Pekisko Valley Study

A multidisciplinary study of the Pekisko Valley centered around the property owned by Zahava Hanen

September, 2011

Forward

To appreciate nature you must appreciate silence. Those of us who live in the city are so used to the cacophony of city noise, that machine-driven roar that begins early in the morning and lasts until late at night, that the true nature of silence is lost. In the Pekisko Valley that silence can still be found.

A few years ago the Hubble Space telescope was aimed at what appeared to be an emply part of the sky. After a long exposure, what was revealed was a panaply of stars and galaxies that had been hitherto unknown. So it is with sound. To hear nature we must find a place of silence and wait. Only then will we begin to understand the sound of life and recognize our connection to the living world around us.

Zahava Hanen understands the importance of silence. It was a recurring theme in her books. There she spoke of the background buzzing of insects in summer and the white silence of winter after a soft snowfall. In her writing she appears be be saying that if you choose a place and listen not just with your ears but your entire being, you can perhaps hear the rhythmic beat of life echoing through the present as well as time long past.

The Pekisko Valley is a place where one can still hear the present and past. Its history echoes with the grunts of bison, the chants of native people, the cries of birds, the bugling of elk, and the talk of cowboys around a campfire. It is a place to reconnect with nature.

The Samuel Hanen Society for Resource Conservation funded this study of the Pekisko Valley in order to provide a more thorough and accurate study of the history and current state of the area around the land owned by Zahava. In developing the study, the Southern Alberta Land Trust Society was fortunate to have the commitment of experts in their field who not only brought academic rigour to their work but also made the stories and landscape come alive. I would like to thank them for their hard work and the quality of their research and writing.

Thanks also to James Blair and other members of Board of the Samuel Hanen Society for Resource Conservation: Jonathon Porritt, Michael Robinson, Tim Swinton, and Kip Woodward, for their foresight in funding this baseline of knowledge about the valley. It lays a foundation for further work to educate people about nature and the importance of good land stewardship by all people.

Alan Gardner, October 2011

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Chapter One

Past and Future

General Introduction

The Samuel Hanen Society for Resource Conservation, a charity begun by Zahava Hanen, provided a grant to the Southern Alberta Land Trust Society (SALTS) to fund a study of the Pekisko Valley. This study was to detail the basic ecological and historical facts of the valley and in particular the Hanen property.

The study was coordinated by SALTS and carried out by consultants who were experts in their respective fields. The consultants were:

Dr. Gerald T. Conaty PhD – Indigenous history
Director, Indigenous Studies, Glenbow Museum, Calgary, Alberta

Dr. Warren Elofson PhD – post contact history
Head, Department of History, University of Calgary

Dr. George Colpitts PhD – post contact history
Department of History, University of Calgary

Richard Rowell – Baseline Wildlife Report
Ottenbreit-Rowell Inc.

Varge Craig – Range Health and Range Management Plan
ALTA Rangeland Services Ltd.

Purpose

The future of the Zahava Hanen property is rich in potential. Its location in the Pekisko Valley suggests a variety of uses, all of them having value. One could envisage it as a centre for education that connects and binds together knowledge of indigenous and ranching history with the ecological importance of grasslands, water production, wildlife and geology. Cooperation with the Bar U National Historic Site would be a natural addition, enhancing both facilities.

Another potential use would be a center for natural artistic expression. There is a vibrant arts community in Calgary and Lethbridge, as well as other towns along the foothills, and this community of artists would very likely love to have an area to stage readings, plays, and possibly use occasionally as a day retreat. The interest shown in the recent Ecotone Symposium is an example.

Any consideration of the future use of the property, other than cattle grazing, should take into account the ideas and concerns of the people who live and work in the valley and who own land there, and also the local native people who have indicated a strong desire to be involved. Such consultation would possibly bring forward additional valuable ideas and would also minimize any misunderstanding and conflict with neighbours.

Whatever the future of the property, it is advisable to have some initial baseline work done on the history and ecology of the valley, and that is the purpose of the current study.

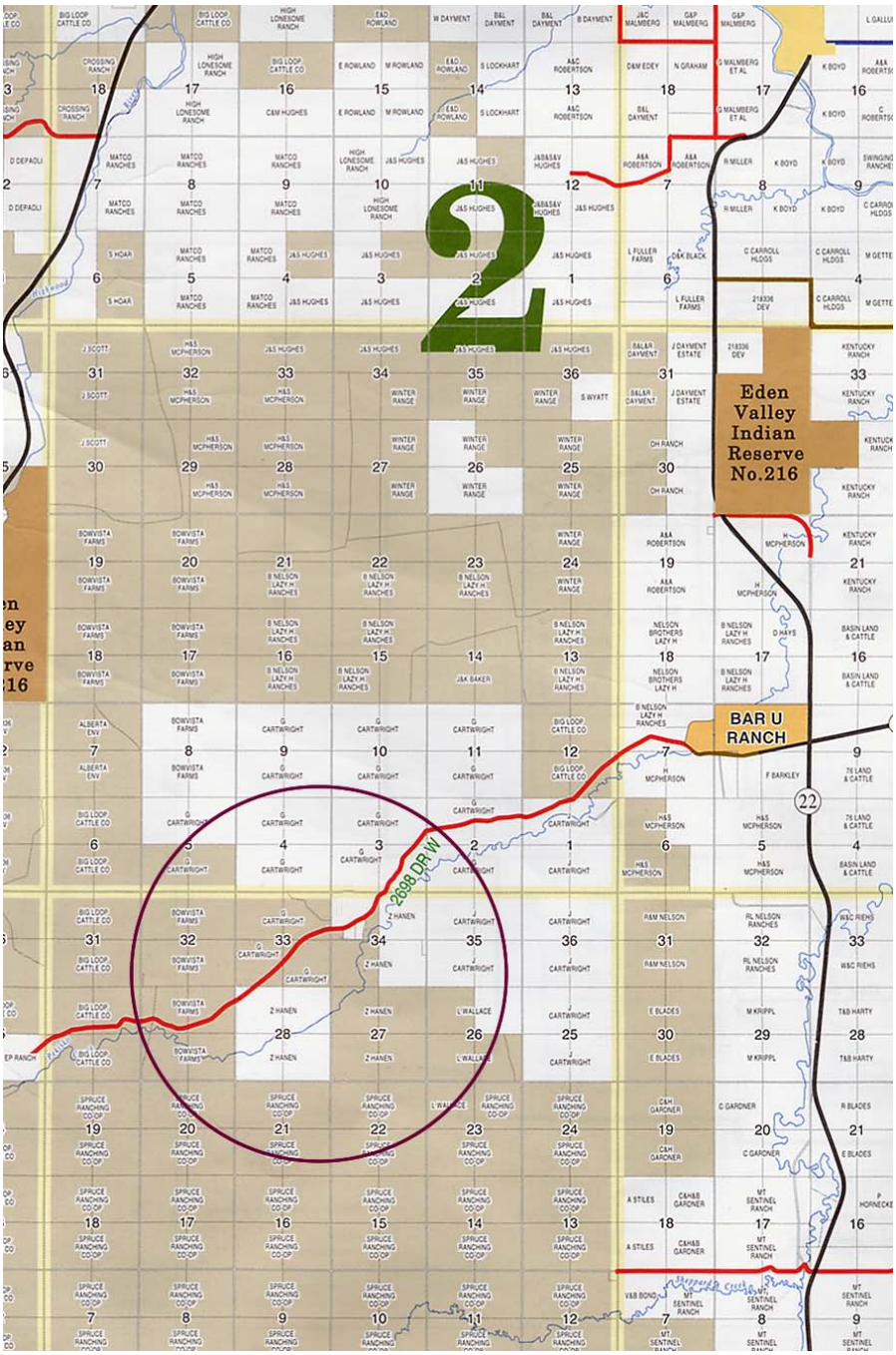
Zahava Hanen

Zahava Hanen, daughter of Samuel Hanen, is a person with a passion for the ecology and history of the land in the Pekisko Valley. It led her to purchase land in the valley and locate an A-frame house very near to Pekisko Creek itself. There she could find pleasure in the seasons, and spend time communing with the wildlife. Often she would bring knowledgable experts to her home in order to experience the valley and its wildlife, and talk of history and other strategies to conserve the ecological values and traditions of the land in the Pekisko Valley.

Photograph from the book: *Heading for Home* by Zahava Hanen

The Hanen Ranch Property

The Pekisko Creek rises in the foothills of the Eastern Slopes of the Rocky Mountains southwest of Calgary. Fed by runoff, meltwater and springs, it flows west and north to join with the Highwood River and later to become part of the Saskatchewan River system. The upper reaches are home to trout and provide water for an abundance of wildlife. Here it flows clear over a rocky bed until it passes the BarU Ranch National Historical Site. The Hanen property straddles Pekisko Creek some 10 Km upstream from the Bar U. It is in the Municipal District of Foothills, No. 31.



Map from the MD Foothills.
The Hanen property is centered in the circle. The town of Longview is at the top right corner of the map.

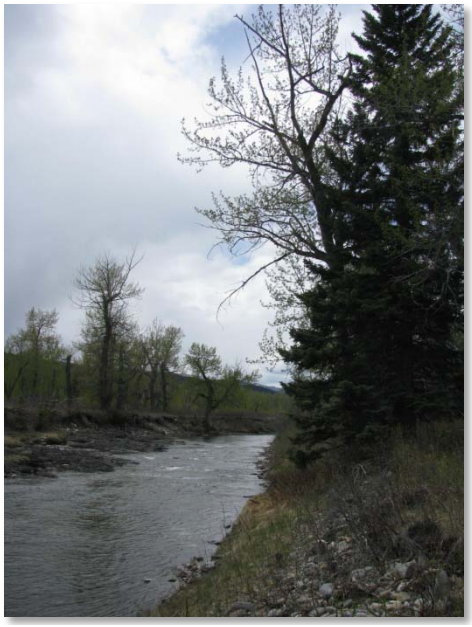
Photograph showing the property looking Southwest. Pekisko Creek is just beyond the buildings.

The ranch itself encompasses a total area of some 1,800 acres (728 Ha), and includes both deeded and leased provincial grazing land. Within it are parts or all of sections 27, 28 and 34, in township 16, range 3, west of the fifth meridian. It is accessible by a gravel road that branches of the main gravel road running from Highway 22 at the Bar U most of the way west up the valley. The ranch has a dwelling and shed on the tableland above the creek, and a small all-weather A-frame house lower down near the creek. It is in this latter house (see photograph below) where Zahava lived when she was at the property.

A-frame house on the property near Pekisko Creek

The ranch is in the Foothills Natural Subregion of Alberta and sits in a transition zone between the montane and sub-alpine habitats to the west, and the grassland habitat to the east. It is located in the Pekisko Creek Environmentally Significant Area. Other designated areas with significant conservation value can be found within 15 Km of the property. About 19% of the ranch is covered by a woodland (mainly aspen and balsam poplar with some spruce near the

creek) and the remainder by grasslands including native fescue, modified grassland, and a small amount of sedge meadow. The area provides important winter grazing and habitat for many species of wildlife such as deer, elk, moose, black and grizzly bear, plus many small mammals. The trees provide habitat for a variety of birds. The riparian zones along the creek provide habitat for semi-aquatic mammals.



Historically, the Pekisko Creek Valley has provided shelter and winter grazing for a multitude of wildlife including bison. Although the valley has not been subject to detailed scientific archaeological studies, the information in Dr. Conaty's report, gleaned from oral and written history, indicates that the region was used extensively prior to the arrival of white traders and explorers in the early 18th Century. There is one small fenced site on the property that Nakoda advisors suggested as likely being a Nakoda cemetery

The arrival of white settlers and ranchers in the latter quarter of the 19th Century brought significant changes. The Elofson Colpitts report traces the arrival of cattle and the period of the great ranches such as the Bar U, detailing the white history of the area through the time of family-run ranching operations through the 20th century. During this period the Hanen property changed hands several times and the Pekisko Creek Valley was the center of many historical and famous events and people.

The Geology of the area was not studied as part of this report although it is quite interesting. In general, this type of landscape is covered by glacial till. The Rowell report indicates that the area, part of the Parkland Natural Subregion, is covered by glacial till and in particular is underlain by till, kame, pitted outwash deposits and alluvial deposits along the creek.

Chapter Two

First Nations
Traditional Land Use Report

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November, 2010

Executive Summary

The Hanen Ranch is located adjacent to Pekisko Creek in southwestern Alberta. The Zahava Hanen Trust is discussing the possibility of putting an ecological easement on the ranch. This report describes First Nations' traditional and historic use of the area.

The ranch lies within the traditional territories of Niitsitapi (Blackfoot-speaking people) and Nakoda. Knowledgeable people from Kainai, Piikani and Nakoda visited the site and walked parts of the ranch, assessing its value as a source of traditional resources. The ranch and nearby areas were identified as an important place for plants that were used as food, medicine and for spiritual purposes. Nakoda also recalled stories of camping on the various ranches in Pekisko Valley.

A longer-term study would bring to light more about the historical use of the area. It is recommended that a six week project be undertaken that will enable Nakoda to visit other ranches in the area and recall stories of past use of the valley.

Introduction

Zahava Hanen acquired land and grazing rights along Pekisko Creek in southwestern Alberta, including S ½ S27, S28 and E ½ S34 T16, R3 W5. An adjacent grazing lease is located in N ½ S27 and W ½ S 34, south of the road, T16, R3 W5 (Figure 1). Her intent has been to use the land with as little human impact as possible, thereby preserving the natural ecosystem. The Samuel Hanen Society for Resource Conservation has contracted for a multidisciplinary land study of the Zahava Hanen Pekisko Creek property.

This is the final report of the 2010 First Nations traditional and historic land use study of the Hanen ranch. As Nakoda and Niitsitapi people walked across parts of the ranch it became clear that a closer examination of the area would result in more detailed understanding of the plant resources that are present. Discussions also indicate that a survey of the larger valley is important. First Nations people did not conceive of land use in the same way as Euro-Canadians do. In order to understand the significance of the land defined by the Hanen Ranch and adjacent lease area, it is important that a survey of the entire valley be undertaken.

Traditional Land Use Studies and Oral Traditions

In all cultures it is important that the traditions and history be passed from one generation to the next. Literate societies develop a system of codified symbols which enable these "stories" to be documented in a standardized text. As a result, the texts become immutable and access to them has often been restricted to an elite group of individuals who are knowledgeable in deciphering the code (Goody 1986).

Non-literate societies have no such standardized set of symbols. Rather, traditions and histories are passed from one generation to the next through the telling of stories. Sometimes pictoral symbols may be used as mnemonic devices to remind the "storyteller" of the order and importance of events. Oral traditions may be more egalitarian, allowing everyone in the community access to the stories without first having to learn a codified set of symbols. However, many oral traditions are still governed by strict protocols that ensure the veracity and consistency of the story's content and intent.

The Nature of Oral Tradition

Anthropologist and linguist Elaine Jahner's (1983) discussion of James Walker's documentation of Lakota myth and ceremonies offers important insights about the nature of oral tradition. She suggests that there are three kinds of oral traditions: stories that happened to the storyteller; stories that happened before the storyteller's life but were heard from parents, grandparents or older members of the community; and stories that happened long ago, in "mythic" time.

The first two types of oral tradition constitute the history of the group and therefore care must be taken that they are always recounted with exactitude. In Nakoda and Niitsitapi society, an individual's status and role derives from their personal accomplishments. It is not appropriate to embellish one's achievements. In small scale societies, where everybody knows each other, any personal enhancement of one's ability would quickly bring ridicule.

Similarly, historical events must be recalled accurately. These stories document incidents that have affected the entire group, sometimes shaping the composition and structure of society. They may also describe past encounters with neighbouring people and serve as the basis for explaining current relationships.

Myths extend history far back in time. This category includes stories that describe how cultural practices came into being and why various cultural protocols are important. In a large society that has subdivisions, there may be versions of these stories that vary in the details. According to Jahner (1983) these differences are to be expected and, in fact, this verifies these stories as fundamental components of a culture, as long as the fundamental lessons remain consistent among the versions. Moreover, these variations become important aspects of the self-identification of society's sub-groups. For example, variations in details of Napi stories occur among Siksika, Kainai and Piikani. These differences are part of how each of these Blackfoot-speaking groups indentifies itself in relation to each other.

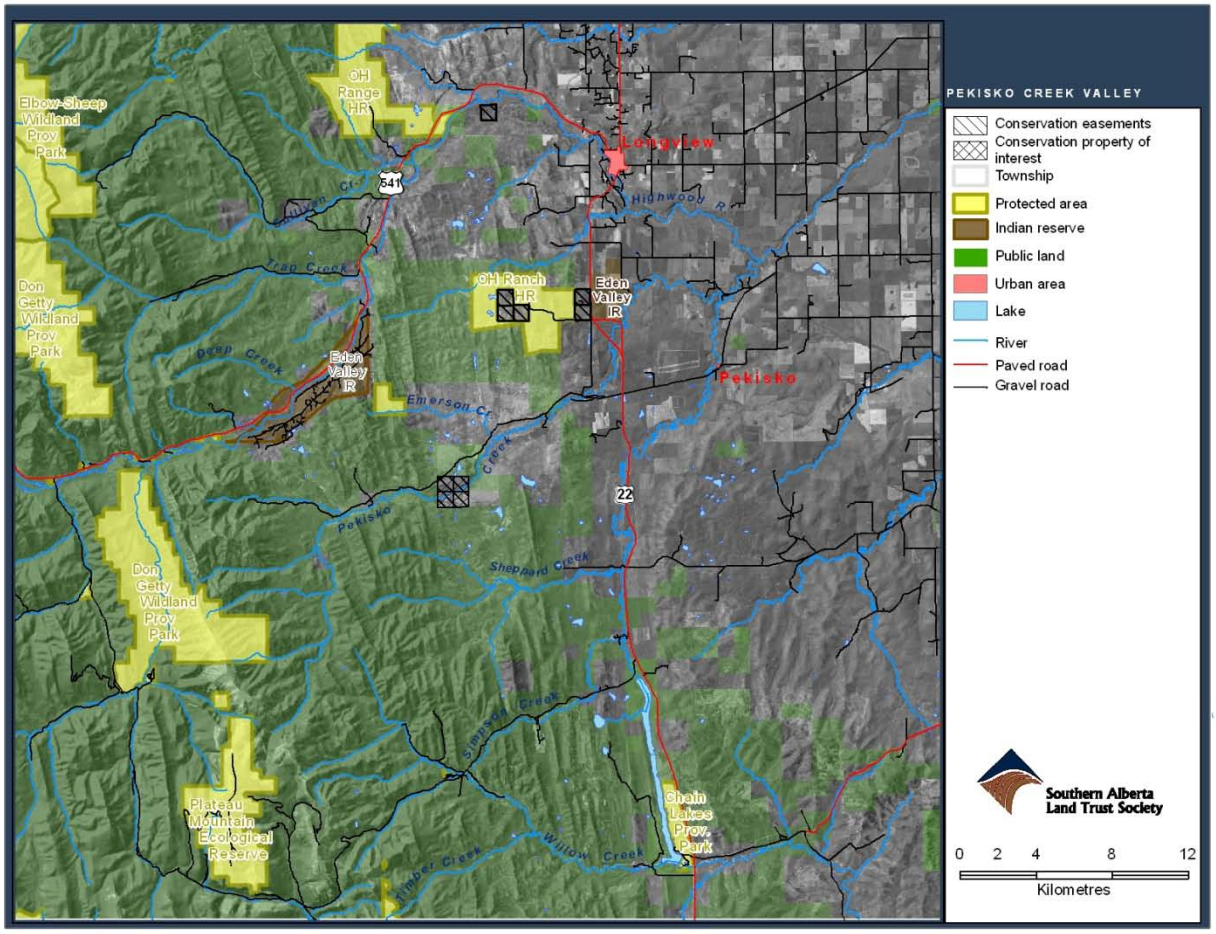

Figure 1: Location of Hanen Ranch

Mythical Stories and Sacred Relationships

Mythic, or ancient stories also describe the origin and nature of human relationships with the rest of the universe. Within the context of these stories, the rest of Creation appears to human beings in forms we can recognize and act in ways that make sense. In many instances these stories explain how human action has been inappropriate and describe how behaviour should occur.

Mythic stories which connect human beings with their cosmos reaffirm the roles and responsibilities of all beings. These stories often involve conflict arising from inappropriate behaviour by one or more members of the cosmos. The conflict, which is resolved only when the behaviour is modified, illustrates the consequences of acting poorly.

These sacred stories are often situated at very specific locations within a group's territory. These are not "just so" stories about how certain features of the landscape came to be formed. They are historical oral traditions concerned with the origins of a people and a culture. The physical, sacred objects associated with these stories are historical documents. The sacred geography of these stories locate the spiritual homeland of a culture and provide a rationale and justification for the people to be in that place.

Biographies

A person's biography is composed of the incidents that happened to an individual during their lifetime. The Western literary tradition often orders these events around an important revelatory, life-changing event. There is a causal link between these incidents and the path of a person's life. When autobiographies of First Nation's people have been co-authored by non-Natives this narrative form has usually been adopted. In recent years there has been a re-evaluation of this practice in an effort to develop a more "realistic" portrayal of people's lives (Brumble 1988).

Historical Accounts

These biographical stories may outlive the protagonists and eyewitnesses of the original events. What once was a personal story becomes an historical event as it is retold generation after generation. In the process, individuals may be elevated to an almost iconic status as their deeds become symbolic of cultural values.

There has been an assumption in Western academic practices that oral traditions are not always accurate. As these stories are told over generations, the argument goes, it is to be expected that details will be altered or forgotten and that variations will develop. At least one historian has found this not to be the case.

Hugh Dempsey has written many books and articles about Niitsitapi. In the "Introduction" to a collection of stories, Dempsey reflects on Blackfoot oral traditions:

> I found that oral history from the elders blended easily and smoothly with Government reports, newspapers, and other sources if one could view it from a Native standpoint. I learned, for example, that a storyteller, reciting the incidents of a century earlier, could include the actual conversations that had taken place. At

> first this seemed to be almost fictionalizing the events, until I realized that oral communication was the only way the Blackfoot had to pass on their history. Each story teller was careful to relate the tale just as she had heard it; consequently, after being repeated by two or three generations, it still maintained the integrity of the original story.
>
> (Dempsey 2003: xii-xiii)

This is a continuing tradition. The stories that Dempsey focuses on generally relate to individuals. This oral tradition is also an important way of transmitting knowledge of specific events.

Oral tradition continues to be vital. The ancient stories of various landscape features remind people of their sacred connection with the land and all the Other Beings who inhabit our world. History is remembered as stories of people's grandparents are recalled and retold with careful attention to every detail. The accuracy and veracity of oral traditions is often reaffirmed as a circle of knowledgeable individuals meet to discuss topics, each adding their knowledge to enhance the whole.

First Nations of Southwestern Alberta

The use of this area by First Nations people can be divided into four periods: Ancient Times (before the arrival of Europeans); the Trade era (when trade with Euro-Canadian fur traders and American whiskey traders had a significant influence on First Nations' economy); the Treaty era; and the Ranching era (during which First Nations were confined to Reserves). While First Nations people's use of the plants, animals and other resources of the region has persisted for thousands of years, the influence of Euro-Canadians brought some changes. The Indigenous history of the area is complex.

First Nations and the Eastern Slopes

This area was used by at least two different First Nations. Some consider Niitsitapi (Blackfoot-speaking people) to be the original inhabitants (Reeves and Peacock 2001; Blackfoot Gallery Team 2000). Niitsitapi include Kainai, Siksika, Piikani and Blackfeet (Aamskapipiikani) (Figure 2). A map drawn by David Thompson and published by Arrowsmith in 1795 indicates that Piikani frequented the eastern slopes of the Rocky Mountains in southwestern Alberta in the area of Pekisko Creek while Nakoda lived in the mountains and foothills further north (Belyea 1994: 306). It should be noted, however, that identifying First Nations territories through the records compiled by fur traders and explorers can be fraught with difficulties. Euro-Canadians often relied on their First Nations guides for explanations of territories; explanations which were often biased. Moreover, the newcomers tried to impose a European model of space, property and territory on people who understood these concepts in very different ways.

