriers to wildlife movement and gene flow.