The Nakoda were differentiated by fur traders as Mountain Stoney and Wood Stoney. Both are related to the Assiniboine of the northern plains and speak a variation of the Siouan language family (Getty and Gooding 2001:396). The Mountain Stoney (called here Nakoda) include the Bearspaw, Chiniki and Wesley (also known as Goodstoney) Bands. Some elders recount stories of groups travelling westward to escape epidemics spreading through eastern populations (MacEwan 1969: 22). Archaeologists have suggested that the Nakoda people may have first arrived in southern Alberta in the early 16th century, with further migrations during the 19th century (Reeves and Peacock 2001: xvii; 20). Nakoda assert that they lived along the eastern slopes prior to the coming of Europeans in the early 18th century (Snow 1977: 2). Historically, their territory extended along the parkland, northwest of present-day Edmonton, to the plains southwest of present-day Calgary, and along the foothills and mountains from the Smokey River to the Highwood River (Getty and Gooding 2001:396; Belyea 1994:306). Nakoda oral tradition relates that their traditional territory extends north to the Athabasca River, east along the North Saskatchewan River to a longitude parallel with the Cypress Hills, south to the Teton Mountain Range in modern day Yellowstone National Park, and westward to the Kootenay River in modern day British Columbia. They coexisted in this area with Blackfoot-speaking people. Today, most Nakoda reside at the Nakoda Reserve, along the Bow River west of Calgary. Members of the Wesley Band also live on the Big Horn Reserve, near Kootenay Plains. As well, some members of Bear's Paw band live on the Eden Valley Reserve, near the Bar U and Rio Alto ranches. (see Figure 1 for the location of Eden Valley Reserve)

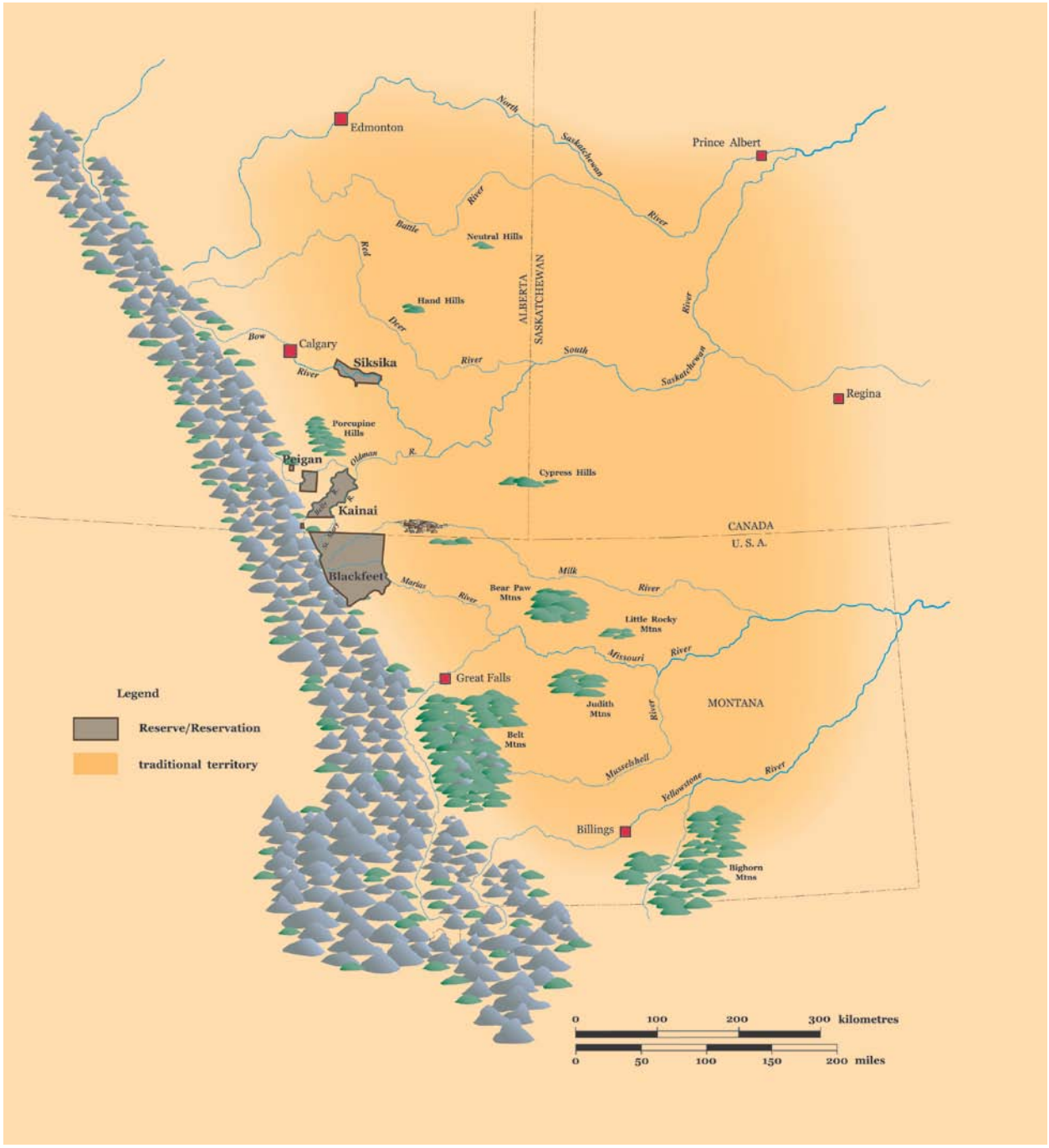

Figure 2: Blackfoot Reserves within traditional territory

The K'tunaxa (Kutenai; Kootenay), generally, lived on the west side of the continental divide along the Columbia River basin in present-day southeastern British Columbia as well as in the present-day states of Washington and Oregon. Reeves and Peacock (2001) and Schaeffer (n.d.a, n.d.b), while tracing the history of several K'tunaxa groups, observe that they often travelled over mountain passes to hunt bison along the eastern slopes of the Rocky Mountains. This was especially true of the Akaminik, Gakawakumitukinik and Akanahonek. The Akanahonek , in particular, frequented the southwestern corner of present-day Alberta, sometimes hunting as far north as the Porcupine Hills (Reeves and Peacock 20001:26-28). While they may have periodically ventured into the Pekisko Creek area, it is generally peripheral to K'tunaxa.

Changing Resource Use Over Time

Ancient Times

The most significant resource in the plains ecosystem was the bison. This animal provided an array of material, including food, hides for shelters, bones for tools, sinew for cord, and internal organs for containers. Bison are often referred to as the "supermarket of the plains." First Nations who hunted them developed patterns of social organization and settlement patterns in response to the seasonal habits of these animals. Bison were the material, spiritual and social focus of their life

Over the course of a year, Niitsitapi moved to follow the bison (Figure 3). The extended family, or clan, usually camped together throughout the year. During the spring and summer Niitsitapi travelled eastward across the plains. By autumn they were travelling toward the foothills or river valleys where they would spend the winter. At midsummer all of the clans camped together for aakokaatssinn (often called the sundance). In early autumn several clans might join together at a piskun (bison jump or pound) such as those at the sites of Head-Smashed-In or Women's jumps. Here, a large number of bison were killed and butchered, providing dry meat and pemmican (pounded dry meat mixed with crushed berries and fat) for the winter.

Nakoda relied less on bison. Rather than move onto the plains during the summer months, clans (composed of extended family members) stayed close to the mountains and foothills. Moose, deer, elk and bear were important sources of food and material for clothing and shelter. The clans gathered for the sundance, but dispersed again. Bison drives were used occasionally, but may not have been as important for Nakoda people as they were for Niitsitapi. Pemmican was also an important source of food when travelling and during the coldest months of winter.

K'tunaxa also followed the bison onto the plains. For these "Westside People" the journey was long and perilous. Several extended families travelled together through the mountain passes and into the westernmost part of Niitsitapi territory. They rarely travelled far onto the plains and returned across the mountains by early winter.

Bison were not the only resources that were used. Elk, deer, antelope and moose provided hides for clothing as well as meat. Plants were important for food, medicine and ceremonies (see Raczka and Bastien 1986; Hellson and Gadd 1974; Johnson 1982, 1987 and Peacock 1992 for discussions of Niitsitapi plant use. No such similar studies have been published for Nakoda plant use). While animals are mobile and would have been encountered by chance, plants are stationary and there is usually only a small window of opportunity when a species can be harvested. Moreover, a berry patch may be bountiful one year and produce only a meagre crop

the next. While bison may have determined the general yearly movement of camps, the patchiness of the plant resources required a flexible response to situational variability. This, in turn, required extensive knowledge of both the regional and local ecology.

The Fur Trade

Important changes in the early 18th century had profound effects on the lives of the First Nations people who frequented the eastern slopes of the Rocky Mountains. In 1690 the Pueblo peoples of present-day southwestern United States and northern Mexico revolted against their Spanish colonizers. The haciendas were abandoned and the horse herds dispersed. Horse raiding and trading quickly became an important part of First Nations cultures in western North America and by about 1730 (Ewers 1958: 21-23; Moreau 2009: 289-298) the animals had arrived in what is now southern Alberta.

At nearly the same time European-manufactured items, brought to the New World by British and French fur traders, began trickling onto the plains. Utilitarian items such as steel knives, traps, metal edges for hide scraping tools and firearms led to important technological innovations that made harvesting plants and animals easier. Glass beads, wool and cotton cloth, bells and commercial paints enhanced people's artistic pallet.

A new economic emphasis was introduced. People no longer used animal hides only for clothing and shelter. They became a valuable commodity that could be exchanged for useful tools that made one's work easier and for goods that enhanced one's artistry. Warfare intensified and became more deadly (Moreau 2009: 290-292).

The British (Hudson's Bay Company or HBC) and Canadian (primarily the North West Company or NWC) traders built stockaded and fortified trading posts at intervals along major waterways. The HBC brought trade goods from Britain to large factories on the shores of Hudson Bay from whence they were transhipped to inland posts. The NWC and other companies based in Montreal also transported trade goods via canoes along rivers to the inland establishments. Occasionally, traders were sent from these posts to First Nations camps. More often, the traders waited for the First Nations to travel to the trading post. The First Nations now included visits to these posts as an important part of their travels, although many did so on an irregular basis.

Treaty Era

The arrival of Europeans brought more fundamental changes to First Nations than anyone could have anticipated. In addition to the useful trade goods, alcohol and foreign diseases were introduced. While alcohol eroded the social structure, the diseases killed much of the population. Niitsitapi have always kept annual records by drawing a pictograph symbolizing the important event of each year. Originally these "winter counts" were painted on bison hides, but later versions were compiled in account ledgers provided by government officials. From these records we discover that major epidemics of smallpox, measles, whooping cough and other diseases ravaged the population every 15 to 20 years (Raczka 1979). This interval was especially devastating since it enabled the vector to attack a generation that had not previously been exposed to the disease and, therefore, had little immunity. Up to three-quarters of the population may have perished during any given episode. Sometimes, entire clans died.

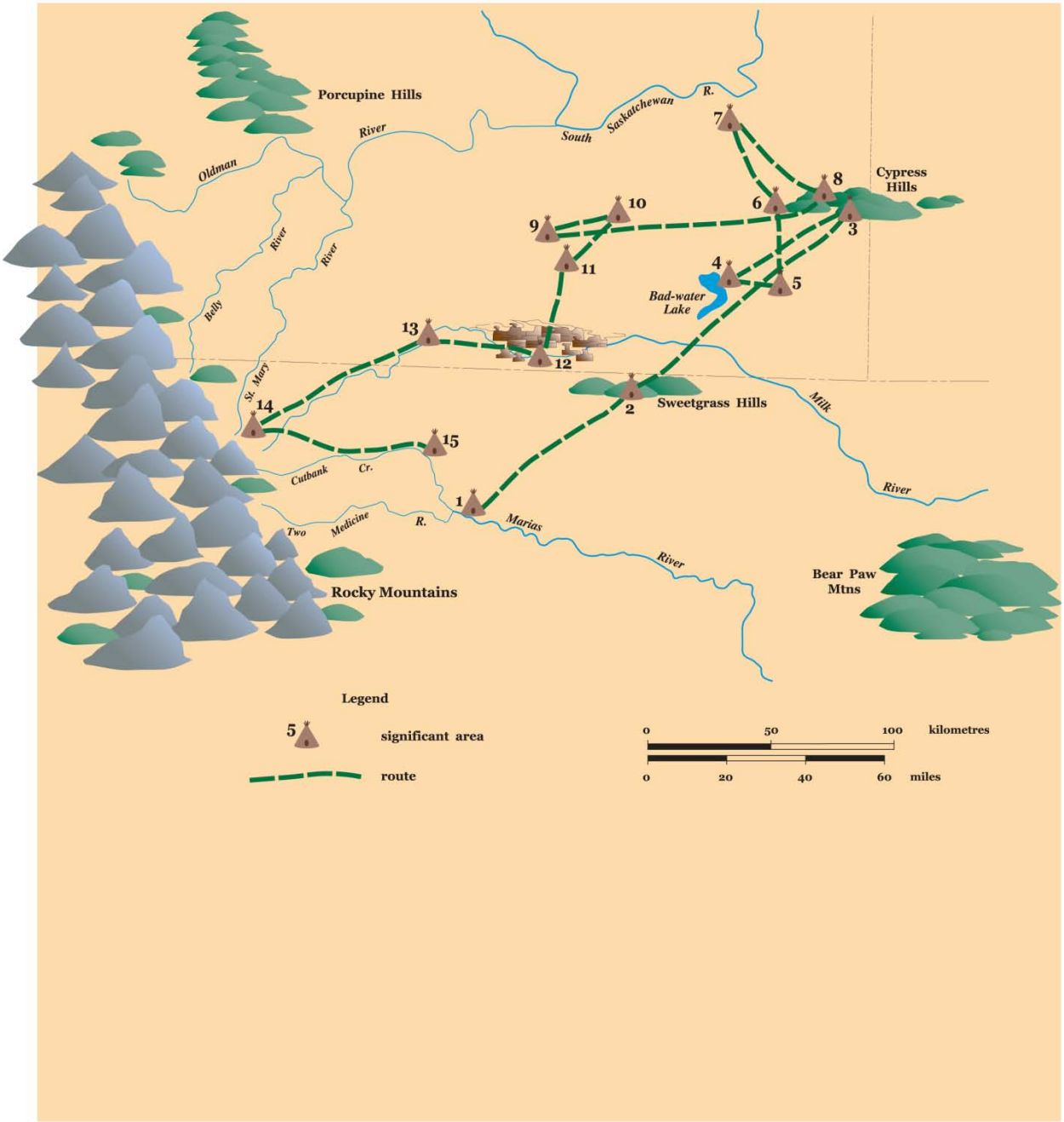

Figure 3: One year's travel by a Ammskaapipiikani clan as recounted by Kainaikoan (Uhlenbaeck 1912)

Treaty Era cont.

In addition to disease, First Nations people found themselves facing starvation as the vast herds of bison were driven to near-extinction. The intensification of the fur trade in Canada brought further pressure on the herds as their meat – when dried and pulverized with berries and fat – was an invaluable staple for fur brigades travelling from the prairies to the coast of Hudson Bay. Newcomers had always been indiscriminate hunters (Parkman 2008: 283-284) and as their numbers grew, the impact on the herds intensified. Pressure from ever-expanding settler populations reduced grazing land available for bison. Since bison and cattle competed for the same grasses, it became expedient to kill the bison in order to provide more pasture for cattle. The construction of railroads across the plains may have interfered with the north-south migration of the herds. The trains also brought tourists and hunters and it became great sport to shoot the animals from passenger cars. Often the animals were left to rot. The United States government abetted in the near-extinction of the bison, recognizing that by killing off these animals they could coerce the Plains First Nations to settle onto their Reservations.

Treaty 7 was made in 1877. By 1879 the bison had all but disappeared from the Canadian plains. That year, government officials encouraged Niitsitapi to travel to the Judith Basin in Montana Territory where some herds still existed (Ewers 1958: 279). The next year, even those animals were gone and the people – starving and destitute – moved onto the Reserves that had been set aside for them. Here, rations were provided and clothing distributed. While some continued to travel, most people became tied to the Reserves where food given out by the government, however meager, was better than facing starvation.

The Ranching Era

The 1880s and 1890s saw significant changes in the land use patterns in southern Alberta. The small ranches and homesteads that proliferated earlier were now joined by large, corporately-owned ranches that were centred on privately-owned land but also leased large areas of pasture from the Crown. Several of these abutted Reserves in southern Alberta: the original Cochrane Ranche was established on the Bow River near the Nakoda Reserve. It relocated to the Belly River, adjacent to Kainai Nation. The Waldron Ranch was next to Piikani Nation; and the Bar U Ranch held pasture that bordered Siksika Nation. Many Nakoda worked at the Bar U and the Nakoda Eden Valley Reserve was set aside in 1928. Occasionally this caused problems as cattle from the ranches strayed onto Reserve lands, eating crops and hay and mingling with First Nations herds. But the Nakoda and Niisitapi coexisted with neighbouring ranchers to the mutual benefit of all. The First Nations offered advice about how to live in the area and provided hay and horses to the newcomers. The ranchers respected the right to access areas where important plants grew and provided food in return for labour.

Traditional Land Use and Oral History

Methodology

Oral traditions of land use of the Hanen Ranch property and surrounding region were collected from Piikani, Kainai and Nakoda in multiple stages. First, individuals with knowledge of their Nation's oral history and/or ecology were approached and the nature of the project was discussed. The area was outlined on 1:50,000 and 1:250,000 topographic maps and air photos. The smaller scale representations showed more detail, while the larger scale helped to put the property into a regional context. As the discussion of pre-Contact history indicates, people were concerned with large areas when planning camp movements. Further research is needed to add details to the oral history concerning the significance of locations in the area.

These initial discussions were followed by visits to the ranch. These enabled First Nations people to view the location, geography and the various resources that occur on the ranch and adjacent properties. Visiting all parts of the property was difficult. Tall grass, thick brush and Pekisko Creek limited how far the elders could walk.

Preliminary and site visits were made with representatives of Kainai and Piikani First Nations and Nakoda First Nation. Separate one-day site visits were made with a Kainai and Piikani elder. These were confined to the north side of the creek. A two-day visit with Nakoda elders took place on September 29-30, 2010 and included a walk along both sides of the creek, west of the Hanen house. A longer survey to the east focussed on looking for some burial sites that one of the elders had heard about.

The site visits were followed up with further discussions after the elders had had time to reflect on what they had seen during the site visit. They were asked how their ancestors might have used the area, if there were oral traditions about past use, and what ancient stories (legends and myths) were associated with the site and larger region. Finally, inquiries were made about historic connections with ranching, especially the Bar U and Rio Alto which are located nearby on Pekisko Creek and the Highwood River, respectively. Previous research concerning the history of the Bar U Ranch by Parks Canada included interviews with Stoney/Nakoda from the Eden Valley Reserve.

Results

The results of the traditional land use study of the Hanen Ranch property and surrounding area focuses on Piikani and Nakoda. This begins with a discussion of the ethnogeography of the region. Ethnogeography considers a landscape from the perspective of the people who now inhabit (or inhabited) the place. It includes ancient stories (myths or legends); events that occurred in the distant past that are still remembered but were not observed by anyone still living; and events that occurred within the life time of people still living. The ancient stories often illustrate the origin and importance of key cultural values and are particularly important links between people and place.

This is followed by a consideration of the resources that would have attracted people to this place. The impact of Newcomers on the use of this area will then be discussed. These

Newcomers include British and Canadian fur traders and American-based "whiskey traders". The establishment of Reserves and the imposition of the Pass System impacted First Nations people's freedom of movement and their ability to visit familiar places for important resources. Finally, the impact of the establishment of Reserves and the development of the ranching industry will be discussed.

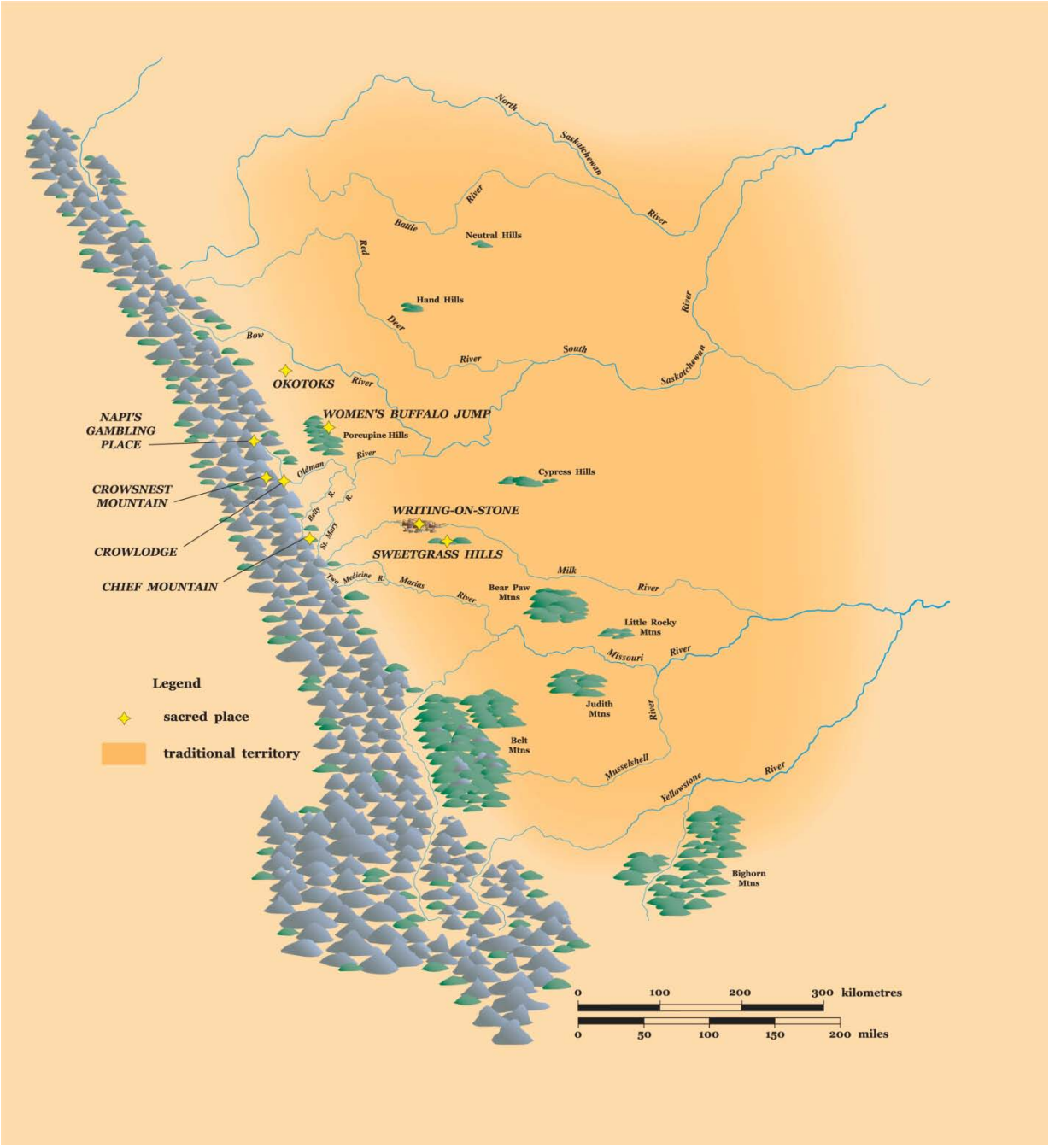

Figure 4: Location of some Blackfoot sacred places

Ethnogeography

Ethnogeography is concerned with the ways in which Indigenous people describe their relationship with the land and the non-human beings with whom they coexist. Ethnogeography includes both sacred sites on the landscape where ancient stories occurred and traditional use of site-specific resources. An important part of ethnogeography is the network of trails that link important places.

Niitsitapi

Niitsitapi relate numerous landscapes in present-day southern Alberta and northern Montana to ancient stories (see Figure 4 for some examples). Of particular relevance to this study are the story of "Old Man Makes a Drive and Loses Meat in a Race", "How Men and Women Got

Married", and "Ihkitsikammiksi (the story of the Seven Brothers or the Big Dipper)". Napi, or Old Man, was an ancient person who always acted inappropriately. Stories about Napi provide examples of the consequences of bad behaviour. Since Napi is an ancient Niitsitapi, the location of these stories identifies the long tradition of Niitsitapi presence in the region. Versions of these stories can be found in Appendix 2.

"Old Man Makes a Drive and Loses Meat in a Race" occurred along a river to the north of the Hanen Ranch. The meat that Old Man (Napi) lost was elk tongues and the stream bears the name Tongue Creek. "How Men and Women Got Married" occurred at a bison jump known as Old Woman's Buffalo Jump, near present-day Cayley, to the east of the Hanen property, along what is now Secondary Highway 540. The Blackfoot name for this site is Women's Buffalo Jump (Piskunaki). It was there that the women were processing the bison they had just recently run over the cliff. Because Napi or Old Man is part of the story, the name has been misconstrued to be Old Women's Jump.

The story of Ihkitsikammiksi goes beyond locating events in space and describes the origin for aspects of the world. As the boys are chased by their mother, they use their sacred power to put obstacles in her way. These obstacles become elements such as wind and rain, geomorphologic features such as deep coulees and mountains as well as the vast expanse of prairie grasses (although some people interpret this to be the atmosphere). The story also recounts how the Porcupine Hills came into existence. The Porcupine Hills lie southeast of the Hanen Ranch and have a significant effect on the regional weather.

Nakoda

Nakoda also have ancient stories about the Hanen Ranch area. Thechauske has many meanings. He is whirlwind. He is spider. He can change form. And he can cause both good things and bad things to happen. Because Thechauske is such an important cultural figure, locating his stories at specific places in the landscape reinforces Nakoda cultural ties to the area.

Three stories illustrate the connection to the region (see Appendix 3). These stories were narrated by Nakoda elders, translated by Alfred "Toots" Dixon, Jr., recorded by Thomas T. Williams in a book written by Sebastian Chumak. In these stories, Iktomni is the name given to the trickster character. Consultants to this project suggest that his name is more

properly Thechauske. "Iktomni and the Big Rolling Rock" takes place in the Porcupine Hills. Part of "Iktomni Becomes Blue Robe Woman" occurs along Mosquito Creek, which flows eastward out of the northern part of the Procupine Hills. In this story, when winter strikes hard Old Moccasin, the camp leader, moves his people to Pekisko Creek, a place of shelter and sanctuary. This is an important point, for it reinforces in Nakoda memory the significance of Pekisko Valley. A third story, "Flaming Woman" takes place on Sheep River, about 20 km north of Pekisko Creek. This story relates that people who were camped along Sheep River were starving. When a bison herd is discovered, it is to the west. The Nakoda define their homeland and heartland as laying along the foothills and eastern slopes of the Rocky Mountains.

The Nakoda consultants to this project observed that all of the taller hills would have been communication points. Scouts positioned at these vantage points could scan the horizon for herds of bison and for approaching enemies. News could be signalled from one hill to another as camps were kept informed of the latest news.

Trails and Routes

The Old North Trail passes by some distance to the east. The importance of this trail was realted to Walter McClintock by Brings-Down-the-Sun, a Piikuni elder:

> This is a well known trail we call the Old North Trail. It runs north and south along the Rocky Mountains. No one knows how long it has been used by Indians. My father told me it originated in the migration of a great tribe of Indians from the distant north to the south and all the tribes have, ever since, continued to follow in their tracks.
> …
>
> The main trail ran south along the eastern side of the Rockies, at a uniform distance from the mountains, keeping clear of the forest, and outside of the foothills.
>
> (McClintock 1992: 434-435

The trail was remembered by geographic landmarks, such as Crow Lodge Creek and Women's Buffalo Jump in southern Alberta. This is not far from the present-day Hanen property and would have enhanced access to the area.

Nakoda oral traditions remark on the presence of numerous trails that link several valleys in the region. The Old North Trail was known as a link to both the Bow River to the north and to the Yellowstone River to the south. Nakoda tended to travel in the foothills and eastern slopes of the Rockies and may not have used the Old North Trail as much as Niitsitapi. Other records of Nakoda oral traditions make frequent reference to the Pekisko Creek area and the trails that led into this valley from the north.

Traditional Resource Use

Niitsitapi

Niitsitapi identify the Hanen Ranch and surrounding region as a functional area. Local resources include a variety of berries, ample firewood and water. Nearby slopes may be the site of camas and wild turnips. Elk, moose, deer and other animals are also abundant. Combined, these create an important place to camp in early fall and through the winter.

Nakoda

Nakoda who visited the site were impressed with the variety of plants present. They remarked that there were many plants that were used for food, medicine and spiritual purposes. The Nakoda did not identify a particular season during which they would have used the area. Rather, since their traditional territory extended all along the eastern slopes of the Rocky Mountains, they suggested that they would have used the area any time of the year.

Trade Era

Fur Trade Era

As Euro-Canadians built trading posts along the North Saskatchewan River (Figure 5), Niitsitapi included these establishments in their travels. Their visits were far from regular and their timing depended on which other First Nations were in the area, the availability of food (especially bison) in the area around the forts, and their overall relationship with the individuals at the posts.

The Hudson's Bay Company and North West Company had major establishments at Fort Edmonton/Augustus House and Acton House/Rocky Mountain House on the North Saskatchewan River. Acton House/Rocky Mountain House, on the upper reaches of the river, were especially important for trade with the Piikani (Arima1995). Either of these would have been accessible by following the Old North Trail at least as far as the confluence of the Bow and Elbow rivers.

After 1821, when the two trading companies amalgamated, the Hudson's Bay Company attempted to build trading posts south of the North Saskatchewan River. Old Bow Fort (also called Peagan Post), in the foothills on the Bow River and Chesterfield House, at the confluence of the South Saskatchewan and Red Deer rivers, were not commercially successful. Overland transportation of trade goods and a poor return of beaver pelts made it uneconomic to operate these posts. Chesterfield House was closed in 1823 and Old Bow Fort in 1834 (Kennedy 1997: 10).

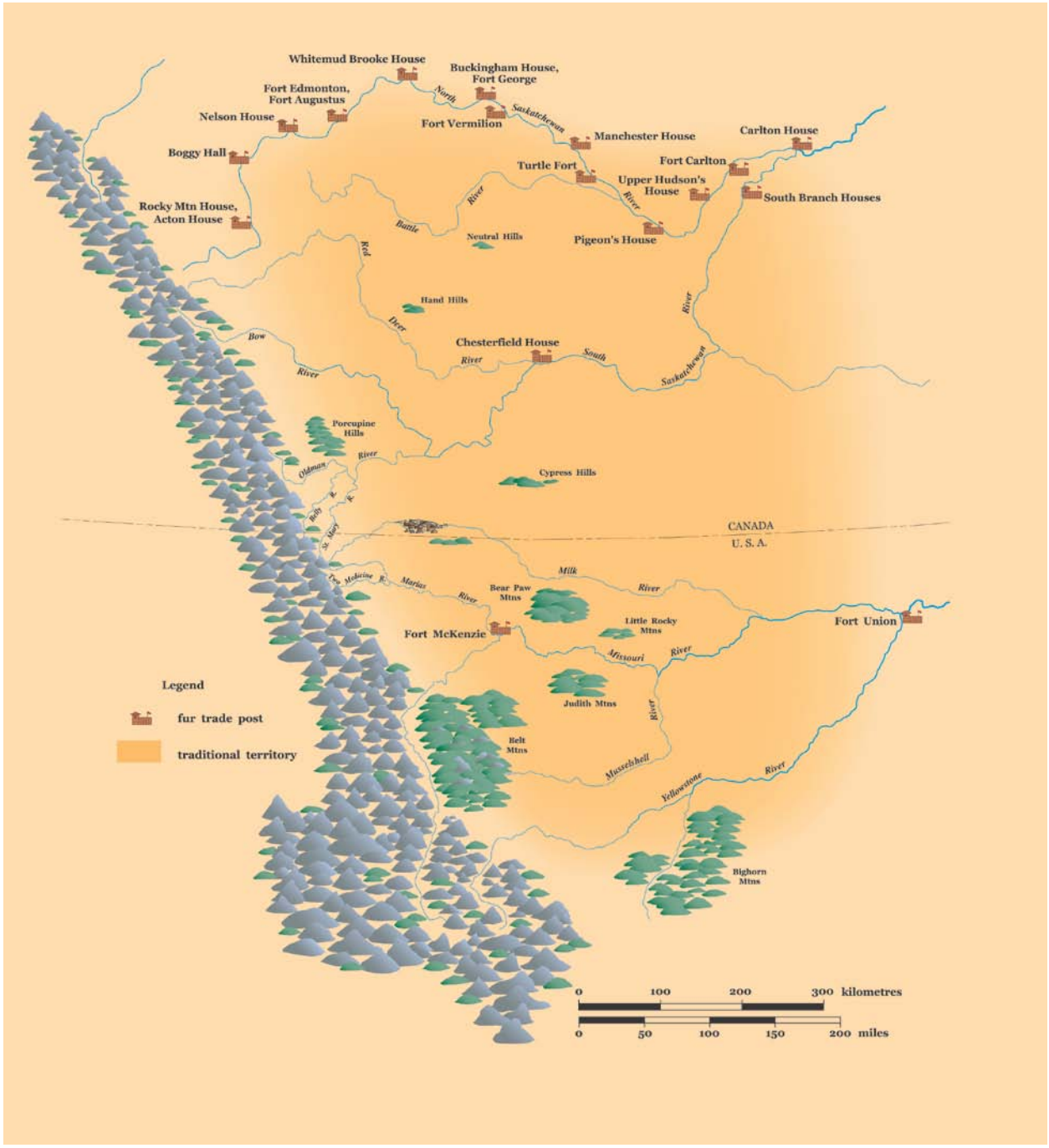

Figure 5: Location of some fur trade posts in Niitsitapi and Nakoda territory

Whisky Trade Era

American traders who moved onto the western Plains in the 1860s and 1870s were primarily interested in obtaining bison hides. First Nations women processed these to make soft, pliable robes, with the hair on. There was great demand for these in eastern North America, where they served as covers while riding in open sleighs as well as for furniture upholstery. The best robes were procured in winter, when the hair was the thickest.

Many of the American traders brought liquor as a major article of trade with the First Nations. The "Whiskey Trade" became a violent time. The traders skirted American law enforcement (it was illegal to sell alcohol to First Nations people in the United States) to make their way into Canada (where there was no law enforcement) where they exchanged various items for bison hides. Most notorious of the traded items was whiskey – often raw alcohol that had been "doctored" with various spices and poisons to improve its "kick".

These traders were often transient, building a shanty-like trading post that lasted only for a season. Most of these were located along the Oldman, Belly and St. Mary's rivers, close to the border between the United States and Canada (Figure 6). A few outfits ventured further north, building trading posts on the Highwood River (Spitzee Post, near present-day High River), Sheep Creek and the Elbow River. Spitzee Post(s) also catered to wolfers – non-Native men who poisoned, shot and trapped wolves for the bounty paid for their hides. The Hudson's Bay Company tried to compete by building posts on the Bow River, east of the confluence of the Bow and Kananaskis rivers (currently on the Nakoda Reserve at Morely), and on the Highwood River, near its confluence with the Bow River. Neither of these ventures was successful (Kennedy 1997: 99).

Effects of Changing Trade Patterns on Nakoda and Niitsitapi

The development of trade in southern Alberta had a number of important effects on the Nakoda and Niitsitapi. First, the focus on resources harvested for trade changed from beaver and other small, fur-bearing animals to bison. Second, people did not have to travel as far to trade. Rather than travelling north to the North Saskatchewan River, people could visit trading posts that were closer at hand. This may have altered how people travelled in their environment. Third, the growing focus on the bison hide trade resulted in many more of those animals being killed. Bull Plume's Winter Count records that 75,000 bison hides were shipped east in 1875 (Raczka 1979: 67). As the herds disappeared, so too did a key source of food, shelter and many other things. Pressure from the loss of bison drew First Nations into closer contact and conflict with each other. All this was exacerbated by the poisoning effect of alcohol.

It is difficult to assess the effects of the fur trade and whiskey trade on Nakoda and Niitsitapi traditional land use. The Old North Trail would have led travellers towards the fur trade posts on the Saskatchewan River and to the whiskey trading posts on the Highwood, Sheep, Elbow and Bow rivers. Pekisko Creek is not presently an important habitat for beaver or other fur-bearing animals that would have been economically important. Bison are not found in the Pekisko Valley today and their presence in the past cannot be determined. The presence of Spitzee Post does suggest that the larger region may have been important during the Whiskey Trade era.

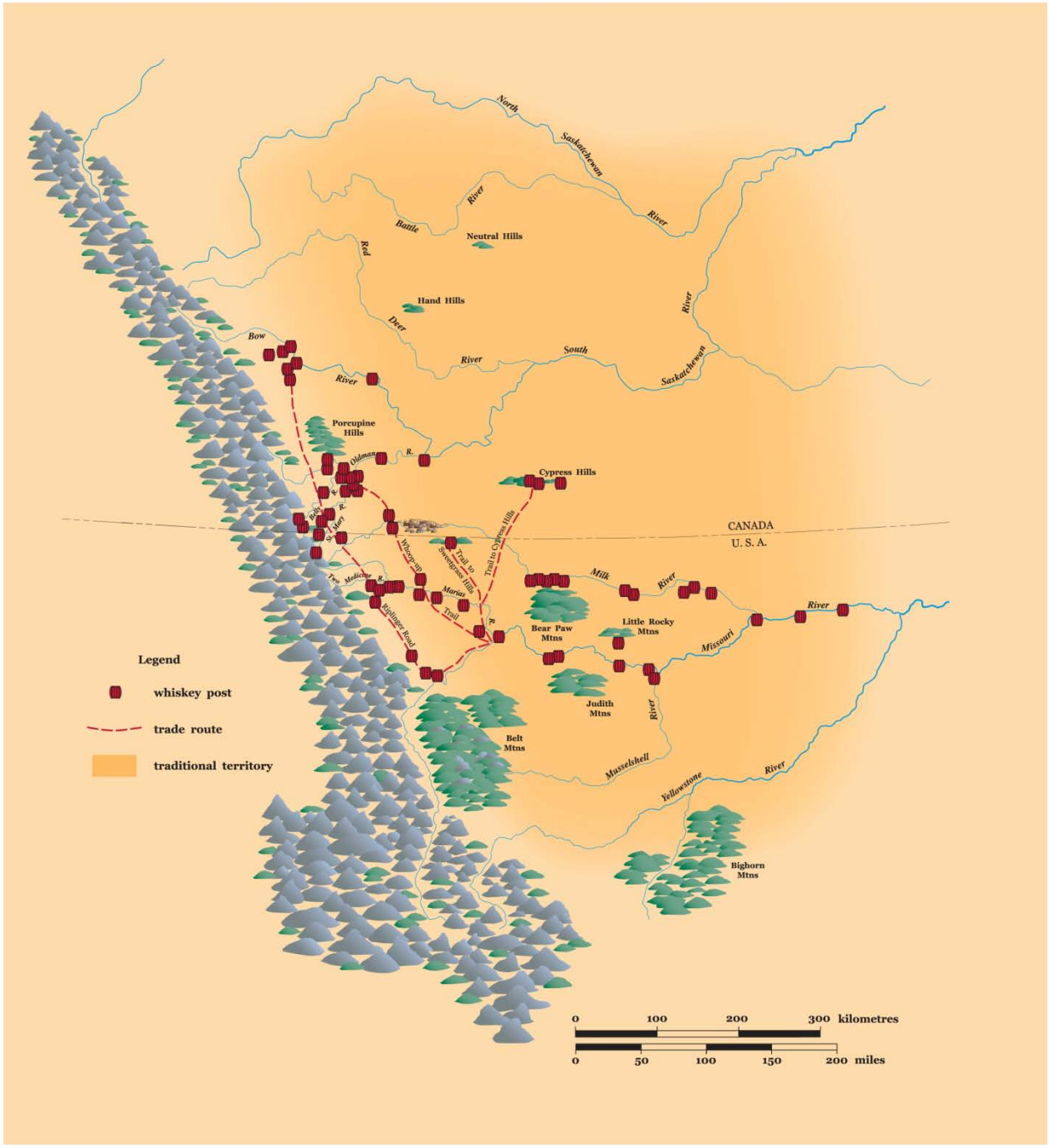

Figure 6: Whiskey posts located in Niitsitapi and Nakoda territory

The Treaty Era

The making of treaty in 1877 had unforeseen consequences for Nakoda and Niitsitapi. The near-extinction of the bison and consequent dependence on government-issued rations incurred an expense that the bureaucrats and politicians had not anticipated. A program of "civilizing the Indians" was initiated to discourage traditional practices and encourage the development of agriculture (farming and ranching). Officials believed that First Nations must become self-sufficient and relieve the government of the "burden" of providing food, clothing and shelter to anyone but the very needy (Belanger and Conaty n.d.). When the progress seemed too slow, officials in the Department of Indian Affairs pressured the First Nations to sell parts of their reserves in order to create a trust fund that could be drawn on to sustain them (Hanks and Hanks 1950; Belanger and Conaty n.d.)

The pressure to become "civilized" and self-sufficient was confounded by the imposition of the Pass System. The Northwest Resistance of 1885 spread fear among the Newcomers to western Canada. As a measure of reassurance, the government confined all First Nations people to their reserves. A person travelling beyond the reserve boundary was required to carry a pass signed by the Indian Agent. Passes were, generally, valid for only three days. A person found off the reserve without a valid pass was considered to be a criminal and could be fined, jailed, or both. The Pass System was enforced in the Treaty Seven area until the mid-1930s and remained as part of the Indian Act until 1951. There was never any legislation to empower the government to impose the Pass System.

The dependence on government-issued rations and the travel restrictions of the Pass System had a deleterious effect on Nakoda and Niitsitapi use of their traditional territories. Longer journeys to collect food and medicines were curtailed and many places that had been visited regularly were no longer accessible. For most, their world narrowed to within the confines of their reserve.

Niitsitapi use of Pekisko Creek

These restrictions kept Niitsitapi from accessing large areas of their traditional territory. They no longer moved between the plains in the summer and the foothills and major river valleys in the winter. They no longer followed the Old North Trail northward to the Hudson's Bay Company trading houses at Fort Edmonton and Rocky Mountain House.

The Pekisko Creek area is not remembered as a place of special significance by Piikani and Kainai advisors to this study. The Piikani Reserve is near Pincher Creek and the Kainai Reserve is located near Lethbridge. Both of these are a considerable distance from Pekisko Creek and travel would have taken a good deal of time, especially at a time when horse and wagon were the primary mode of transportation. It would not have been a destination for anyone who had obtained a three day pass from the Indian Agent.

Nakoda use of Pekisko Creek

There are strong ties between Nakoda and Pekisko Creek valley. When the Nakoda Reserve was established at Morley, members of the Bearspaw Band remained in the Eden Valley area, just north of Pekisko Creek. This was familiar territory to them and was an area where they knew

that relatively good soil would produce the food, medicinal and spiritual plants that they needed. They also knew how this availability would be timed throughout the growing season. By not moving to the reserve they may not have been eligible for rations. However, they were not restricted to a reserve by the Pass System and continued to live and travel along the eastern slopes.

Ranching Era

As Niitsitapi and Nakoda moved onto reserves, occupation of their traditional lands was taken up by cattle ranchers. The Bar U ranch was located beside Pekisko Creek and the Rio Alto (OH) ranch had its home quarter several miles northwest, along the Highwood River.

Niitsitapi

The Kainai, Piikani and Siksika reserves are a considerable distance from Pekisko Creek and the large ranches that were established in the foothills. Kainai and Piikani men often worked at ranches neighbouring their reserves, but do not seem to have travelled as far as Pekisko Creek. There are some photographs that identify "Blackfoot" men at Bar U brandings. Fred Stimson, who managed the ranch from 1892 to 1902, apparently spoke fluent Blackfoot and acquired a comprehensive collection of beadwork and other items (Evans 2004:81-82; Figure 7). The ranch often trailed cattle northwest to the Bassano area where they grazed during the summer. Siksika men may have been hired as ranch hands at that time.

Nakoda

Nakoda families were an important part of the ranching community along the eastern slopes. In his history of the Bar U ranch, Simon Evans estimated that, in 1918, as many as half of the branding crew may have been Nakoda men (Evans 2004: 262; Figures 8 and 9). The relationship between ranchers and Nakoda was much more than that of employers and employees. Nakoda understood how the creeks and rivers of the area flowed during different seasons and offered advice on what were suitable sites for buildings. They also advised on where the best arable land was. Nakoda families cut willows by hand and picked roots, clearing access to water for cattle.

In return, Nakoda had free access to the plants they needed as well as land animals and fish. Ranch work was often rewarded with a gift of beef from the rancher. There are strong remembrances of travelling south through from Eden Valley to Teshawaptah, or Red House Creek, the Nakoda name for Pekisko Creek. This name derives from the colour of the Bar U ranch buildings. It was a time of coexistence and mutual respect among the ranchers and Nakoda.

A fenced area located near the west end of the Hanen Ranch, a few hundred metres south of Pekisko Creek, was identified as a cemetery by Nakoda advisors. We did not enter the space and Nakdoa suggest that these are burials of Nakoda. They also indicate that other burials are located near the east end of the property, south of the creek.

Figure 7: Fred Stimson, manager of the Bar U Ranch, in Blackfoot regalia
(Glenbow Archives NA-2307-33)

Conclusions

Niitsitapi and Nakoda have lived in the Pekisko Creek area continuously since well before Euro-Canadians arrived. Research on the traditional use of this area offers the following conclusions:

- Nakoda and Niitsitapi have ancient stories (myths) that illustrate a long-term association with the region;
- Niitsitapi identify the Hanen Ranch area as a "functional" area, used seasonally;
- Nakoda indicate that they had a more prolonged use of the area, perhaps returning at different seasons as different resources became available;
- Euro-Canadian and American traders drew Niitsitapi and Nakoda to sites further north and east. The Old North Trail passed nearby and may have kept the area in memory;
- Treaties established reserves and the Pass System restricted people's movements;
- Members of the Nakoda Bearspaw Band remained in the Pekisko Creek area, resisting the confining effects of the pass system;
- As ranchers moved into the area, Nakoda established a relationship of coexistence wherein everyone helped everyone.

Figure 8: Nakoda women at Mount Sentinel Ranch. Nakoda families often lived and worked on ranches in the Pekisko Creek area. (Glenbow Archives NA-2467-62)

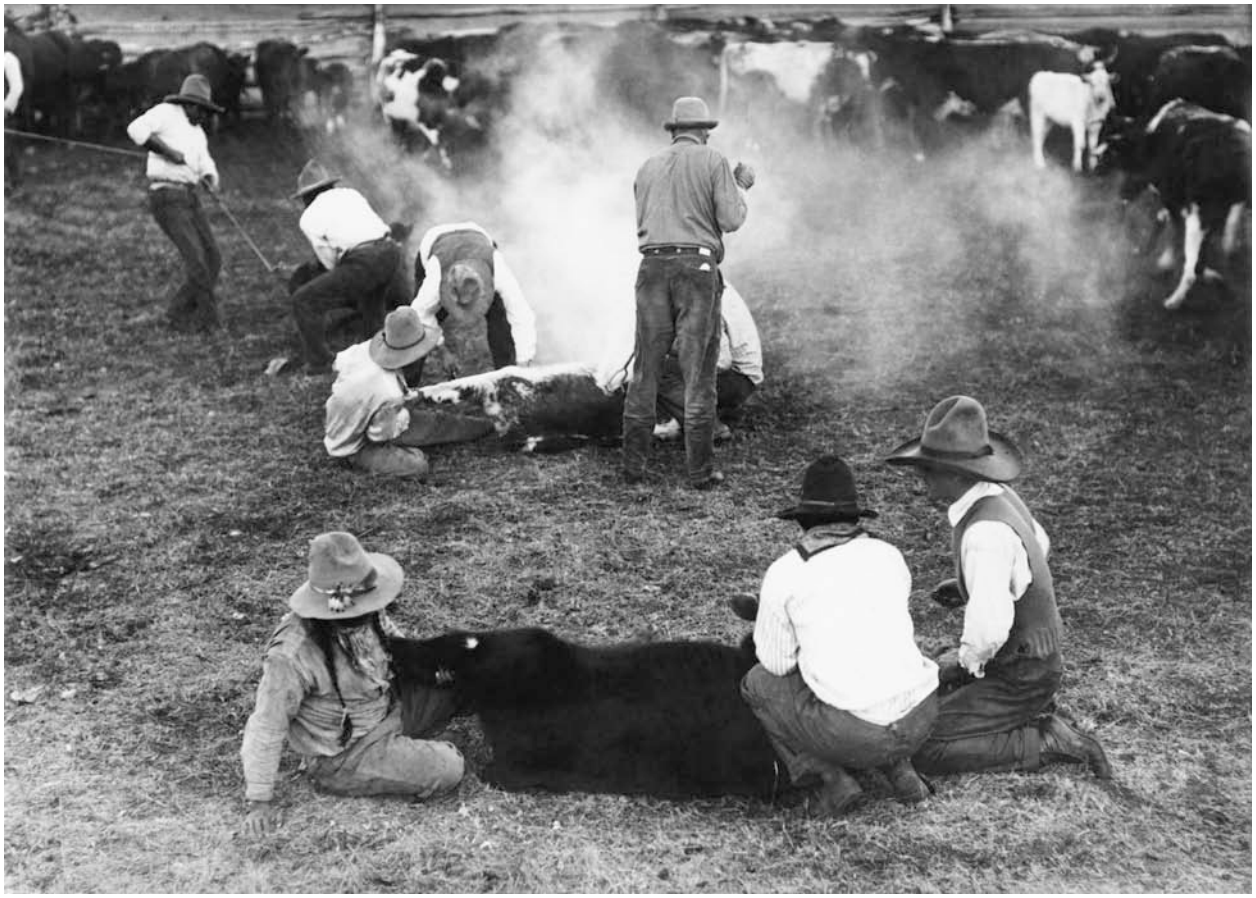

Figure 9: Nakoda men at branding on the Bar U Ranch
(Glenbow Archives NB-16-264)

Recommendations

This traditional land use study involved very short visits to a relatively small parcel of land. For the Niitsitapi and Nakoda consultants this was the first opportunity to visit the Hanen Ranch and to consider its significance. They repeatedly observed that the Hanen Ranch is part of a larger Pekisko Creek valley.

It is recommended that a follow-up study be undertaken to:

- Complete a more extensive survey of the area south of Pekisko Creek. In particular an effort should be made to locate and record the burials that may be situated there. This would involve consultation with Nakoda from Eden Valley Reserve who know of them;
- Complete a 6 week survey of the Pekisko Creek valley, from the Bar U Historic Site, westward to the head of the valley. This will place the Hanen Ranch within a regional context and will help us to understand how the ranch section was used traditionally by Nakoda and Niitsitapi people;
- Establish and renew positive relationships between Nakoda and Pekisko Valley ranchers. The past relationships are remembered as friendly and beneficial to all. These connections are no longer as strong. This project is an opportunity to renew these and, in so doing, strengthen the role that the Hanen Ranch plays in the community.

Nakoda and Niitsitapi express a strong desire to be involved in any future developments of the Hanen Ranch property. They have ancient ties to the area. They have much to offer in the management and interpretation of the ranch.

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First Nations Traditional Land Use Report
Appendix 1

First Nations Advisors/Consultants to the Project

Piikuna

Alan Pard

Kainai

Frank Weasel Head

Nakoda

Sykes Powderface
Virgil Stephens
Jeff Hunter
Leslie Weslie

First Nations Traditional Land Use Report
Appendix 2

Niitsitapi Ancient Stories
Related to the Pekisko Creek Area

Old Man Makes a Drive, and Loses Meat in a Race

(from Wissler and Duvall 1995, The Mythology of the Blackfoot Indians 27-29)

Now Old Man went on and came to a place where deer and elk were playing a game called "Follow your leader." Old Man watched the game a while. Then he asked permission to play. He took the lead, sang a song, and ran about this way and that, and finally led them up to the edge of a cliff. Old Man jumped down and was knocked senseless. After a while he got up and called to the rest to follow. "No, we might hurt ourselves." "Oh!" said Old Man, 'It is nice and soft here, and I had to sleep a while." Then the elk all jumped down and were killed. Then Old Man said to the deer, "Now, you jump." "No," said the deer, "We shall not jump down, because the elk are all killed." "No", said Old Man, "they are only laughing." So the deer jumped down and were all killed. Now, when the elk were about to jump over, there was a female elk about to become a mother, and she begged Old Man not to make her jump, so he let her go. A few of the deer were also let go for the same reason. If he had not done this, all the elk and deer would have been killed.

Old Man was now busy butchering the animals that had been killed by falling over the cliff. When he was through butchering, he went out and found a place to camp. Then he carried his meat there and hung it up to dry. When he was all alone, a Coyote came to him. This Coyote had a shell on his neck, and one leg was tied up as if badly hurt. The Coyote said to Old Man, "Give me something to eat." Old Man said to the Coyote, "You get out of here, or I will take up my genitals and beat you over the head."

But Coyote did not go away. Old Man said to him, "Give me that shell on your neck to skim the soup, and I will give you something to eat." "No," said Coyote, "that shell is my medicine." Then Old Man noticed that the Coyote had his leg tied up, and said, "Well, brother, I will run you a race for a meal." "Well," said Coyote, "I am hurt. I cannot run." "That makes no difference," said Old Man, "run anyway." "Well," said Coyote, "I will run for a short distance." "No," said Old Man, "you have to run a long distance." Finally Coyote agreed. They were to run to a distant point. Then coyote took the bandage off his leg, began to run fast, and soon left Old Man far behind. He began to call out to all the coyotes, the animals, and mice, and they all came rushing up to Old Man's camp and began to eat his meat. It was a long time before Old Man reached the camp; but he kept calling out, "Leave me some meat, leave me some meat."

Now, Old Man had hung all the tongues of the animals on poles, and when he got to the camp he saw them still hanging there; but, when he took them down, he found that they were nothing but shells, for mice had eaten out the inside. The place where this happened was on Tongue Flag River and Old Man had three names; Old Man, Painted-Dried Meat, and Fooled a Little [meaning the opposite].

The First Marriage

(from Wissler and Duvall 1995, The Mythology of the Blackfoot Indians 21-22)

Now in those days, the men and the women did not live together. The men lived in one camp and the women in the other. The men lived in lodges made of skin with the hair on; the women, in good lodges. [The idea is, that the women dress the skins, hence the men could not live in dressed-skin lodges.] One day, Old Man came to the camp of the men, and, when he was there, a woman came over from the camp of the women. She said she had been sent by the chief of the women to invite all the men, because the women were going to pick out husbands.

Now the men began to get ready, and Old Man dressed himself up in his finest clothes: he was always fine looking. Then they started out, and, when they came to the women's camp, they all stood up in a row. Now the chief of the women came out to make the first choice. She had on very dirty clothes, and none of the men knew who she was. She went along the line, looked them over, and finally picked out Old Man, because of his fine appearance. Now Old Man saw many nicely dressed women waiting their turn, and, when the chief of the women took him by the hand, he pulled back and broke away. He did this because he thought her a very common woman. When he pulled back, the chief of the women went back to her lodge and instructed the other women not to choose Old Man. While the other women were picking out their husbands, the chief of the women put on her best costume. When she came out, she looked very fine, and, as soon as Old Man saw her, he thought, "Oh! There is the chief of the women. I wish to be her husband." He did not know that it was the same woman.

Now the chief of the women came down once more to pick out a husband, and, as she went around, Old Man kept stepping in front of her so that she might see him; but she paid no attention to him, finally picking out another for her husband.

After a while the men had been picked out, except Old Man. Now he was very angry; but the chief of the women said to him, "After this you are to be a tree, and stand just where you are now." Then he became a tree, and he is mad yet, because he is always caving down the bank.

Ihkitsikammiksi: The Seven Brothers

As told by Ryan Heavy Head

(http://www.mefeeds.com/watch accessed July 26 2010)

There are two ways in which the story of Ihkitsikammiksi (the Seven Brothers) is told. One involves he bear and seven siblings. The oldest sister of these siblings gets involved with the bear. This seems to be the most published way of telling the Ihkitsikammiksi. You see it represented on tipi designs when the seven stars are formed to look just like the Big Dipper.

But there is another way of telling Ihkitsikammiksi and it doesn't appear so often. It appears in Percy Bull Child's book ("The Sun Came Down"). Narcisse Blood told me that there was a way to have these stories transferred to you where you'd have your face painted and over four nights they would tell these stories. At one point Dan Weasel Moccasin was going to do this for him. Dan

came over to his place and painted him and his wife and began the story series and there was a certain order. The first story was this version of Ihkitsikammiksi – the Sun and the Moon version.

It seems to me – and I may be wrong here – that the version with the bear goes along better with some of the societies. If you go to Aa'kookaatsin and you watch the Doves, you'll see that some of the Bear story lays out in what they do there. From what I know from the Beaver Bundle, the Sun and Moon story seems to do more for me.

Both versions have the same core values at the heart and that's what's really important. Yet, they are different stories.

The way that the Sun and the Moon story begin is:
The Sun (Naato'si) has created the earth and different life forms on it. He has taken Ko'komik'somm (the Moon) and gone to live on earth. The two are living on the earth and having children. They have seven sons. The youngest is named O'okiina or Raw Man or Raw Chief. This is he same name that appears in the story with the bears.

The way they are living on earth, Naato'si has set up a division of labour. Ko'komik'somm will go out and pick berries and gather roots and do women's things. He and the boys will go off hunting, trapping and do men's things. They come back together at their lodge in the evening.

The Moon was out doing her work one day when she came across another man. She didn't know that there were any other people out. She'd only known about plants and animals and such. Here was this man and it startled her. She was shy of him and went home. But it got her curiosity going and as things went along the next time she encountered this man, she began talking with him. Spending so much time alone, things began to develop with this man to where she was having an affair.

Now, this wasn't a real man. It wasn't a real human being. It was a kind of a serpent. The way Dan Weasel Moccasin told it, this thing had a lot of legs when it was in its serpent form. This man was one of the descendants of this earlier life form.

When she had an affair and came home, Naato'si knew it right away. He could smell it on her. He knew something was wrong. So he devised a plan to see what she was up to. He and the boys would take off in the morning, but instead of actually going out to do their hunting and trapping, he would hide in the bush and watch to see what she did. The boys were sent off to do their work.

So, he watched what she did. She went to go do her work for the day. She went directly to this large log on the ground. She banged on the log and this serpent came out. As it came out, it transformed into a man. Naato'si saw what they did.

Naato'si went back to his boys and told them what he had seen. His plan was that he and the boys would have to put an end to this. They decided that the next morning they would get up early. Instead of going off hunting and trapping, they would go directly to that log.

They went to the log, knocked on the log and the serpent came out. As the serpent was coming out, they cut of its head. It came writhing out on the ground and died, headless.

Then they ran and hid in the bush. That morning, Naato'si had given each of the boys something to use – a powerful thing to use. He gave the first boy a bladder bag full of water. The second boy he

gave a rock. The third boy he told “there is a way you are going to use your finger.” He gave the fourth boy a stick [some people say this was a porcupine tail]. The fifth boy got a bladder bag full of air. The sixth boy got a very fine-looking bird. And the seventh boy got another bladder bag filled with water.

Each of these items had a certain purpose. They were powerful and would help save them in case of danger.

The boys had these things and hid in the bush and waited for their mother to find what had happened to her lover. She did and she cried and she lay on this serpent’s dead body and waited and cried. Then she ran back to the lodge, intending to find the boys and their father and kill them.

In the meantime, they got a bunch of wood ready and prepared to kill her when she came back to the serpent. When she came back, they jumped her and killed her and cut her into pieces and piled the wood on and burned her.

They had these forked sticks – the same thing we use to carry coals in a sweat today – and the boys were told “Don’t let any coals escape. If any live coals escape from this fire then your mother will be allowed to come back to life. And she’ll be seeking to harm us. We have to make sure that every bit burns down to white ash.”

And so they watched the fire and tended to any live spark that would jump out. They would take their stick and return the spark to the fire. They were pretty sure they got everything burnt down to white ash.

So, they went back to their lodge and Naato’si told the boys “If by chance any spark got out, it will be four days at the most before she regenerates and comes back to life. If we get through four days, then we know we are safe.”

They waited about three days with caution. On the fourth day they suddenly heard something in the bush – the sound of running, breathing and, eventually, screaming as it got closer to the lodge. It was their mother. They all took off running away from her. She was yelling at pookiina, the youngest, saying that she was going to kill him.

Naato’si told his boy “Use that balder bag full of water.” So, he threw it back, behind him and the balder bag full of water started a heavy rain. The woman had never experienced this before and she couldn’t run on that sodden earth. She lost ground and the boys were way out ahead of her. But when she hit dirt again it didn’t take her long to catch up with them.

When she was close, Naato’si told his second boy, “Okay. Use that rock.” He threw that rock behind him and when it hit, up sprung Miistaaki, the mountains. The woman was stopped by these mountains. But she called on the ants and the ants bore a tunnel through the mountains. Before long, she was catching up to the boys again.
The third boy was told, “Use your finger.” He used his finger and drew a line in the dirt. This made a giant canyon separating them from their mother who was in pursuit. She had to climb down a deep coulee and back up the other side. This let the boys gain a lot of ground.

But in her fury she was eventually able to catch up again. Before they knew it, she was right behind them.

Then the fourth boy was told, “Use that stick.” He threw back the stick and a giant, thick forest emerged between them. The woman had never dealt with a forest. First she ran one way along its perimeter. Then she ran the other way along its perimeter, looking for a way through. She couldn’t find a way through. Eventually, she decided to just tear through, even though she got cut and scraped and ripped by the underbrush. She passed through the forest and was eventually catching up to the boys again.

Then the fifth boy was told, “Throw back your bladder bag of air.” So he did. When he did, it caused a huge windstorm. The woman was blown way back behind them. But when she was blown as far back as the trees, she grabbed hold of one and was able to hold on in place until the wind let up. And then she was running to catch up with them again. And, eventually, she did.

Then the sixth boy was told to release his fine bird. The bird flew up and thunder emerged above the woman. Lightning struck down and she had to run for cover. She had never seen this kind of power before, so she cowered and she hid. She waited it out and eventually the thunderstorm dissipated. Off she went after the boys again.

Before long she was almost caught up. Then Naato’si told his youngest boy, Pookina, “Okay, use that last thing I’ve given you. That bladder bag full of water.” He threw it back and between thee woman and the boys came motoyaki. Some people say this is a giant ocean. But as I understand it, it is the atmosphere. The atmosphere separated the boys from the woman. The boys and their father went up into the sky. She was left behind on earth.

The boys became the Seven Stars. On tipis they are drawn in a crescent, in the shape of a moon. Those seven brothers and Naato’si were living in the sky. The moon was back down on earth.

But, the woman had power too. She thought what to do and she made a smudge. The smudge that was given to her from Naato’si, she made it. It carried her through motoyaki, into the sky world. She began to chase the boys, but it was Naato’si who used his power now. He told her, “As soon as you are going to catch up to the boys, I’m going to cut off your legs. It will take you four days before you can grow your new legs and start chasing again.

And so the moon goes through these cycles. Her legs are cut off and she bleeds. After four days she goes back to chasing the boys.

First Nations Traditional Land Use Report
Appendix 3

Nakoda Ancient Stories
Related to the Pekisko Creek Area

(Chumak, Sebastian 1983 The Stonies of Alberta. An Illustrated heritage of genesis, myths, legends, folklore and wisdom of Yahey Wichastabi, the people-who-cook-with-hot-stones.)

P. 88 *Iktomni* and the Big Rolling Rock

(This story takes place in the Porcupine Hills)

It is the moon when the body of thunderer turns into buffalo stones.

Iktomni is walking along the Porcupine Hills.

His path leads to a big rock.

"What's your name?" *Iktomni* asks.

"My name is 'Rock.'"

"Everything must have two names. What's your other name?"

"'Rock' is my name. That's all."

Iktomni lowers his nose over this mouth, saying "You shall be known as 'Rock Mountain.' Now I want to run a footrace with you."

Rock says:

"But *Iktomni*, I have no legs. I cannot run a race with you."

Iktomni laughs:

"I'll take you to the top of that mountain over there and roll you down. I shall race alongside."

And so *Iktomni* pushes the big rock to the top of the mountain. Then it begins to roll down.

Iktomni is running ahead of the tumbling rock, but the rock is getting closer and closer. Iktomni turns this way and that but the rock is now even closer. Then it rolls over Iktomni and makes his body flat like a buffalo chip.

Iktomni lays on the Earth for three days. He never moves. On the fourth day, Coyote comes along and jumps over his body. Iktomni rises up. He sees the rock beside him.

"O, I'm very sure your name is just 'Rock.'"

Iktomni follows the hills.

But a cloud of mosquitoes descends on him and he hides in a pond.

When the mosquitoes are gone, *Iktomni* plays with some prairie rocks and throws them into the pond.

Later he sleeps on a big flat rock. His body is wet with mosquito bites, and he leaves an impression of himself in the rock.

The Stonies say that to this day you can still see his red mark of himself in the rock towards the Porcupine Hills.

P. 100 *Iktomni* Becomes Bluerobe Woman

(This story takes place along Mosquito Creek)

It is the red-grass moon when the prairie is ablaze with flaming flowers.

Iktomni is walking along, following Mosquito Creek.

He sees two women gathering cottonwood. He sits on a dwarf butte and watches them.

"I wonder what it is like to be a woman," he says to the butte.

Blue Grouse is sitting on a birch log nearby and eating flowers and buds.

"O hooting Blue Grouse," *Iktomni* says, "lend me your feather robe. I want to live among the Stoney women. Lend me your blue-gray robe and I will bring you all of the berries and seeds you can eat. And I'll make you some good buckskin to wear too."

And so *Iktomni* puts on Blue Grouse's robes and makes himself into a good-looking woman. Then he goes over to the place where the women are gathering firewood. But the women back off and put their hands to their mouths. *Iktomni* calms them saying:

"My sisters, I am alone. My family and my people have all been killed in a big raid. I have been running for many days. O, they are all dead."

And *Iktomni* makes little tears come down his face. The two women put their arms around him and take him to their father's lodge.

The two wood-gathering daughters tell his story to their father and the Elders. The old ones make the consenting sounds. Old Moccasin, the father, says that Bluerobe will stay with them. Bluerobe looks away from the father as is the old custom. The people come to call *Iktomni* "Bluerobe Woman."

At dusk, the camp dogs bark. The women greet their brother Summer Hand, returning with fresh meat. The father, Old Moccasin, takes his son, Summer Hand, aside:

"I want you to put your sleeping robes beside Bluerobe."

In the second evening that comes, a feast is prepared. The father and son amuse the people with their stories and songs. *Iktomni* teases Summer Hand and keeps nudging his arm as the night wears on. As the first stars come out, they embrace. Later, *Iktomni* cooks some deer ribs. Summer Hand is as happy as a leaping trout.

There are four days of joy for the new couple. Then, one evening, *Iktomni* says: "Husband, I have a hunger for some boiled blood."

The next day, Summer Hand returns from being-out-for-elk. He brings *Iktomni* the warm blood in a wolverine sac. *Iktomni* is happy. And he makes good meat for his lodge. But *Iktomni* hides some of the blood.

The burnt summer moon passes.

Then, one day, *Iktomni*-Bluerobe pretends that he is with child. He puts a little of the elk blood on his blue feather robe. The people see that Bluerobe is walking with a weight. They wonder when a baby will be born to Bluerobe. Old Moccasin wonders if Bluerobe will give Summer Hand a boy.

Owsni Ti, Old Man Winter, comes hard and swiftly shaking his white lynx rattles.

Old Moccasin moves the Stoney lodges to Pekisko Creek: a place of thick brush – away from the killing winds.

When the eagles and hawks return from the south, *Iktomni*-Bluerobe announces: "I am going to have a baby son in the moon of first blossoms. But I want to bring him into the world alone. I ask my people to allow me to give this life alone. Do no more than putting up a birthing lodge for me."

The people gather poles and hides to build the new lodge.

The people whisper among themselves that a new Stoney life sits among them.

P. 166 Flaming Woman

(This story takes place in the Sheep River Hills and westward)

It is the buffalo moon.

Once, long ago the Stoney meat-drying racks are empty. Buffalo are not to be found in the Sheep River hills. The people are starving.

Swift runners arrive and point west. Many buffalo graze there. The people break camp at once. Soon all the lodges are down. The women tie down the camp dogs with small lodge pole drags. The tribe moves as-one-with the great herd.

Great loads of robes and bundles are pulled by the working dogs. These pull when they do not guard or play. It is the women who are the best breeders of dogs. Each lodge dog is known to all by name and especially for endurance in carrying or pulling. Good dogs are like good moccasins.

Marrow Breaker, an old woman, does not move her lodge with these buffalo people. A widow, without child, she is too old and too tired to stay close to the big herd. She remains behind, alone.

All day long, Marrow Breaker cracks old buffalo bones to remove the marrow and fat. The first night passes with coyotes calling to each other. On the second night, she cooks the marrow and fat. As she watches the fat boiling, a tall enemy scout of the dog-eaters, enters her lodge. Marrow Breaker faces him without expression.

“He is not of our people. This one, from the dog-eaters. His hair belongs on our war lances,” she thinks to herself while looking into his face.

Then, two other enemy scouts enter her lodge.

“I am to die in their hands,” she knows.

Saying nothing, the dog-eaters sit down on small rabbit robes and begin to eat some of the hot marrow. Marrow Breaker is too old for fear. She bends over her cooking. She goes out and brings in some wood for the fire. The enemy scouts are eating but they watch her closely. Still no one speaks.

The old woman picks up a burning stick from the fire and goes out of the lodge. There is no moon. At first she walks very slowly and quietly. Then suddenly she starts running as fast as she can, straight for the river.

She is running like Deer. Just ahead is a deep river bank. And now she can hear the shouts of the enemy scouts. They are right behind her. All that they can see is the flame from the burning stick she carries. They follow the flame.

The old woman reaches the steep cut bank of the swift flowing river far below. She throws the flaming club into the swirling river below. Then she hides in the tall night grass. The enemy scouts, chasing the night flame, plunge over the cut bank. All three die in the river current far below. The old woman goes back to her lodge and finishes making the marrow.

In the morning, she walks for a full day until she reaches her people’s buffalo camp. She tells her story. The Chief and a large party take the old woman back to her lodge. They find the bodies of the enemy scouts.

They return at night to the buffalo camp singing the heroine song.

That night, the old woman comes to be called Flaming Woman. She sings and dances out the big chase for her people. She waves the scalps of the enemy scouts. The Chief speaks. These people do not move their camp again without their hero-woman. She comes to be greatly admired by her own people for her bravery and cunning.

Chapter Three

Ranching Historical Report for the Zahava Hanen Pekisko Creek Property

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Introduction

The Hanen property is situated in the foothills of southern Alberta about a hundred kilometers south of Calgary, twenty kilometers southwest of the town of Longview, and forty kilometers west of the town of Nanton. The deeded land is in three pieces, the east half of section 34, township 16, range 3, west of the fifth meridian and the whole of section 28, township 16, range 3, west of the fifth meridian. Hanen also leases section 27 and the west half of section 34. The entire holding of leased and deeded land forms a reversed L shaped block. The property is excellent grazing land. Pekisko Creek runs northeast through the centre of section 28, the northeast quarter of section 27 and the southeast and northeast quarters of 34. It provides drinking water for stock year round and its flood plain has a deep fertile sedimentary soil ideal for growing both native and domestic grasses. To the east of the property are two longstanding iconic Alberta ranch headquarters; that of the Bar U once owned by George Lane who along with A.E. Cross, Patrick Burns, and A.J. Maclean underwrote the first Calgary Stampede in 1912; and that of the EP ranch once owned by Edward Prince of Wales who gave up the throne of Great Britain to marry the woman he loved. To the west on the same creek were headquarters of the D ranch operated continuously by the well-known Cartwright family from early in the twentieth century. Zahava Hanen bought the deeded property from the Cartwrights in 1994. Over the course of nearly a century prior to that both corporation and family controlled ranching operations had owned and/or leased all or part of it for pasture. A study of the historical development of the region in which it is located thus presents an opportunity to comment on the relative efficiencies of these two forms of agricultural production. It also offers the opportunity to provide a local study of the larger changes to the Pekisko region and the social and environmental transformations of a ranching community into the twentieth century.

In the course of researching the history of the Hanen property and the adjacent areas of Pekisko Creek, researchers consulted: documents related to land titles by searches at Alberta Land Titles, grazing, timber, irrigation and homestead files at the Alberta Provincial Archives in Edmonton; historical maps, irrigation branch, ranching and extent timber files at the Glenbow Library and Archives in Calgary; documents at the Montana Historical Society Archives, Helena, Montana; papers of the Department of Marine and Fisheries, Library and Archives Canada, in Ottawa and a variety of published primary and secondary sources, notably federal government Sessional Papers, other government documents, historical newspapers and personal papers available at the University of Calgary library and elsewhere.

Introduction

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[1] In 1997, the Cartwrights made an exchange with public lands of five deeded homestead quarters in the western areas of Pekisko Creek (the D Ranch had been centred in the valley of section 25-16-R4 W5th) and consolidated thir deeded holdings farther east on the creek. Pekisko Group Power Point Presentation for the ERCB hearing, December 18, 2008, [hereafter PGPPP] p. 26

Foundations of the Ranching Industry

In the later nineteenth century the cattle ranching industry first came to the northern Great Plains in the foothills and mountainous regions of western Montana before spreading northward to the Alberta foothills. Montana saw its first cattle in the 1860s as small traders tried to feed the demand for food from miners searching for gold and silver around the fledgling urban centres of Bannack, Virginia City, and Helena. In the beginning these cattle were mostly exhausted and lame animals migrating settlers sold off or abandoned on their trek to regions further west. Then, larger numbers of cattle called "westerns" were trailed in from the Pacific seaboard via the Oregon Trail. In the 1870s stock also arrived in Montana as part of the expansion of the open range ranching system in Texas. In 1866, Texan traders began to search for new markets for largely feral cattle that had been left to wander the plains during the American Civil War. They initially drove their herds to the "corn belt" of the mid-western states where the cattle were placed on farms to be fattened properly before the final journey by rail to the packinghouses in Chicago. At the same time soon to be well-known paths such as the Chisholm and the Goodnight-Loving trails, were opened to stock "new" rangeland in mining districts of the far north. Nelson Story trailed the first large herd of Texas Longhorns to the gold fields of western Montana in 1866, though he and his men had to use their guns to protect the animals on the open range from the Sioux and Cheyenne Nations. Robert S. (Bob) Ford went to Texas for 300 head in 1868 and, in 1870 and 1873 respectively, herds of 1,500 were brought in to fatten on grasslands in Lewis and Clark, Teton and Cascade counties. As more and more Texas cattle inhabited the Montana ranges they interbred with the westerns that continued to arrive principally from Oregon and then with Herford, Shorthorn, and Angus breeds that some cattlemen imported from the eastern United States and from Great Britain.

Starting in the 1870s increasing numbers of the cattle from Montana were driven across the Canadian border to feed Native bands facing starvation with the destruction of the bison herds. The missionary brothers, John and David McDougall, maintained a few cattle near Morley west of Calgary from the beginning of the decade. In 1877 former whiskey trader, H.A. (Fred) Kanouse, turned twenty-one cows and a bull loose on the open range near Fort Macleod. Then John Miller arrived from Montana with some twenty-five head, which "he too put out to rustle for themselves."[2] During the spring of 1878 a number of small businessmen including Tom Lynch who had migrated west from Missouri and George Emerson, a Canadian who had teamed up with Lynch in Montana, drove in hundreds of horses and cattle. These they sold to men already on the frontier, the majority of them former North West Mounted Police officers who had attained a discharge from the force to take up ranching. In 1879 Emerson and Lynch drove in a thousand cattle and horses to start up their own ranch on the north side of the Highwood River some four miles west of the town of High River. By 1880 some two hundred small herds were grazing on the free grass between the United States border and the Bow River.[3]

[2] L.V. Kelly, The Range Men, 75th anniversary edition (Calgary: Glenbow-Alberta Institute, 1988) 47 – 9.

[3] For an overview of this period see, W.M. Elofson, Cowboys, Gentlemen and Cattle Thieves (Montreal and Kingston: McGill-Queen's University Press) 2000, 3 – 22.

The Great Ranches

At this time the era of the so-called "great ranches" was in full swing. It too affected the American West first. New grazing corporations, which had been hastily thrown together in Boston, New York, Edinburgh and London appeared on the Great Plains to invest huge pools of surplus capital. By the late seventies, 879 joint stock companies, with a total capital of over $280 million, descended on Montana, Wyoming, Colorado, and New Mexico. The directors and shareholders of these corporations felt they could make great sums of money ranching in the West in part because they were able to operate on unclaimed and therefore free range. Their exuberance helped to induce politically astute men of influence and considerable wealth in eastern Canada to lobby the Conservative government of Sir John A. Macdonald for the right to take up similar ventures in Alberta and Assiniboia (now southern Saskatchewan). The result was legislation in 1881 allowing individuals or companies to start gigantic livestock grazing operations on the bases of 21 year closed leases of up to 100,000 acres of land at the bargain price of a cent an acre per year. The response was dramatic. Over the next few years 111 new grazing corporations took possession of several million acres between the international border and the Bow River.

The cattle corporations on both sides of the border all required cattle and thus what had been a stream of incoming stock suddenly turned into a flood. In the summer of 1883 Montana rancher, Teddy (Blue) Abbott, was driving cattle up from Texas. As he rode along he was "hardly ever out of sight of [another] herd." One day he looked over the plains from a small hilltop in the relatively flat country near the Platte River. "I could see seven herds behind us," he remembered. "I knew there were eight herds ahead of us, and I could see the dust from thirteen more of them on the other side of the river."[4] By the end of 1880 the number of cattle in the state of Montana had risen to 555,000 and at the turn of the century to just over 900,000. In southern Alberta and Assiniboia the numbers soared from a modest 9,000 to around 100,000 in the early years of the eighties, and then to over 500,000 by 1901.[5]

The Hanen property is in the largest of three cattle ranching "blocks" that formed in the Canadian West. This block ran in a north-south direction along the foothills of the Rockies from west of Calgary on the north end to the Oldman River on the south. It included three of the original "big four" operations. The owners of the Bar U (of which the Hanen section and a half was to become a part) were from the eastern townships in Quebec, and those of the Oxley and Walrond outfits, were mainly from Britain. The Cochrane ranch owned principally by Senator Matthew Cochrane also from the eastern townships in Quebec, established in the area directly west of Calgary in 1882 and two years later moved to the Waterton region. Another block of ranches including big American outfits like the Spencers, the Conrad Brothers and the McIntyres, eventually stretched east-west along the Milk River Ridge north of Coutts and southwest of Medicine Hat; and a third block including the British owned Stair ranch and the American Turkey Track and Circle Diamond outfits, occupied the high country from the

[4] E.C. Abbott and H. Huntingdon Smith, We Pointed Them North; Recollections of a Cowpuncher (Norman: University of Oklahoma Press), 2nd edition, 1955, 64 – 5

[5] S.M Evans, "Stocking the Canadian Range," Alberta History, 26:3, (summer 1978) I; Canada, Fourth Census, 1901, vol. 2, 52 – 3; A. Merrill and J. Jacobson, Montana Almanac (Helena: Falcon) 1997, 309

Cypress Hills to Wood Mountain in present-day Saskatchewan. All the above named operations leased over 100,000 acres of land and ran thousands of cattle.

Prior to World War I the northern Great Plains also saw a major influx of people. Some were well-healed owners or managers of the big outfits. Far more, however, were the young men who flowed in to work on the big ranches as cowpunchers and/or to start their own much smaller spreads. A portion of them were American cowboys who originally helped to drive in cattle from the south and then stayed drawn by the relatively good pay offered on the new outfits competing for their cowboy skills. The famous black cowboy, John Ware; the manager and then owner of the Bar U, George Lane; the famous bronco buster, Frank Ricks; the one-time foreman of the Bar U, Everett Johnson; the Cochrane ranch cowboys W.D. Kerfoot, Jim Dunlap, and a Mexican known as Ca Sous; and the first Walrond ranch foreman, Jim Patterson; had, like Emerson and Lynch, all learned their trade in the American West before heading north.[6] A lot more of the immigrants, however, were from eastern Canada and Great Britain. A considerable portion of them, were "wannabes" who were hoping to live up to the heroic image of the cowboy they had met in a host of dime and romantic novels. These young men were anxious to embrace the culture of the cowboy as quickly as humanly possible. "Before even securing a job," after they stepped off the train in the rapidly expanding town of Calgary, they often headed to local shops to add

> a cowboy costume to the repertoire of outfits, such as formal dinner wear, polo uniforms, and croquet party wear, that they kept stowed in their steamer trunks. This new outfit was assembled after consulting in the hotels with cowboys who had come in from the range for a night on the town. The… [next] and most serous acquisition was a cow pony, although these small, rangy horses were a bit of a disappointment to men used to thoroughbreds, or even larger hunting and polo horses of Britain. Even if the young man had brought with him a saddle, its lack of a horn would make roping cattle and horses difficult, so there was a need to purchase a highly ornamented western-style saddle and equally fine bridle. Having attended sensibly to the needs of his horse, it was now time to put together a suitable cowboy kit for himself. This, based on the advice again of working cowboys, consisted of boots with a good high heel, wooly chaps, spurs at least two inches in diameter, a woolen shirt worn well open at the neck so that a brilliant pink or violet silk handkerchief could be knotted at the throat, and a wide-brimmed Stetson with a fancy braided leather band around the crown.[7]

Before the late seventies, according to one rancher, "no one had heard tell of a cowboy," on the northwestern plains but by 1883 "leather chaps, wide hats, gay handkerchiefs, clanking silver spurs and skin fitting high healed boots … had become an institution."[8]

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[6] S. Evans, "Tenderfoot to Rider.." in Cowboys, Ranchers and the Cattle Business; Cross-Border Perspectives on Ranching History, ed. S. Evans, S. Carter, B. Yeo (Calgary: University of Calgary Press, 1999) 61 – 80.

[7] M. Zuehlke, Scoundrels, Dreamers, and Second Sons; British Remittance Men in the Canadian West, 2nd edition, (Toronto, Oxford and New York: Dundurn Press, 2001) 57 – 8.

[8] G. Stuart, Forty Years o the Frontier, as seen in the journals and reminiscences of Granville Stuart, ed. P.C. Philips (Cleveland: A.H. Clark, 1925) vol. 2, 188.

Early Ranching on Pekisko Creek

It was in the early 1880s that George Emerson took control of land later comprising the Hanen property and made it a part of the ranching history of the southern foothills. Having first arrived in the territories around 1868 from Quebec, Emerson had prospected for gold on the North Saskatchewan River and then taken up employment with the Hudson's Bay Company. In those days he frequently drove Red River carts between Fort Edmonton and Fort Garry, some 1400 kilometres.[9] He also turned his hand to free trading and was said to be fluent in Cree and Blackfoot. Old High River residents believed that his trading days with First Nations people earned Emerson their respect when he later settled in the area, not an insignificant consideration given the long ties between the Hanen property lands and the nearby Stoney Eden Valley Reserve and the many First Nations who were employed in the area over the years.

It was work with the HBC that also opened doors for Emerson with NWMP: in 1875, he freighted goods from the garrison at Fort Edmonton to the new post of Fort Calgary. Thereafter Emerson moved to Montana where he met and went into business with Lynch panning for gold. Lynch, obviously like Emerson, was "willing to take a chance on any kind of a deal" and the two men together moved on to the cattle business and finally to ranching in the Canadian West.[10] In1883, they decided to move their ranch near High River to Pekisko Creek, the larger river's "middle fork." They then split up their partnership using a simple but apparently amicable formula. "Lynch took the horses and Emerson the cattle."[11] Lynch registered the T over L brand for his TL ranch in the High River district and Emerson founded the Rocking P ranch, which he named after an outfit he had admired in previous years in Montana.[12] He also created the Rocking P brand for his cattle herd. At first he operated on free range country surrounding and incorporating the Hanen property. Emerson employed a handful of men and marketed his beef locally presumably to the North West Mounted Police and the Indian agencies and to the fledgling towns as they emerged in the area. In the tragic winter of 1886/87 he is supposed to have lost 40 percent of his herd. In years that followed, however, he gradually recovered from the loss. By 1890 he had 700 cattle and around the turn of the century he estimated that he had "say an average of over 1000 cattle all the time."[13] Emerson's operations provided stock for many of the early ranches in the region, and he became "one of the most

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[9] Lillian Knupp, Leaves from the Medicine Tree Leaves from the Medicine Tree : a history of the area influenced by the tree, and biographies of pioneers and oldtimers who came under its spell prior to 1900 (High River: High River Pioneers and Oldtimers' Association, 1960) 20. Knupp recorded that High River resident Dan Reilly remembered of Emerson: "He also possessed in a rare degree something that few of his contemporaries had, and that was the esteem and confidence of the older Indians who had known him in earlier years." Knupp, Leaves From the Medicine Tree, 21.

[10] Among other things the two men also shared a love for "horse racing and free poker." Knupp, Leaves from the Medicine Tree 21

[11] F. Lawrence, "Early Days in the Chinook Belt," Alberta Historical Review, 13, no. 1, (winter 1965) 11.

[12] For the Rocking P and the Bar S see, H.C. Klassen, "A Century of Ranching at the Rocking P and Bar S," Cowboys, Ranchers and the Cattle Business; Cross-border Perspectives on Ranching History, ed. S. Evans, S. Carter and B. Yeo, (Calgary: University of Calgary Press, 1999) 101 – 22

[13]Provincial Archives of Alberta [Hereafter PAA], Film 2701, George Emerson Homestead File 752446: George Lane, who said he'd known Emerson for 15 years, served as a witness to this application.

highly esteemed men in the territories and an original member of the Stock Association."[14] He certainly stood out: High River historian, Lillian Knupp, notes that he was "built like an oak tree, with shirts measured for an 18 ½ collar and a 64" chest.[15]

Emerson was not alone on the river at that time. In 1882-83, the Bar U had taken timber farther up the creek from the southeast corner of section 30 in range 3. Soon after, it had built a cabin near to where George Baker set up a sawmill to supply the Bar U with fence poles. There was no road on the north side of the creek at that point, at least until 1888 when Billy MacDougall and George Baker graded one to get fence poles out.[16] Both MacDougall and Baker supplied what would have been enormous quantities of wood for a snake fence built by the Bar U from its buildings to the South Fork, and from there to Pekisko Creek.[17] John Jephson who arrived in the 1880s, took up land just above what was to become the D ranch and in the 1890s sold out to Gordon McConnell whose buildings, homestead and sod-roofed dug outs overlooked the creek near the falls named after him.[18] Duncan Cameron took up land two miles downstream of the falls in 1893.[19] After McConnell's wife died in 1897 Jack Nichols took up residence at the McConnell place. E.A. (Aubrey) Cartwright who had cut his teeth working on Emerson's ranch down stream, started work on the property in 1900 after both Nichols and McConnell froze to death travelling to High River for supplies.[20]

Cartwright then forged what became a close and life-long business relationship with John Thorpe.[21] Thorpe was the son of a land-owning North England Anglican minister. He arrived in Calgary in 1888 with a letter of introduction from the Allan Steamship Lines, which got him work at the Bar U. The next year he bought a cabin from Herb Miller and George Lane some fifteen kilometres from High River on Pekisko Creek, later part of the D Ranch holdings.[22]

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[14] Knupp, Leaves from the Medicine Tree 21.

[15] Knupp, Leaves from the Medicine Tree 21.

[16] See, below, from Cartwright family history as listed on the reverse side of Aubrey Cartwright portrait, Appendix II, consulted and photographed 14 January 2011.

[17] Knupp suggests the sawmilling, and therefore the road, would have been built "after 1887" (Leaves from the Medicine Tree,98). The Cartwright family history, cited in Appendix I, records that in 1882-83, the Bar U, "*got out timber SE corner of 30 and a year or so later built a cabin about where [George] Baker had his saw mill on the S side of the [indecipherable] just west of the crossing above the D ranch house. There was no road north of the creek till 1888 when Billy MacDougall and George Baker made it to haul out fence poles.*"

[18] Knupp, Leaves from the Medicine Tree 120. See photograph of McConnell Buildings, in PGPPP, 22. This seems to be the property cited in the Cartwright family history appearing on the reverse side of the Aubrey Cartwright portrait: "Farrell Bros. had a cabin where Farrell Creek empties into Bear Creek. Billy MacDougall & [George] Baker built a cabin where now is the Burke House and later sold it to Horatio Ross who sold it to Gordon McConnell about 1892."

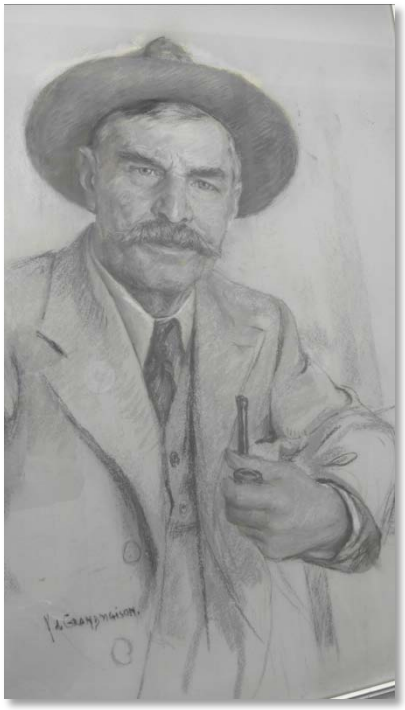
[19] PAA, This would have been the NE quarter of section 23, Township 16, Range 4. It shows as "homesteaded" in 1907 by Duncan Cameron in the PAA Township 16 Range 4 Leasing Register, Acc 88.439.

[20] PGPPP 23; and PAA John Pascol and J. Jephson became, by 1901, administrators of G. McConnell's estate when they homesteaded together in 1901; They appear in that designation in the leasing book which shows homesteaders. See Township 16 Range 4 Leasing Register, Acc 88.439.

[21] Both Lillian Knupp and the leasing records of the NWT government spell Thorpe's name this way. However, Simon Evans and the Cartwright family records spell the pioneer's name as "Thorp."

[22]PGPPP 23.

When Thorpe and Cartwright began working together in 1900, they ran their cattle under separate brands. However, in 1907 they went into full partnership and purchased Mike Harmon's D brand.[23]



Portrait of Aubrey Cartwright.
Cartright Familly Collection
(see Appendix 2)

[23] Knupp, Leaves from the Medicine Tree, 108. According to his grandfather's notes, Gordon Cartwright pointed out that Bob Dixon (of Dixon Coulee) used the D brand first, but it was officially registered to Mike Herman in December 1885. See PGPPP, p.24. The Cartwright family history, as in Appendix II records that Bob Dixon had a cabin on Dixon Creek about 1885 where he was taking timber. The original owner of the D Brand was then bought out by Mike Hermon; in turn, Cartwright and Thorpe bought the brand "1909 Sept."

The Nature of Early Operations by 1900

Emerson was able to build up his herd in part because the Pekisko environment is highly suited to ranching. At the higher altitudes the growing season is rather short and much of the land is too hilly for cultivation. However, the region gets adequate annual moisture, about 20 inches on average, and in the early days all the open land was replete with great quantities of native grasses including the tall rough fescue – formerly the staple of the bison - and wheat grass, as well as the shorter blue grama and needle and thread. Some of the most voluminous growth tended to be in the deep soils of the flood plain of the creek. Gordon Cartwright has described the usually moist conditions on the creek, which affords during most of the warmer seasons adequate sloughs and wet patches to keep cattle watered.[24] The winters in the area can be severe -- on the Pekisko, the D Ranch felt the brunt of a – 46.7 C temperature in 1916 (the coldest to hit the region until 1968). [25] After the Federal government began keeping weather data in 1905, similarly bitter cold weather fell on the region, such as in February 1923 and March 1919.[26] All the same, the Chinook winds could just as easily bring relief: at the end of January 1906, the Pekisko warmed to a recorded extreme temperature of 26.7 C. Perhaps as importantly, numerous cut banks among the hills and thick willow growth in valley bottoms offer shelter that in most years provided sufficient protection to cattle from cold northwest winds. This creek country was, as Emerson stated, "best for ranching."[27] It ran its course through a valley with a variety of zones that suited a seasonal round of wintering in lower country and summering in the higher forest reserve.[28] Visually, its value as ranching territory can be seen in the Dominion Land Surveyor's rating on maps where much of the creek stretches simply as "rolling prairie covered with poplar and willow scrub" – perfect for grazing and shelter.[29]

Emerson developed an intricate knowledge of the area and as a result was called upon to act on a number of occasions as the guide for the High River round up. He would ride ahead of the wagons to locate water and a suitable place for a campsite.[30] After the turn of the century Emerson used homesteading policies as part of a larger and more intensive ranching strategy to secure ownership of the key parts of his outfit. In September 1900 he applied for the purchase of the whole of section 28; and in the same year, he acquired the NE quarter of section 34, the next

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[24] Gordon Cartwright interview, 14 January 2011.

[25] PGPPP 25.

[26] In Febuary 1923, the extreme minimum reached -46.1; and in March 1919, -42.8. The Pekisko station, established at the D Ranch in 1905, is now not operational. For some of its historical data, see Canadian Climate Norms, 1971-2000. National Climate Data and Information Archives, Environment Canada, accessible at www.climate.weatheroffice.gc.ca

[27] PAA. George Emerson, Homestead Application, December 1905, Homestead Files, Microfilm Reel 2701, File 752446.

[28] Gordon Cartwright interview, 14 January 2011.

[29]PAA, GR 2004.214/2252b, Plan of Township 17 Range 3 West of the Fifth Meridian. The Pekisko offers a number of flats that flood frequently or are sub-irrigated, which provided for good hay even in dry periods. One such location was Miller Flat, on NE section of 23 in the 4th range of Township 16, named after Herb Miller, Bar U foreman who cut hay on the flat there in the 1880s. See PGPPP, p. 29.

[30] Klassen, "A Century of Ranching," 102.

year taking the SE quarter "for stock watering purposes"[31] The land had yet to be surveyed (and he would have had to pay for that himself). It sold at the usual rate for the time: one quarter down, the balance in three equal annual installments (with interest at 6 percent). It is not clear whether Emerson paid cash at $3 an acre, or if he took advantage of scrip, selling at 50 cents on the dollar through dealers in Calgary.[32] In 1905, he applied for other property alongside or adjacent to Pekisko Creek. Some of the new land along the creek such as the southwest quarter of section 2 was undoubtedly desirable because it provided ease of creek access and prime watering area.[33] By this time the Rocking P home place on the south half of section 3, township 17, had a house appraised at $500, 150 feet of stables also appraised at $500 and a shed large enough for 500 cattle ($350). Emerson had also constructed two miles of fencing. George Lane, long friend and associate, swore to his affidavit in which these estimates were given, to gain title.[34]

In this period other men homesteaded quarter sections on the Pekisko. To the west of the Hanen property and beyond the D ranch and Cameron properties, high in the creek's watershed and along what would become the border of the newly established forestry reserves, John Pascol and John Jephson[35] took the NW quarter of section 14 in range 4 in 1901; in 1906, Harold Percy and E. Francis officially homesteaded the southwest quarter nearby, gaining patent by 1911; and, later, in 1921, Leland Roach purchased his southeast quarter section through the soldier settlement program (patenting in 1925). Land sheet maps suggest some of the improvements these men were making, whether drift fencing[36] or sheds for shelter: Jephson in his western

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[31] PAA, George Emerson Homestead Files, Film 2065, File 591677; and Film 2071 file 627612. There seems to have been few pressures on land at that time: Emerson advanced only the upset price to the land office, apparently not anticipating other bids when it went to a public sale in 1902. See G. Emerson to the secretary of the Calgary Office of the Department of the Interior, Sept 19, 1902. PAA Film 2071, file 627612.

[32] PAA Film 2065, File 591677, J.R. Sutherland, to Emerson, 27 October 1900. Calgary Alberta Land Titles Search: the Certificate of title reads that he gained title on the 23 December 1901.The land sold to George Lane and Gordon Ironsides and Fares on December 17, 1908. George Lane bought out the interest to the section in July 22, 1920; and later sold to Patrick Burns Ranches Ltd on 25 October, 1928. The E.A. & S. Cartwright purchased the land in 1950 and they sold the west half of the section to the Hanens in 1994, and the east half in 1999

[33] On his application for patent, Emerson, now 60 years of age and a self-described "single man," stated that he had "no house" and "no residence" on the former property. PAA Film 2701, File 752446.

[34] George Lane stated that he'd known Emerson for 15 years when he witnessed the application. The homestead file appears in PAA, film 2701, File 752446. Also of interest are PAA Plans of Townships 17 and 16, Range 3, West of Fifth Meridian, GR 2004.214/ 2251 a and 2251 b. Some of the buildings appear in the township sheet where the house is identifiable on the south side of the creek, considerable fencing protects the river frontage, and a "ploughed field" is located in the NW quarter of section 34.

[35]See Sec 14 notations in PAA, TP Range 4 Grazing Lease Register, acc 88.439. They are listed as "administrator of the estate of G. McConnell"

[36] There was evidently a move towards more intensive ranching by this time. In the case of Duncan Cameron and the early Cartwright-Thorpe partnership, the Department of Interior received proposals for drift fences from their holdings on the river well within the forestry reserve, PAA Acc. 76.81/3 "Bow River Forest Reserve," Sketch of Pekisko C&H Division and Sheppard-Stimson C& H. Division. The map, undated, but possibly 1919, shows the D. Cameron Ranche (2975) on the boundary to the forestry reserve on the west bank of Pekisko Creek. To the south of its boundary is the E.A. Cartwright Ranche (3422) and, the "proposed Drift Fence by Cartwright & Thorpe" extending from his Ranch on Pekisko, west up a creek (possibly Bear) and up to the D. Cameron Ranche. The map shows the forest reserve also being used by the "Pekisko Cattle & Horse Capacity 925 head (summer)".

quarter had at least a shed and stable, and some extent of "improved lands," likely partly irrigated hay fields, fenced alongside the creek.[37] An early homesteader on the Pekisko's western reaches was Ronald Greig, entering the NW quarter of section 23 in 1899 (patenting by 1903).[38] John Thorpe formerly applied for land on this stretch of the river by 1901 (patenting in 1904). Duncan Cameron also confirmed his presence there. Born in Quebec City and a former Montreal bank clerk, he had come west as a bookkeeper for the Bar U in 1882. He began running a few head of cattle with Thorpe's herd in 1893 and used the homestead provisions to purchase a quarter section outright in 1907. He then took advantage of the pre-emption rules of the Dominion Lands Act by applying for an adjacent quarter in 1907 (patenting in 1913).[39] These settlers were anxious to take deeded land in order to reserve prime stock watering and crossing locations.

Downstream and beyond the areas taken up by Emerson were the lands that touched upon Stimson Creek. In 1883 Agnes Bedingfeld squatted in prime ranching territory to the west of the Bar U and east of the land the Hanens were to buy on Pekisko Creek. A widow, she was able to use her status as the head of her household to acquire a homestead that became the headquarters of the productive 1,600 acre ranch she operated in partnership with her son Frank. Together they developed a successful horse and cattle business and became well-respected members of the ranching community.[40] Agnes and Francis supplemented their income by working at the Bar U - her as a cook and him as a cowboy.[41] In 1898 and 1899 Agnes ran the operation independently while her son went North to prospect for gold. Frank's wife, Josephine, later ran the ranch while he spent two years overseas during World War I.[42] The Bedingfelds sold out to the Prince of Wales' EP ranch in 1919.[43]

Given the costs of such enterprises, it was common for concerns to join and ranchers to partner up. George Emerson took Rod Macleay on as a partner in the Rocking P ranch in 1909 and then sold out to him in 1914. Macleay, an old Emerson family friend from Quebec, had come west in 1898 to recover from rheumatoid fever. Doctors had not given him long to live, and, as Lillian Knupp pointed out, he set himself to making as much out of whatever years he had by riding and working hard. His experience with Emerson and another family friend from Quebec now in High River, Dave Thorburn, convinced Macleay to try his hand at ranching. His brother Alex and cousin Douglas Riddle began homesteading and running a herd on the Red Deer River by 1900. The killing winter of 1906-07 drove these partners from the concern. However, before he bought into the Rocking P, Rod convinced George Emerson to buy them out and together they formed a partnership bringing cows from Winnipeg and free ranging them. According to Knupp, Emerson and Macleay dissolved their business relationship in 1914 largely because the two disagreed on ranch management: the former still looked to open range grazing and was

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[37] PAA, Acc. GR 2004.214/2320a. See Plan of Township No. 16. Range 4, West of Fifth Meridian.

[38] Almost concurrently, Grieg's "improvements" appeared on his other holding, downriver, on the NW quarter of 23, Range 3 where he had "Corrall Sheds," and a house built. See PAA, GR 2004.214/221b., Sec Ed. Corrected, Plan of Township No. 16, Range 3 West of Fifth Meridian.

[39] Both Donald and H. Cameron later purchased the north half of section 5 in range 3, downriver. See PAA GR 2004.214/2252d, Plan of Township 17, Range 3, West of the Fifth Meridian.

[40] Henry C. Klassen, Eye on the Future: Business People in Calgary and the Bow Valley, 1870-1900 (Calgary: University of Calgary Press, 2002), 307.

[41] Klassen, Eye on the Future, 308.

[42] Ibid., 308; The Bedingfelds, in Knupp, Leaves From the Medicine Tree 72.

[43] "The Prince's Purchase," *High River Times*, 23 October 1919.

unwilling to purchase land to expand holdings now in the fencing era.[44] Whatever the case there can be little doubt that these men were not particularly well suited to each other. Macleay was remembered as a "hard-nosed" businessman who dearly loved a good argument. Emerson embodied in many real ways the mixed transition of the region from a fur trade and open bison range into one characterized by ever more intensive ranching practices. An astute businessman too, he was nonetheless informal in his approach to say the least. He managed largely by an "uncanny sense" and a "keen eye," but either spurned or resisted more careful business techniques that likely, in the long term, affected his operations. As Knupp gathered from High River's locals, he "kept no records of his business dealings." After his partnership with Macleay ended he apparently "took all of Rod's carefully kept accounts for the five years of the partnership, opened the lid of the stove and stuffed them in; the deal was closed." The Gordon-Ironsides and Fares beef conglomerate out of Winnipeg once made inquiries about a $5000 cheque it had issued Emerson three years previously for cattle the firm had bought and shipped to Chicago. George "searched his belongings [and] found it wadded up in his vest pocket, all worn and tobacco stained."[45]

Emerson did not sell what became the Hanen properties with the ranch. He had sold the east half of section 34 to George Lane and his partner, Gordon, Ironsides and Fares, in 1906, and at the same time he had sold all of section 28 to Lane alone. In 1908 Gordon, Ironsides and Fares took half interest in that piece as well. These purchases helped the Bar U ranch secure a land base, which at that stage had been threatened by inconsistency in Ottawa. Between 1896 and 1905 Frank Oliver in the Liberal government of Sir Wilfrid Laurier had cancelled all the original closed leases in an effort to promote denser settlement. Lane, himself, was a devote Liberal and, ostensibly, through political connections, he was one of the select few who did manage to persuade the government to lease back some territory on a closed basis during that period. However, at just under 44,000 acres, he attained less than a third of what he had previously held.[46] The ranch had about 14,000 acres of deeded land when Lane and his Winnipeg partners bought it in 1902. Lane added to this by acquiring the Emerson and other properties and he eventually managed to accumulate a total of about 19,000 acres.[47] This land, well supplied with native vegetation and watered by numerous creeks including the Pekisko and Stimson Creek which parallels it between five and ten kilometers to the southeast, formed the nucleus of the Bar U holdings. These two creeks come together some six or seven kilometers to the east of the Bar U headquarters then head northeastward to drain into the Highwood River whose waters eventually finish their journey across the plains as part of the Bow River system.

[44] Knupp, Leaves From the Medicine Tree 496.

[45] Knupp, Leaves From the Medicine Tree 23.

[46] S. Evans, The Bar U and Canadian Ranching History 125.

[47] Ibid., 55; D.H. Breen, The Canadian Prairie West and the Ranching Frontier, 1874 – 1924 (Toronto: University of Toronto Press, 1983) 149.

Grazing Leases after the turn of the Century

Starting in 1905, leasing on a case-by-case basis was reinstated in the valley and, indeed, within all the ranching areas in the dominion lands survey.[48] Consequently numerous new agreements were negotiated in the first decade of the century and in the early and mid-1920s, when closed leases ran standard 15 and then 20-year periods. It might well have been that it was during these years that operations were consolidating and requiring larger pastures. The immediate drop in beef prices after WWI grievously affected small operations and pushed them to sell out to larger ones.[49] The years of 1917-1921, too, had combined hard winter years with droughty springs that took toll on many operations. Many of the survivors expanded considerably in the 1920s. More renewal occurred in the late 1940s.

Leases changed hands, but they also often moved continuously within families, as the assignations in the Pekisko's western most edges to the Cartwright family make clear.[50] After his early partnership with Thorpe, Aubrey Cartwright married Ms. Eleanor Hughes, matron of the High River hospital.[51] Sons Jack and Jim were born. Always having close affection for Thorpe, whom they termed "Uncle Op", the sons also maintained business with him, as later grazing leases jointly in their names suggest. Range 4 lands moved largely into, first, the Cartwright-Thorpe concern (taken up as early as 1924, in the case of section 11; and in 1927 and 1928 in sections 14, 23 and 24). [52] In 1928, the Cartwright family, now acting alone, renewed section 11 leases for 21 years. In 1948, the Cartwrights renewed again, and again, in 1965, for another 20 years.[53] The Cartwright dominance of river leases now stretches over six decades. Even by the time the federal government transferred resources to the province and with them grazing lease management in 1930, the Department of Interior office secretary had the tendency to pencil in leaseholders in the large, leather bound leasing book, and simply scrawled "Cartwright" across most of the sections north of Pekisko Creek. The same secretary also wrote "the Prince of Wales" in the eastern sections of Range 3 referring to the EP headquartered to the west of the Bar U home place.[54] To the south of the creek, the land office secretary wrote "Jean Brown," one of the sisters (with Sara) of Irish rancher Joseph Brown of the Seven U, who had

[48] S. Evans, The Bar U and Canadian Ranching History, (Calgary: University of Calgary Press, 2004) 125.

[49] Cartwright Interview 14 January 2011.

[50] By then, sections 1-5 (6 in the forest reserve) and 7-24 were assigned in long term leases to the partnership.

[51] Knupp, Leaves From the Medicine Tree, 108.

[52] This would be the leased NE section of 14, which remained in Cartwright's name until 1965, when it was renewed for another 20 years. Range 3 lands followed a similar familial pattern. The Hanen grazing leases on the west half of section 34 were officially first leased in 1926 and again in 1946 to Patrick Burns. Stephen J. Cartwright then began leasing them in 1965. The entirety of section 27 was originally leased in 1926 and 1946 to Patrick Burns, and taken up by the Cartwrights in 1950. To the west of the Hanen property, section 29 was taken up as lease by the Cartwrights by 1952. Section 30, just downstream from the D Ranch, was leased by 1925 on a twenty-five year basis; In 1946, the northern half was taken up by Patrick burns as leased, but transferred again in 1965 to the Cartwrights. PAA, acc. 88.439, Township General Registers, 3 W 5th Merdian Register.

[53] PAA, Acc. 88.439 Township General Registers, 3 W 5.

[54] The Cartwrights eventually purchased the Prince of Wales Ranch in 1962. PGPPP 52.

taken over the family ranch south of the creek and had continued the open grazing tradition with little fencing or feeding.[55]

The present generation of Cartwrights still has a stake in the region. Steven James Cartwright who died in 1976, was the father of Gordon, Bobby [Robert], John and Jane. Gordon has now taken over where his father left off in promoting conservation. Among other things he has played a leading role in the "Pekisko Group," which organized an extensive presentation in 2010 to the ERCB hearings into intensive forestation in the higher reaches of the Pekisko and Petro-Canada's proposed twinned sour gas pipeline above Longview.[56] The extended Cartwright tenure on Pekisko Creek is made more evident in reference to a family portrait of Aubrey, which once hung in the Ranchman's Club in Calgary. On its reverse side are notations penned by a family member many years ago, but which communicate the close connection between the family and the creek territories. These include references to early saw milling, timber activity, brand and land purchases and the arrival of Pekisko's pioneering families.[57]

[55] PAA. Acc. 88.439 Township General Registers 3 W 5. On the remarkable history of the Brown family, see Knupp, Leaves From the Medicine Tree 62-63.

[56] As described in PGPPP.

[57] The notations are reproduced, below, in appendix 1.

Ranching Society during the Frontier Period

With one eye on the influx of companies that originally were owned by people from eastern Canada or Great Britain, and of young men from eastern or overseas societies, Canadian historians have tended to stress the Old World flavour that entered ranching society during the decades of the late nineteenth and early twentieth centuries. They are not altogether wrong. In time a high culture based on traditional British social activities proliferated across the plains in small communities and large. In the town of High River, just twenty-five kilometers north of the Hanen property, a turf association formed in 1892 and regularly sponsored race meets that "drew contestants and spectators from Calgary and as far afield as the American border. High River polo teams travelled far and won often." A Montreal club "recruited one player [from the town] as its manager," and "a club in California" imported another player to join its team. [58] In Millarville to the north of High River, British immigrants also established a turf association and they readily upheld the convention that deemed their big annual race meet "the social event of the year."[59] Ranching families in High River and Millarville also met friends and neighbours at European style balls, the most prestigious of which in many people's minds were those attended by the British or eastern "elite."[60] Local religious and church affiliations were also tied to the Old World. John Thorpe remained an ardent Anglican and was one of the driving forces in supporting the Church of St. Aidan's built along Pekisko Creek, almost within hearing distance of its babbling waters. Many of the early ranchers, direct from North England, wanted to have "the little church" named for the seventh Century missionary to Northumberland. Thorpe himself ostensibly never missed a monthly service at St. Aidans', "come blizzard or high water," nor did he ever fail in giving generously to the collection plate.[61]

If the *high* culture in the foothills was Old World, however, there can be little doubt that the *popular* culture mirrored that of the American West. This was because the admiration for the cowboy so many of the young men had imbibed before their arrival seemed thoroughly justified out on the open range. It was the skills of roping from the saddle, branding without infrastructure like corrals and chutes, bronco busting and something simply known as range "cow sense," that were most in demand; and it was the Americans who had it and who thus became the role models.[62] Fred Ings, who worked on a number of big operations before establishing the Midway ranch north of Nanton, later remembered that "most of our best riders came from the states and they taught us all we knew of cattle lore. Over there cattle and roundups were an old story; to us they were a new game." [63] Bob Newbolt, who came West in 1884, recalled that after he had spent a number of years working on the Military Colonization Ranch near Calgary, he learned "to ride and rope with any of them," and to "hold [his] own in a

[58] P. Vosiey, High River and the Times (Edmonton: University of Alberta Press, 2004) 11.

[59] Hopkins, Letters from a Lady Rancher 59.

[60] Ibid. 92.

[61] Knupp, Leaves From the Medicine Tree 105.

[62] Elofson, Frontier Cattle Ranching 48. For that reason they took key positions on all the ranches. Although "the management" of the new operations was "generally in the hands of Englishmen and Scotchmen with Ontario men" the "foremen, herders and cowboys" were "mostly from the States."

[63] Fred Ings, Before the Fences: Tales from the Midway Ranch (Calgary: McAra Printing, 1980) 63.

poker game." He also "acquired a liking" for the "good whiskey" the regular cowboys were known to be so fond of.[64] In 1885, a foreign observer described foothills society as follows:

> In fact, this district, its towns, and manners and methods is very American, so that it seems much like a section of the western American frontier… the lasso and lariat, the broad-rimmed cowboy hat, the leather breeches, and imposing cartridge belts one meets at the frontier towns on the Union and Pacific railways are reproduced in this district in the same reckless and extravagant fashion. The cowboy dialect rules supreme in the talk of the people, while the American national game of 'draw poker'… flourishes exuberantly… The cowboy who can ride the fastest and 'round-up the largest herd is the popular hero in this part of Alberta.[65]

At the early stages of its development the Canadian West was also impacted by the kind of raucousness and disorder we like to associate with the American frontier. This was mainly because most of the cowboys who worked on the big ranches were single, young, "footloose and fancy free" males and, therefore, less settled and less quiescent than more mature and married types. True, a number were well known for their cowboy skills. The following all at one time or another worked the hill country within a day's ride from the Hanen property. Jim Patterson, the first foreman on the Walrond ranch to the south, was widely lauded for his knowledge of the range cattle industry and his prowess with a six-shooter.[66] Charlie Raymond, a Texan, was equally acclaimed for his ability to ride bucking broncos and to rope from the saddle. John Lamar, one time foreman of the Walrond, like Patterson, was known for his gunmanship. Old time cowboys used to tell tales of how he could ride at full gallop and shoot the head off a prairie chicken. They also believed that "nothing still or moving could escape his lasso." Johnny Franklin, came to Canada from Texas in the early nineties. He enjoyed "the rare distinction of having never been thrown from any horse." [67] However, many of the young men who populated the ranching frontier had difficulty placing their careers above their urge to fulfill basic animal instincts. Once the summer round-ups came to an end each fall, all the large outfits laid off cowhands. "Calf branding was finished yesterday and was pretty fair but not up to expectations" one company controller reported in July 1888, "I am paying off the extra men today and will go to MacLeod with them this afternoon."[68] These men usually headed to the numerous bars and whorehouses on the frontier to quickly spend their summer wages. "When paid their habit was to immediately ride off " to the nearest saloon, "and spend all they had on drinking, gambling and having… a right good time. They returned after every dollar had been squandered and started piling up for the next orgy."[69] In January 1899 a ranch manager in the Porcupine Hills to the southeast of the Hanen property told one of the owners about a cowhand named Brown who wanted badly to go back to England. "Out of the wages paid him since coming here I don't think he has saved a dollar… he lost one cheque by giving it to Jeff Dans to

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[64] R. Newbolt, "Memories of the Bowchase Ranch," Alberta History, 32:4, (autumn 1984) 7.

[65] "Alberta Cow Country," Macleod Gazette, 30 November 1886.

[66] "Ranch Deal a Triumph," Lethbridge Herald, 9 November, 1962.

[67] L.V. Kelly, The Range Men, 75th anniversary edition (High River: Willow Creek Publishing, 1988) 116.

[68] Glenbow Library and Archives, Calgary, [Hereafter GA] New Walrond Ranche papers, M8688 – 3: Bell to J. G. Ross, 9 July 1888.

[69] Montana Historical Society Archives, Helena, Memoirs of Lady Katherine Lindsay, SC 1692.

take to town and get it cashed for him. Jeff went to town cashed the cheque, got drunk, stayed in town and spent the money." He "has not come back to work since."[70]

Because many of these young men were armed when they imbibed alcohol violence was inevitable. The following incidents also all occurred in the foothills country surrounding the Hanen holdings. In 1885 there was a gunfight in a corral on the Walrond ranch to the south when two of the cowboys named Thompson and Charlie Wright "both pulled their revolvers at the same moment." Thompson was hit in the shoulder and Wright evaded arrest by making a hasty exit across the line to Montana.[71] In 1904 Jesse Hinman pulled his gun to settle a conflict arising out of a card game in a bar in Pincher Creek. He shot "intently but with poor aim" at a man known as "Rattlesnake Pete." Having missed he clobbered the man over the head with his six-shooter. Hinman was later sentenced to five years in prison. In the same year a "cowpuncher" from Claresholm and one from Pincher Creek went on separate drunken shooting sprees in their respective towns. Fortunately, the men were both arrested apparently before anyone was hurt.[72] Often the gunfights revolved around competition for the favours of young women. In November 1895 John Lamar and Gilbert McKay got into a heated dispute involving a mutual female acquaintance. Some days later McKay rode out to the ranch where Lamar was employed and challenged him to a gunfight. Lamar was unarmed, but eventually losing his temper he went into the house and strapped on his six shooters. When he came out Mckay was still waiting and he immediately went for his gun. However, Lamar beat him to the draw shooting him "in arm and body and toppling him out of his saddle." [73] Miraculously McKay survived after a stint in a North-West Mounted Police hospital. Another gunfight ostensibly involving women and several cowboys occurred in the late spring or early summer of 1900 probably in a saloon in Pincher Creek or Fort Macleod. In July David Warnock manager of the Walrond told his general manager about a skirmish their man Tom Miles had taken part in. Miles was thought to be dead "from the effects of his wound" and some "Pincher Creek men have been killed."[74] Five or so months later Warnock reported that "Miles is back looking very well and quite recovered from his wounds… He made a narrow escape of sharing Morden and Carr's fate, the bullet missing his spine by less than one inch. He says Johnston's arm is recovering under medicine treatment."[75]

Competition for the affections of young ladies was fierce in part because in frontier society women generally speaking were in very short supply. The 1901 census tells us that in the Pincher Creek area 168 of 235 men were still unmarried and there were only 83 single women. In and around Millarville 209 of 311 men were single compared to 139 of 233 women.[76] Most women in the ranch country were the wives or daughters of the owners and managers. "Of the seventeen people living on the Bar U in 1891 only three were women:" the manager, Fred "Stimson's wife, his unmarried cousin, and a maid. The twelve bunkhouse men averaged 31

[70] GA New Walrond Ranche papers, M8688 – 5: Warnock to McEachran, 23 January 1899.

[71] "The Six-Shooter Again is Called in to Settle a Dispute," Macleod Gazette 21 July 1885

[72] "A Scene of 'Real Western Life,'" Nanton News 21 July 1904; "Drew a Six Shooter," Rocky Mountain Echo 8 March 1904.

[73] Kelly, The Range Men 109. See also GA New Walrond Ranche papers, M8688 – 4: Warnock to McEachran, 23 December 1895 and 4 May 1896.

[74] GA, Ibid. – 5: Warnock to McEachran, 23 July 1900.

[75] GA, Ibid: Warnock to McEachran, 29 January 1901.

[76] Census of the Prairie Provinces, 1916; Population and Agriculture Ottawa, 1918, 44 – 127.

years of age. Only one had a wife and she was not present."[77] In the late nineteenth century one of two women on the Walrond ranch, which usually carried an average of twelve to fifteen hired hands and a Chinese male cook, was Warnock's wife, Annie (nee Whitlaw). She was born in Ontario and then came West with her parents to farm near the big ranch. She lived with Warnock in the main house from October 1897 when they were married until 1902 when her husband resigned.[78] Annie gave birth to a girl, Seslie, on 4 May 1900. Annie seems to have lived a rather genteel life as the ranch normally employed at least one domestic servant for her home on Callum Creek. At the time of the 1901 census, an English girl, Bessie Haimur, was living at the Walrond headquarters.[79] Bessie did the cooking and cleaning. Annie must have been in charge of the main household and she entertained the guests including the wealthy shareholders of the company who paid visits from eastern Canada and Great Britain.[80] Her somewhat distant neighbor, Mary Inderwick, on the 100,000 acre North Fork ranch near Pincher Creek, tried to maintain Old World cultural norms by among other things insisting that on the rare occasions when one of the cowboys joined her and her husband for dinner he slipped a formal jacket over his flannel work shirt.[81] One of the first of the wives to arrive with the homesteaders was Agnes Skrine, who with her husband Walter, emigrated from Ireland to establish the Bar S west of High River. Already a published writer, she described the lot of the British frontier women in "A Lady's Life on a Ranche," which appeared in Edinburgh's Blackwood's Magazine in 1898 under the pen name Moira O'Neill."[82] Another settler's wife was Monica Hopkins who came out from Britain in 1904 and then rode the open range and worked closely with her husband Billie to make their homestead at Millarville a success. Her life and her impressions of the ranching frontier have been captured in a volume of her letters home entitled Letters from a Lady Rancher.[83]

Of course it was the scarcity of single young females rather than married ones that contributed to frontier violence. The prostitution business appeared in the area before the turn of the century but one doubts that it did much to alleviate the shortage. Paul Voisey has shown us that itinerant young ladies circulated from town to town during the frontier period often accompanied by a male manager and they worked the bars and pool halls wherever they could find them to market their wares. [84]Young male cowhands urgently competed for their attentions. In the towns scattered around the Hanen area, resident prostitutes appear to have arrived on the scene relatively late. High River does not appear to have had brothels until after 1900, but the Stoney Indians often supplied the sexual needs of the young white men. Apparently while he was manager of the Bar U, Fred Stimson actually encouraged his cowhands to seek their services.[85]

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[77] P. Voisey, High River and the Times 15.

[78] The wedding was recorded under "Local and General," Calgary Daily Herald, 8 October, 1897.

[79] 1901 Census of Canada, Alberta District, Sub-District A1, T – 6551.

[80] GA New Walrond Ranche papers, M8688 – 5: Warnock to McEachran, 31 August 1901.

[81] M.E. Inderwick, "A Lady and her Ranch," Alberta History, 15:4 (autumn 1967)1 – 9.

[82] P. Voisey, High River and the Times, 15.

[83] M. Hopkins, Letters from a Lady Rancher, introduced by S. Jamison (Calgary: Glenbow Alberta Institute, 1982).

[84] Voisey, Vulcan, the Making of a Prairie Community (Toronto: University of Toronto Press, 1988).

[85] Voisey, High River and the Times, 16.

One of the other activities that occurred with considerable frequency during this period in foothills history was cattle and horse rustling. The big ranchers at times expressed deep frustrations about the stock they were losing.[86] "There seems to be a great deal of horse stealing going on and a number of … breeders have lost a good many horses since last Autumn," the onsite manager of the Walrond ranch complained in 1901. "Some arrests have been made lately and I hope convictions will follow.[87] In the spring of the same year, Clay Fallis and a partner, were being hunted by the police for stealing fifty-nine head of cattle from the Cochrane ranch. At the same time "a young fellow named Collyns," was sentenced to "three years penal servitude for stealing two steers, the property of a High River Rancher."[88] In 1904 the Nanton News reported that Charlie McLaughlin was arrested and sentenced to seven years in jail. Consequently, the report announced, both horses and cattle are at long last protected from "one old offender."[89] Well known journalist, L.V. Kelly, believed that stiff sentences handed out to cowboy rustlers in 1903 had still "not resulted… in any marked reduction of boldness or frequency." Twenty prisoners, sentenced to terms varying from one to ten years, had been sent up from the Macleod district alone during the previous year, "but the docket for 1904 was as populous as before."[90].

[86] As did the Mounties; see, for instance, Canada. Sessional Papers, 31, no. 11 (1897), n. 15, 9, Report of the Northwest Mounted Police, Annual Report of the Commissioner, 10 December 1896.

[87] GA New Walrond Ranche papers, M8688 – 5: Warnock to McEachran, 5 February 1901.

[88] GA Ibid. Warnock to J.G. Ross, 4 March 1898. For Fallis see, ibid. – 3: W. Bell to J.G. Ross, 6 November 1887.

[89] "Arrested for Cattle Stealing," Nanton News 14 April 1904. This event is also recorded in Kelly, Range Men 183.

[90] Kelly, Range Men 183. Some of the perpetrators were professional outlaws and settlers. However, the involvement of men who at one time or another were employed on one or more of the bigger ranches is beyond doubt. Indeed, this was the case with two of the most notorious outlaws on the northwestern plains. Henry Ieuch, better known as "Dutch Henry," and Frank "Slim" or "Left-handed" Jones, got into the business by taking the livestock of their employers in the Big Muddy region of Assiniboia (Elofson, Frontier Cattle Ranching 90 – 92).

The Advent of More Intensive Ranching

Gradually as time marched on the gender balance in foothills society became more and more balanced, law and order was more firmly established and ranching began to assume its more modern form. A comparison of the historical development of the Bar U, the Walrond and other great spreads in southern Alberta with smaller family operated outfits illustrates the unsuitability of the former and the adaptability of the latter to the environment in the foothills. One of the first things to recognize is that all the so-called "great" operations both near and distant from the Hanen property experienced severe financial difficulties after a relatively short life. The North Fork Ranch near Pincher Creek ceased operations after only a few years because of heavy losses; the Stair Ranch in southern Saskatchewan, closed down in 1909 because of depleted resources; the Cochranes lost some $400,000.00 in their first two years of operation and then sold out when higher land prices enabled them to recoup some of their capital in the new century; the Oxley Ranch disappeared in the first decade of the twentieth century; the Turkey Track and Bloom outfits pulled out of southern Saskatchewan after taking severe losses in the dreadful winter of 1906/07; and though the Matador in southern Saskatchewan was just a small part of a much bigger ranching empire of over 2.5 million acres mostly in Texas it gave up active operations in Alberta in the early twenties. [91] Moreover, a thorough investigation of the Walrond ranch's accounts, cattle numbers and stockholder debt has shown that its liquid position was unsustainable even before the winter of 1906/07 severely reduced what was left of its cattle inventory.

The Bar U survived longer than the majority of the other great outfits. Lane became its sole owner in 1920 and under his stewardship it lasted until his death in 1925. At that time, however, the banks took possession of all its livestock and lands and sold them to pay Lane's massive debts. Dr. Simon Evans insists that the operation did well financially until a plethora of unlucky events struck in the last several years. A post war depression, the bankruptcy of Gordon, Ironsides and Fares, which cut into Lane's personal wealth and then forced him to come up with some $650,000.00 to buy them out, and bad weather, he believes, produced a near perfect storm that robbed Lane of the net worth he had built up over the course of a lifetime. Two things need to be recognized however. First, it is difficult to confirm the "flourishing" and "prosperous" conditions Evans suggests with no hard evidence – no account books, no assessments of inventory to debt ratios, no bank records. Secondly, Lane operated with special advantages that the others lacked.[92] Throughout most of his career as a cattle baron he had the support of one of the wealthiest families in Canada.

The Bar U was first assembled by Fred Stimson and the Montreal based family of Sir Hugh Alan in 1882. Lane joined the operation as its foreman in 1884 and then left it in 1889 to

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[91] Until six or seven years ago most of us took for granted that the great cattle barons of the frontier period instigated a prosperous industry and were forced to shut down one after the other early in the twentieth century largely because settlers flocked into their grazing lands, fenced off the open range, and crowded them out. In the year 2000 I challenged this view arguing that large-scale, open range ranching was inherently uneconomic on the northern Great Plains. Wolves, rustlers, winters storms and disease decimated the herds, and all the big outfits we know about experienced major financial hardships. For George Lane see S. Evans, The Bar U and Canadian Ranching History 109 – 202; For the others see W.M. Elofson, Cowboys, Gentlemen and Cattle Thieves; Ranching on the Western Frontier 90, 147-48.

[92] The Bar U and Canadian Ranching History. 15 – 65.

become a rancher in his own right. By 1893 he was also working closely as a cattle buyer with both Gordon, Ironsides and Fares and Patrick Burns and, over the next decade or so, he helped them establish a virtual monopoly of the cattle brokering and meat packing businesses across western Canada. By World War I both Burns and GIF were worth millions.[93] It was in 1902 that Lane and the Winnipeg firm bought the Bar U. Until the war Lane's partners no doubt kept the ranch well supplied with capital. Every bit as important was the fact that they were also able to provide premium pricing year after year for its grass-fattened steers. This was a bigger advantage than one might think. Each fall a glut of slaughter cattle heading to Europe normally developed as western Canadian ranchers attempted to market their live beef after the summer grazing season. Consequently, individual cattlemen who wanted to beat the rush needed to ship their stock as early as possible once it was fat. The problem was, however, that space on the ocean steamers was at a premium not the least because Gordon, Ironsides and Fares tended to use their seemingly endless capital to buy up the lion's share of it. In 1905 a Montreal agent told Alfred Earnest Cross that "practically all the available space for July and August has already been engaged; the Gordon, Ironsides and Fares Co. stepped in and took the bulk of it at somewhat higher rates" than others were prepared, or able, to pay.[94] Year after year Lane's partners managed to transport the Bar U's cattle to Europe with its earliest shipments and, therefore, attained the absolute best prices the market could support.

Given their wealth and market control in the earlier years it would seem more than mere coincidence that Lane's empire collapsed so quickly after his partners were forced to abandon him in 1920. To put this another way, had it not been for his alliance with the Winnipeg firm Lane might well have accompanied the majority of the great outfits out of business much earlier. Anyone familiar with the plight of agriculture and the climatic and other conditions it has to deal with on the northern Great Plains will testify that one of the things that is required for success is close, hands-on management. Under normal circumstances the people who really care about a ranch or farm's financial well-being must be on the job controlling the operation and watching over the expenditure of every penny on a day to day basis. This few of the great outfits managed to provide. The owners of the Walrond, the Oxley, the Turkey Track, the Stair, the Matador and the Bloom outfits all lived thousands of miles from the Canadian West and all tried to operate their holdings for the most part through hired managers. George Lane lived in the West and he kept a closer connection with his operation than any of them. In the early stages of his career he rode the range with the cowboys and gained a reputation as an expert in all the skills of his trade.[95] However, in part because his business interests became so widespread, Lane's management approach grew less and less tight as the years passed. In 1897 he moved to Calgary, began sporting a three-piece suit and, thereafter, largely turned over responsibility for day-to-day operations to others.[96] After Lane died in 1925 the Bar U lived on for another two decades, this time in the secure hands of another of Canada's richest families, that of Patrick Burns. In 1928 Burns estimated his fortune at over $9 million. [97] At that time he sold out all his meat packing, retail and distribution enterprises to Dominion Foods to live out the final years of his life as a gentleman rancher with more land under his control than anyone before him or

[93] Elofson, Somebody Else's Money; the Walrond Ranch Storey, 1883 – 1907, Calgary: University of Calgary Press, 2007, 167 – 90.

[94] *Ibid*: 6 July 1905.

[95] S. Evans, The Bar U and Canadian Ranching History, (Calgary: University of Calgary Press, 2004) 109 – 47.

[96] Ibid. 181.

[97] See, Elofson, Somebody Else's Money 167 – 88.

since. His management style was not hands-on either – he controlled his empire from his lavish home in Calgary. Along with falling land values in the worst years of the depression, this might help to explain why his fortune plummeted by his death in 1936 to between $3 and $4 million.[98] Of course, even at that he continued to rank with the select few among Canada's financial elite.

The biggest ranches from the frontier period forward were so large that it was virtually impossible for them to intensify their approach to the point where they could protect, select and regulate their livestock properly. For that reason they experienced an abnormally high death rate, a relatively low birth rate and tended to produce a rather inferior product. Early on all the ranches, large and small, began to understand that they were going to have to intensify their approach in the aftermath of the first great killing winter - that of 1886/87. Prior to that event the cattlemen all made the mistake of assuming that Chinooks would appear faithfully every winter and that, along with other favourable environmental conditions, this would enable the herds to thrive on the open range. The horrendous losses they discovered when they counted their remaining stock in the spring of 1887 convinced them that this was wrong. A.E. Cross on the A7 ranch some 10 kilometres* southeast of the Hanen property later said that "the custom which I was influenced by" in the earliest years, "was not to feed almost any cattle," However, that winter "was the most severe known in the country. My cattle drifted south in the storms with a large number of new cattle on the range, forming a block in a small part of the country." On the A7 "we lost from 25 to 50 per cent of our cattle principally our breeding stock. The calf branding for the next and a few following years was very small, so we were greatly crippled, and had to turn to the horses for a revenue."[99] From that point on Cross and many others put up reserves of wild hay for feed. They cut the native grasses growing in low-lying areas near sloughs, lakes, and streams or in the flood plains of the creek and river valleys. It was likely in these years that flats on Pekisko Creek shaped ranching strategies: Herb Miller, from the Bar U, began cutting native hay higher up the creek in the NE quarter of section 23 on what became known as Miller Flat, during the 1880s. The flat was sub-irrigated and hay grasses were abundant there.[100] Ranchers more frequently cut rakedgrass by horse-drawn machinery, and loaded it for hauling on wagons, and stacked by hand. The change was dramatic. At the end of 1888 a North-West Mounted Police commissioner reported that all the ranchers, "no matter what class of stock is their specialty, now cut large quantities of hay, and nearly all have shelter of some description for weak stock. Some of the advanced cow-men are now yarding up their calves in the fall and feeding all winter."[101] Increasingly, ranchers turned as well to green feed made from the stalks of green oats or a mixture of green oats and barley. This required tilling, planting, stooking and stacking every year. [102]

As the ranchers improved their feed supplies they quickly realized that they were going to have to fence in their ranges. There was no point in having roughage on hand to feed their herds in the wintertime if the animals were spread out across the free range and could not be found or accessed. Therefore, they also began to enclose their pastures. Some had started even before the 1886/87 catastrophe. The area west of Calgary and close to the Bow River and the Canadian

[98] Elofson, "Other Peoples' Money; Patrick Burns and the Beef Plutocracy, 1890 – 1914," Prairie Forum, 32:2 (summer 2007) 235 – 50.

[99] GA M8688-6: Cross to [A.R.] Springett, 10 November 1902.

[100] See PGPPP 29.

[101] Canada, Sessional Papers, 22:13 (1889), N. 17 (North West Mounted Police Annual Report) 20: Report of the Commissioner, 31 December 1888.

[102] Elofson, Cowboys, Gentlemen and Cattle Thieves 135 – 37.

Pacific Railway, succumbed to enclosure rapidly from 1883 on. Further south an entire twenty-five mile stretch on the Belly River was completely fenced as early as 1885. By 1901 fences had made district round-ups virtually impossible everywhere except south of Medicine Hat, here and there in the hills, along the Bow and Red Deer Rivers southeast of Calgary and in some districts of southern Assiniboia. By that time those who had not yet sufficiently divided up their lands were buying up wire – some by the "car load" - in an effort to get the job done.[103] "Things in the foothills are looking well this year," it was reported in 1904, "although fences are going up in all directions."[104]

[103] GA A.E. Cross papers, f. 470: Cross to F.H. Berry, 1 September 1901.

[104] "Local and General," Pincher Creek Echo, 10 May 1904.

The Family Controlled Ranches

It was the smaller family controlled outfits that managed to bring these refinements to full fruition. The great ranches intensified too. Under Lane's direction the Bar U irrigated hay and pasturelands along Pekisko Creek.[105] It also sowed and harvested oats and winter wheat and at one point Lane fattened some 3,500 steers on heavy grain rations.[106] However, unlike their smaller counterparts none of the big ranches ever managed to get to the point where they were able to feed and protect anything like all their stock for any substantial part of the year. This was because, for them, this was a much more daunting proposition. The Walrond ranch is a case in point. Gestating and/or nursing cows, the bulls that service them, and growing or fattening steers require about a ton and a half of hay apiece to be more or less assured of coming through a long winter on the northern plains in good condition.[107] Prior to the turn of the century, the Walrond owned on average about 8,500 head in its beef herd, excluding newborn calves. About 5,200 were classified as cows, three hundred were bulls and 3,000 were steers. [108] These cattle would have needed 12,750 tons of hay (1.5 X 8,500) to keep them all sufficiently satisfied during the hundred or so most inclement days each winter. About 1,000 of the ranch's 1,400 or so calves would also have been mature enough to require feed when pastures were covered with snow. To keep them growing and healthy would have taken about a ton of hay per head or another 1,000 tons. In total, therefore, the ranch would have required at least 13,600 tons of hay. The going rate charged by customs haying crews was about five dollars a ton. [109] Thus the cost to the Walrond would have been 13,600 times five dollars or $68,000.00 in total. This would have increased the ranch's annual feed production costs by circa 2500 percent. [110]

It scarcely needs to be added that costs were not the only inhibiting factor. To gather 13,600 tons of hay with horse-drawn equipment would have needed an army of over two hundred men and then another one perhaps half that size to haul the hay and fork it to the cattle in the winter time.[111] There were surpluses of labour on the frontier between the roundups when some of the cowboys were laid off, but in this early frontier period the population base was still very sparse in the prairie West. By the turn of the century there were only about 100,000 people in an area from Calgary to the American border and from the Rockies to the eastern boundary of

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[105] GA December 21, 1921 (file 1333) The Bar U irrigation applications and reports are found in Part 7: Pioneer Irrigation Developments in the Bow River Basin, 1895-1920 Glenbow Fundation Research Project, Lawrence P. Burns, 1961.

[106] He also took pains to improve his cattle herds with hardy cows imported from Mexico and with purebred bulls; and he bred one of the finest herds of Percheron horses in the world.

[107] This is assuming that the cow would have had to be fed during the worst hundred days of weather and the steer the worst 150 days to keep it at least maintaining, but hopefully, gaining weight. The cows would have needed about thirty pounds of dry hay a day and the steers, depending on age and size, would average about 20 pounds.

[108] This included the yearling heifers from previous calf crops that were bred to replace older or poorer cows as they were sold off to the Native bands.

[109] It can be assumed that had the Walrond put up all its own hay without contract the costs would have been very close to the same. The management would have had to hire many more men, purchase a great array of haying, hauling, and stacking equipment, and provide housing and a food supply for the men.

[110] Elofson, Somebody Else's Money, 110 – 12.

[111] With horse-drawn equipment one man could put up about sixty tons of hay.

Assiniboia. [112] Manpower of that magnitude was simply unavailable. Regular winter feeding of all the cattle would also have involved hiring a multitude of extra men to build all the feeding corrals required to protect the many stacks of hay and to provide all the extra fences to enclose the cattle near them during bad weather. The biggest ranches undertook to fence in some of their deeded land but, irrespective of the labour problem, none of them was prepared to shoulder the expense of enclosing their enormous leased or free range pastures because they did not want to invest in property that they could never expect to own.

All the great ranches fed and protected only their weaker stock such as older gestating and suckling cows and younger weaned calves during the winter months and, as in the case of the Bar U, some occasionally experimented with grain fattening. The vast majority of their stock, however, they continued to subject to the vicissitudes of the weather year round. Therefore they experienced relatively high death rates even in winters that were less ferocious than the infamous ones mentioned above. It should be noted, moreover, that those two winters were not the only difficult ones they encountered. Prior to World War I, very harsh conditions and abnormally heavy death losses were also experienced in the winters of 1881 – 82, 1882 – 83, 1891 – 92, 1892 – 93, 1896 – 97 and 1902 – 03. Because of this and the loses they took from diseases such as blackleg and the mange and both wolves and the two legged predators, the great ranches managed to keep no more than one calf for every three or four of their cows alive to maturity.

On the other hand, the men and women who owned say a hundred head of cattle and who kept them close at hand and well fed and nurtured with care and attention throughout the year could expect to get offspring from around ninety percent of their cows and to keep eighty or ninety percent of them alive for the three to five years they needed to fatten them on grass and hay. [113] At an average price of say forty-two dollars per head this would give them something like $1,680.00 each year once they started marketing.[114] Mary Neth has demonstrated that in the American mid-West the farmer and his wife learned in the 1920s to exist on very little money.[115] By seldom or never giving themselves proper recompense in terms of wages for all their work, by growing a large garden, keeping a few chickens and pigs for their own consumption and selling milk and eggs for extra “pin money” they could get enough to sustain themselves. More study needs to be done with respect to the family ranch on the northern Great Plains at the turn of the century; however, it would seem reasonable to argue that with a similar approach its participants could get by on no more than four or five hundred dollars out of their

[112] There were two waves of settlement: the first started in the 1890s, brought farmer/ranchers to the area many of whom took 160-acre homesteads supplemented by free range or small grazing leases. It was not until the second wave beginning in the early years of the twentieth century brought homesteaders most of whom initially settled on 160 parcels, which they later doubled through preemption, that modern density levels were reached (Cowboys, Gentlemen and Cattle Thieves, xviii, 149). At the turn of the century all of southern Alberta and Assiniboia had only 100,000 people while the State of Montana, which covered almost as large an area had 243,000 Fourth Census of Canada, (1901) vol. i, 9; A. Merrill and J. Jacobson, Montana Almanac, Helena: Falcon, 1997 46.

[113] This is about what cattlemen expect to get today; it is also what I normally achieved when running my own cow/calf operation in the 1980s.

[114] Say 40 fat cattle X 42.00.

[115] Neth, Preserving the Family Farm: Women, Community, and the Foundations of Agribusiness in the Midwest, 1900 – 1940 (Baltimore: the Johns Hopkins University Press, 1995) 17 - 70.

yearly beef sales.[116] This left them over $1,100.00 to cover their costs of operation. By continually doing their own repair work on haying and harvesting equipment and by improving their containment and living facilities with logs cut out of the bush, they could keep their business viable under normal circumstances. Moreover, in years of extremely low beef prices they could "work out" –family members like Francis Bedingfeld could find opportunities on one of the big ranches that were always in need of extra labour at haying or calving time, or by doing custom work with his machinery; a woman could perhaps find work as a school teacher in a nearby country school or as a clerk in town. This was not living high; it was merely survival but it was survival nonetheless – something that virtually none of the great ranches achieved.

After the winter of 1906-07 when approximately forty percent of the cattle on the ranges died a Royal Canadian Mounted Police officer acknowledged that the "small owners" who were able to look after their livestock properly had "suffered very insignificant losses."[117] Putting up ample supplies of winter feed and fencing off the open range brought new efficiencies in a number of areas to all the family operations. It is as important for cattle owners to keep undesirable elements out of their herds as it is to keep the herds themselves together. Fences allowed them to wage a better battle against the mange and other diseases because they gave him the ability to prevent infected animals from bringing contagion in from the outside. Moreover, it allowed for drastically improved breeding patterns and breed selection. This had been an enormous problem from the beginning. Initially the quality of the Canadian herds was considerably less than perfect. Most cattle originated south of the border where indiscriminate mating on the open range had allowed characteristics of the least desirable animals to spread widely. This adversely affected the large and smaller outfits alike. In the beginning one cowpuncher remembered, "the Bar U in common with other ranching enterprises … was compelled to purchase as its foundation stock, cattle of a low and inferior type." It took many years "to weed-out" the inferior animals and replace them with "a better type."[118] When smaller ranchers arrived they too brought in most of their initial cattle from the American West, and this seems to have been a setback for overall quality. "It is a great pity that so much wretched stock are taking their residence here," the Department of the Interior asserted in 1895.[119] Because the smaller operations took a few years to fence their pastures this situation did not change overnight. In 1898 the Mounties were reporting that "the class of cattle in the country is not generally as good as formerly. The steers offered show less breeding and are smaller … Many of the small ranches have too few bulls, and rely on the enterprise of their neighbours to provide new blood, and there are still many wretched looking bulls on the ranges; and indeed some of the young bulls imported are not likely to improve matters."[120] Nonetheless, once ranchers had time to construct fences around all their pastures they began the process of upgrading. They kept undesirable bulls out of their herds almost entirely and controlled which of their own bulls were mixing with which cows. As a result of this, and the fact that they both bought up better bulls and culled their cows, they gradually replaced the motley range varieties with heavier-set, more uniform, pure and cross breeds of the Angus, Hereford, and Shorthorn variety. "There is no

[116] Teachers in 1911 were paid between $641.00 and 973.00 per annum and farm labourers got on average $421.00 per annum ("Canada Farm Labor Higher than Here," New York Times, 2 April 1911.

[117] Canada, Sessional Papers, 42. no. 14 (1907 – 08), n. 28, 56: Annual Report for D Division, 1 November 1907.

[118] H.W. Riley, "Herbert William (Herb) Millar," Canadian Cattlemen, no. 4 (March 1942) 168.

[119] Canada, Sessional Papers, 28, no. 9 91895) n. 13, 26.

[120] Alberta, Department of Agriculture, Annual Report, 1908 153.

doubt," the above report continued, that the best steers come from areas where "the ranches are small, and stockmen feed hay all winter, and can attend to the breeding of their cows."*

Complete networks of fences gave the smaller cattleman the ability not only to prevent outside bulls from getting to his cows but also to regulate breeding by his own bulls more precisely. He was able first to mix his cows and bulls thoroughly in smaller enclosed areas so that whenever any female cycled into heat, there was a male nearby to ensure that procreation could proceed on schedule. The ordinary rancher could also move bulls in and out of his cowherds with more precision so that they would produce calves at the right time of year. Most of the ranchers wanted to induce March to early April calving and thus put bulls with the cows in early July and remove them about six weeks later. This prevented fall and winter births that could, depending on the weather, be very risky, or produce offspring that were too young at the end of the summer grazing season to be weaned and converted easily to, and grow well on, dry feed.

The man with low numbers and small well-fenced grazing lands could also see to the proper sorting of his cattle. He could keep some pastures for his older steers, some for his yearlings, and some for his cows. This prevented confusion and enabled him to do a better job of marketing and to keep better track of which cows were producing small offspring or none at all. He could also weed out poor-quality heifers by spaying them and ensuring that they did not reproduce. The smaller rancher thus could maintain a younger, healthier, and higher-quality herd than his bigger counterpart and, therefore, he was almost certainly more productive in almost every sense.

Of course, some family operations were much bigger than others. In close vicinity to the Hanen property those like A. E. Cross's A7 ranch, Lynch's TL, the Rocking P, the Bar S and the D ranches all ran one to a few thousand head of cattle over a few tens of thousands of acres from an early date. The challenge for them was somewhat greater than for many of their smaller contemporaries. However, close, hands-on attention and in many cases the participation and cooperation of all the members of the family enabled the owners of these ranches to watch their herds more closely than the corporations could while they were slowly building up reserves of hay and fencing in their pastures. That they have survived attests to their success. Many of these outfits have now been in existence - not approaching a quarter century as most of the great ones were, or even over four decades like the Bar U - but from ninety-to-a-hundred and more years. The Rocking P, which at one time included all the Hanen property, is typical of these very large family operated ranches.[121] After buying out George Emerson in 1914 Rod Macleay together with his wife Laura, made the ranch a convivial and welcoming spot on Pekisko Creek for anyone who visited or wandered that way. The two were also conscientious of the welfare of the nearby Stoney Indians at Eden Valley, who in turn held Rod in great esteem, later naming him a blood brother, Ma-pe-a-tow.[122] Although it is not clear in the record, the ranch undoubtedly hired many Stoneys as ranch hands and crews during these years. Rod's grandson, Mac* [or Mack? As ERCB docs refer to him???] Blades and Mac's wife Renie now operate the ranch as a family business. In 1990 they controlled 33,000 acres of deeded and leased land, ran 2,600 cattle and enjoyed $700,000.00 in annual sales. Over the years they agreed to a division of ranching responsibilities with their children. In the 1990s Mac and Renie supervised the grazing patterns, their daughter Monica and her husband Blake Schlosser attended to the operation's

[121] Klassen, "A Century of Ranching at the Rocking P and Bar S," Cowboys, Ranchers and the Cattle Business; Cross-border Perspectives on Ranching History ed. S. Evans, S. Carter and B. Yeo (Calgary: University of Calgary Press, 1999) 101 – 22.

[122] Knupp, Leaves From the Medicine Tree 496.

Quarter Horse herd, Justin worked the cattle and Shauna and her husband, Menard Bird, did the books. The other ranch run by Macleay descendants, the Bar S, is now in the hands of Macleay's other grandson, Clay Chattaway and his wife Pat. In 1996 they had 2,000 cattle and grossed $500,000.00 in annual sales and they controlled 25,000 acres of land. Their children, Scot and his wife Lee, Chris and Morgan continue to this day to be the mainstay of the workforce.[123]

Also typical of these large family operations is the D Ranch owned by the Cartwrights, who purchased the Hanen property in the mid 1950s from the estate of Patrick Burns and then sold it to Hanen in 1994. [124] The Cartwright holdings in the 1970s ran nearly 25,000 acres, two thirds leased and including forestry reserve of 20,000 acres. The more intensive management techniques are well preserved on a sixteen millimetre film by Gordon Cartwright's father Steven in the 1950s. The film shows a seasonal round at the ranch with herds brought out of the high country in fall, rounded up and then sent back to warm season pastures in spring. It is also evident that the ranch operated according to labour intensive and largely self-sufficient modes of production. Gordon Cartwright remembers his father taking pride "in the fact that he expanded the ranch, by keeping it largely self sufficient. He understood that technology and machines are no substitute for looking after land and livestock in a way consistent with nature."[125] The film also attests to the heavy use of wood on the operation. A prime activity was selective forestry management to take suitable timber that provided poles, a point Gordon Cartwright suggests was a sustainable way that ranches, though heavy wood users, maintained forests allotted them in leases and deeded lands. The D-Ranch film footage shows ranch hands constructing by hand large wooden overshot stackers and hay sweeps pulling them by horse to various locations. Work crews are seen cutting and stacking hay, some fifteen to twenty feet in height. The hay supplies were put aside for emergency use. There is some mechanization seen in the film footage: a flywheel wood splitter; later, by 1960, the family acquired its first chain saw. However, the family reduced costs and managed the ranch by minimizing mechanized operations.

By the 1950s, two or three single men were employed a year to round out the labour provided by family members. Crews were also hired from the Eden Valley reserve to process rails, build fences and put up hay. Some of this work, such as processing rails, was done in winter. These men were accompanied by wives and children; Gordon tells us that the ranch life complemented the Stoneys' interests and, at that time, ability to hunt and ride. They'd work as time allowed, but would not resist an opportunity if it presented itself to shoot a deer; the wives and children would skin and take the meat while the men continued working. The Natives were paid in cash or groceries.

[123] Like Gordon Cartwright, Mac Blades supported and at times was the spokesperson for the Pekisko Group's work to appeal to the ERCB decision allowing for the Sullivan Field project. See participants and appeals presented in Energy Resources Conservation Board Decision 2010-022: Petro-Canada, Applications for Eleven Well Licences, One Multiwell Gas Battery Licence, and Two Pipeline Licences, Sullivan Field, June 8, 2010 (Calgary: ERCB, 2010).

[124] Interview, Gordon Cartwright, 14 January 2011

[125] He recorded this in his dedication to PGPPP 1.

Ranchers with time were also well aware of changing carrying capacity. Aubrey Cartright became an early advocate of lowered stocking rates, for instance, in the forest reserve.[126] By the 1950s, the Cartwrights reintroduced beaver to the upper Pekisko in tributaries such as Willow Creek to maintain summer water table levels. They would, in turn, thin out the animals from the main stream. Gordon estimates that during the 1970s and 1980s his ranch harvested about fifty beavers per year.[127]

[126] Gordon Cartwright suggested that the Alberta Government leased the reserve at 10 acres/ head. In the late 1800s, it could be had for as little as 4-5 acres/ head. The Cartwright ranch attempts to maintain its herds at 18 acres/head/year, while in the aspen parkland they stretch out herds to 40 acres/head/year. Gordon Cartwright interview 14 January 2011

[127] Pekisko Group, p. 16; Gordon Cartwright interview 14 January 2011.

Caring for the Grassland: An Historical Perspective

A longstanding "land ethic" is suggested in Gordon Cartwright's comments:[128] "the concept of stewardship ran deep in my father long before the word became fashionable. He had a certain reverence for the land and all life that lived in support of life.[129] One of the strategies all the most successful ranching families adopted as they worked over the decades to achieve financial stability beyond the frontier period was a sophisticated grasslands conservation program. [130] This approach was developed by trial and, often, many errors in the modern era but it was the earliest ranchers who took the first steps in that direction. As they secured larger and larger supplies of feed and fenced their pastures the frontiersmen also cut down their herds to the point where their own deeded and leased land could support them. In other words, they took steps to ensure that they were not overgrazing, which, initially, had been an enormous problem on both sides of the Canadian/American border.[131] In Montana the Rocky Mountain Husbandman warned on 20 January 1887 that the "ranges adjacent to Miles City are dangerously overstocked, and the grass last fall and summer eaten down more closely than ever before."[132] In 1899 the same newspaper could claim that "for ten years we have urged cattle owners to cut their herds in half in respect to numbers," but that it had only been recently that they had started to listen.[133] In Canada total livestock numbers climbed less quickly than south of the border but by the infamous winter of 1906/07 many cattlemen had got to the point where overgrazing had become a greater threat than they realized. Well-known Calgary newspaper reporter, L.V. Kelly, wrote that in the previous summer and fall seasons "prairie fires and crowded ranges took the grass off and left little for winter rustling - in fact, in some districts the range was so overstocked that cattle went into winter in very poor condition, even hay being insufficient to strengthen them against the cold." Scarcity "of food, poor condition, and exceptional storms, snow and cold, demanded a fearful toll from the range stock and depleted the herds of the Province by about half."[134]

The first two photographs (Photos 4, 5 Appendix I) of land that was clearly not mistreated illustrate what the pastures in the foothills of Alberta would have been like when cattle first appeared on them in the early eighties. [135] "In some places," Duncan McEachran, the general

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[128] "I remember as a young boy asking my father how much land we owned. My father took care to explain, that no man could truly own land; the deed or lease by which we held the land was really our covenant to look after it." PGPPP 1.

[129] Ibid 1.

[130] Cunfer, On the Great Plains, 66 – 67.

[131] T.G. Jordan, North American Cattle-Ranching Frontiers; Origins, Diffusion, and Differentiation (Albuquerque: University of New Mexico Press, 1993) 239; R.H. Fletcher, Free Grass to Fences; the Montana Cattle Range Story (New York: University Publishing Corporation, 1960) 87; L.V. Kelly, The Range Men 191; Elofson, Frontier Cattle Ranching in the Land and Times of Charlie Russell, (Montreal and Seattle: McGill-Queen's University Press and University of Washington Press, 2004) 135 – 41.

[132] "Stock News and Notes."

[133] "Live Stock,"15 June 1799.

[134] Kelly, The Range Men, 191.

[135] GA Photograph Archives, Hereford cattle, Domburg Ranch, southern Alberta. [ca. 1890s]; ibid: NA-466-19,Round up crew, High River area, Alberta, 1892.

manager of the Walrond, had observed, the grass "was so thick and so long as to impede the progress" of horse drawn "wagons."[136] The rest of the photographs, (Photos 6, 7, 8, Appendix 1) taken on ranches on the eastern slopes of the Rockies are strong confirmation that grassland abuse was widespread.[137] The dominant native grass species, rough fescue, which when healthy forms tufts up to 30 centimeters in diameter and has stiff upright stems from 30 to 140 centimeters in height, has in every case been eaten down to almost nothing.

Grasslands abuse not only augmented death rates, it also made it impossible for range men to fatten their stock properly and the cattle they sent to market in England and Scotland were routinely disparaged for their under-finished state. Time and again reports in London, Liverpool, Manchester and Glasgow announced that "from abroad the supplies of stock consisted of 700 cattle from Canada which were a moderate lot. Some of these were taken for keep," to be finished by British farmers, "the rougher description meeting the worst trade of the season, entailing heavy losses for the exporters;"[138] "the Candian cattle were a middling and ordinary quality receiving over the whole 56 s[hillings] to 62 s[hillings]" per hundred weight while the grain finished cattle "received 60 s[hillings] to 63 s[hillings]" per hundred weight;[139] "foreign supplies for the week comprised 1,083 Canadians, a fairly good lot, nearly half of which were bought for feeding purposes. Well-fattened cattle "met a better demand."[140] A report written in 1909 by the Canadian veterinary-general pointed to poor finishing and shrinkage during the long trip to market as major obstacles for the western beef business. "Is it matter for wonder," he wrote, that after the long journey to Britain cattle "soft off grass… arrive in British lairages… gaunt and shrunken… looking more like stockers than beeves, that our Scottish friends think we have no feed, or that I should declare a business so conducted as sinfully wasteful."[141]

As they trimmed their herds the Canadian cattlemen also started keeping certain pastures for summer and certain ones for winter use - the latter normally close to hay supplies and in areas that provided natural protection from cold winds. This was emulating the grazing patterns of the buffalo, which had alternated seasonally from the plains to the foothills before the coming of the white man. Ranchers realized too that it helped to restore the grasses in both areas as it gave them long periods of rest each year allowing the re-growth that plants require for rebuilding roots and energy supplies. As the years went by the best family ranchers took these basic approaches a few steps further by embracing what has been recognized as "rest rotational grazing." They cross-fenced their ranges into relatively small pastures and then regularly *rotated* their cattle after short periods from one pasture to the next. This protects the vegetation

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[136] McEachran, A Journey Over the Plains from Fort Benton to Bow River and Back, [1881], 23.

[137] GA Photographs Archives: NC-43-136, Dragging cow out of mud, Springfield [Biggs] ranch, Beynon, Alberta.[ca. 1900]; Ibid: NA-1035-1, Bar U riders of southern Alberta round-up, [ca. 1901]; ibid: NA-239-30, People on horse with cattle in background, at Cochrane ranch, near Waterton, Alberta, July 1892; ibid: PB-940-4, Hugh McCallum McNaughton at last Bow River Ranch cattle round-up at Cochrane Lake, near Cochrane, Alberta,September, [1905]; ibid: NA-2084-50,Cowboys mounted for round-up, Spring Creek, west of Okotoks, Alberta, 1892; ibid: Cattle round-up at Stand Off, Alberta [ca. 1907; ibid: NA-620-1, Oxley Ranch riders and round-up camp, near Fort Macleod, Alberta. 1898; ibid: NA-777-4: Bringing saddle horses in to round-up camp, Milk River area, Alberta, 1912; ibid: NA-4035-199, Longhorn cattle on range, southern Alberta, [ca. early 1900s].

[138] "Yesterday's Markets," Edinburgh Courant, 12 September 1885.

[139] Ibid., 18 September 1885.

[140] Ibid., 30 October 1885.

[141] A.C. Rutherford, The Cattle Trade in Western Canada, quoted in Kelly, The Range Men 209.

by ensuring that the leafy matter on the grasses is never eaten off by more than about two-thirds. "Grazing or browsing too much of the leafy material, the collector of solar energy, will wear the plant down and reduce its ability to store energy in its roots. This makes the plant dependent on surface water instead of tapping deeper, more abundant supplies."[142] The rest rotational system allows each fenced in pasture a number of rest periods over the course of any one season. It not only improves the health and stature of existing vegetation but also helps to ensure the establishment of future plant life. Cattlemen have noticed that when the hooves of heavy herbivores impact the land for short periods they actually have a "ground-disturbing" effect, which promotes seed germination.[143] At this stage modern cattlemen are aware that it too follows the example of the buffalo, which kept more or less constantly on the move rather than settling in particularly desirable spots for sustained periods. The other advantage of this system is that when any of the small pastures seems to be faltering it can be taken out of production and allowed to rest for an entire year.[144]

One other important management approach cattlemen learned to utilize is known as "time-controlled grazing." Its purpose is specifically to enhance the dominant grass species that nature selected for this area long before European pastoralists appeared. Modern ranchers have discovered that the native grasses are far superior for grazing than any of the domestic varieties including timothy and brome grass that infested much of the foothills ranges when their seeds were either sown by frontier ranchers or carried into the region in the intestines and fur of stock imported from the United States and eastern Canada.[145] When the land is good to rough fescue in particular, it returns the favor as it produces substantial "litter" that contributes organic matter to the soil and enhances moisture retention and infiltration.[146] Moreover, its long roots help to conduct moisture down into the subsoil. Its growth cycle begins early in the spring and is complete by early summer. The mature plants are able to survive hot dry weather by accessing moisture stored well below the surface. Rough fescue is particularly ideal for winter grazing. It cures on the stem and retains its food value after the summer months and its long, stiff leaves will stand through even deep coverings of snow.[147] On many foothills ranches, lower wetter pastures are grazed early in the growing season (early June to late July) since the dominant native species there - wheat grass – matures early and loses its vigor and food value if not eaten down at that time. The drier ranges at higher elevations are kept free of livestock until the dormant period from August on when the rough fescue prospers from just the right amount of grazing and is at its most nutritious.[148]

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[142] See, Caring for the Green Zone; Riparian Areas and Grazing Management, 22; see also Cunfer On the Great Plains: Agriculture and the Environment 67.

[143] See, C. White, Revolution on the Range, the Rise of a New Ranch in the American West (Washington, Covelo, London: Island Press, 2008) 10.

[144] Caring for the Green Zone; Riparian Areas and Grazing Management 33.

[145] These grasses were also sown by cattlemen operating on the false presumption that they would out perform the native varieties (Elofson, Cowboys, Gentlemen and Cattle Thieves, 136 – 7.

[146] "Litter" refers to the organic matter in the form of dead leaves and stems that coat the earth in this case acting like a sponge both absorbing and holding moisture.

[147] Industrial Activity in Foothills Fescue Grasslands — Guidelines for Minimizing Surface Disturbance, (Edmonton: Alberta Sustainable Resource Development, Lands Division, March 2010) (http://www.google.ca/search?q=foothills+grasslands&ie=utf-8&oe=utf-8&q=t&rls=org.mozilla:en-US:official&client=firefox-a).

[148] Ibid. Scientists have designated rough fescue and wheat grass "decreasers" because cattle like them more than most other plants and tend to eat them down first

Photographic evidence suggest the improvement achieved in recent decades on a portion of the former Walrond land. [149] The members of the cooperative of family ranchers who have taken control of this land severely limited their cattle numbers in the 1980s (Photo 9 , top, Appendix I) and then implemented a sophisticated rotational and time controlled grazing program in the 1990s (Photo , bottom, Appendix I). The eventual improvement in the productivity astounded everyone who witnessed it.

In the wintertime the grass in these same pastures (Photo 10, Appendix I) stands tall enough to protrude through relatively deep coverings of snow.

Some modern ranchers have been particularly determined to find ways to protect their grass in delicate riparian areas along and around natural water sources. Left on their own cattle will inhabit these areas almost exclusively in the warmer months. Here the stock finds the densest stands of grass and, when thirsty, can readily access water. The problem is that as the animals crowd in along the water's edge they eat the grass down badly and trample it into the mud. They also kill off woody vegetation (saplings and bushes), the roots of which help to maintain bank stability along rivers and streams. Once the grass in one riparian area is depleted to the point where grazing becomes impossible the animals move on to another area inflicting similar damage on it. Eventually all the prime grasslands on a particular ranch may be affected. If after time the animals can no longer find good grazing by a water source they will move some distance away from one making the trek back to it when the need strikes. This will cause them to "walk off" much of the nutrition they take on from grazing and, therefore, to fail to gain weight properly. Some of the earliest Pekisko cattlemen had to learn this the hard way. A photograph (Photo 11, Appendix I) displays the more or less complete destruction of a riparian pasture.

In wet years the region's creek systems and moist east slope conditions filled most of the ranchers' livestock needs. But when many of the small creeks became depleted during dry cycles, their cattle drew more heavily from major streams such as the Pekisko. Ranchers taking grazing leases allowed their stock direct access to the creek, with overgrazing and stream erosion likely increasing as a result.[150] As they cut down on their cattle numbers, however, and learned to move their cattle from one pasture to another after shorter and shorter periods this became less problematic. To protect the creek, particularly conscientious operators placed a tank some distance from the water's edge and pumped the water to it. They also fenced off the creek to ensure that their cattle stayed well back from its edges. The tank could be moved from time to time to prevent damage to the grass around it.

Most of the successful ranchers still operating in the foothills today have adopted these practices to some significant extent and adapted them to conditions on their individual holdings.[151]

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[149] Caring for the Green Zone 23.

[150] GA December 21, 1921 (file 1333) The Bar U irrigation applications and reports are found in Part 7: Pioneer Irrigation Developments in the Bow River Basin, 1895-1920 Glenbow Fundation Research Project, Lawrence P. Burns, 1961.

[151] Another is Alvin Kumlin from west of Calgary who along with his wife Ann, worked with a riparian management program known as "Cows and Fish" to reduce the impact of their beef operation on the Jumping Pound Creek, which runs through their Lazy J ranch.[151] The Kumlins use electric fencing and mechanical waterers to keep their cattle away from the creek. To stabilize the banks of the creek they wrapped the mature trees along it with wire to prevent the beaver from killing them. In the winter, Alvin feeds his cattle from

Refining their grazing programs has made an enormous difference in productivity. If proper grazing techniques are used about twenty acres of land per animal are needed in the better pastureland in the southern foothills for year round use. [152] However, if proper techniques are not used three times that much may be needed. One of the ranchers in this area who has optimized his land to the fullest is John Cross, grandson of well-known pioneer cattleman, Alfred Earnest Cross – a contemporary and neighbor of both Rod Macleay and George Emerson. – who founded the A7 ranch in 1887.

After watching the frustrations of previous generations of his family to improve their pastures and control weeds by applying ever-greater amounts of herbicides, John began experimenting with a more holistic approach. He first dividing up his 13,000 acres range into forty large pastures and then using easily moveable electric fences divided each of these into three small sections. Once the cattle have grazed between twenty-five and fifty percent of the grass in any one of the sections Cross moves them to another. This is very labor intensive as it involves moving the cattle (and electric fences) every three days. At the A7 headquarters John and his wife Shelley Wilson-Cross keep a chart that monitors how well each and every one of the hundred and twenty small pastures is standing up and thus the total length of time they should expect to keep a specific number of cattle on it each year. This also enables them to recognize when a pasture needs to be rested for a substantial period. Further, they use the chart to help reverse the spread of domestic grasses. In monitoring each pasture so closely the Crosses are able to pick the precise moment when timothy and brome grass are near their nutritive height and yet can be eaten down before dropping their seeds. John also uses the time -controlled system noted above.

John has developed a unique watering system on the A7 that is both pasture friendly and energy efficient. He has found a way to gather water from a very productive set of springs and channel it into a pipeline running below the frost line. At strategic points in each small pasture the pipe rises to ground level delivering the water to a trough. The water does not linger in the trough but continuously flows through it and back into the pipeline to supply the rest of the troughs in connecting pastures. This prevents the water from freezing even in the coldest weather. In this system gravity is thus the only power source required not only to move the water but also to maintain it in liquid form. [153] Pasture damage around the troughs is avoided simply because the A7 cattle, like the buffalo before them, never stay in any one location for any sustained period.

John Cross is one of a handful of ranchers on the northern Great Plains who have been able to graze their cattle year-round. He merely supplements his grasslands with alfalfa pellets or canola meal for some thirty days during the wintertime. In the relatively rare winters when the snowfall is so deep that the cattle cannot get at the grass he scrapes it off his pastures with a four-wheel drive tractor equipped with a dozer blade. [154] This uses hydro carbonic energy but a

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portable feeders, which he moves around to spread the manure and its fertilizing properties. "Watershed protection doesn't just happen along the river," he says, "grasslands are a natural filtration, so a healthy grassland means a healthy watershed," ("Holistic Cow! Why ranchers are going green," *www.albertaviews.ab.ca/issues/2003/julaug03/julaug03cow.pdf*).

[152] In Alberta, Forestry, Lands and Wildlife, Public Lands Division, Range, its Nature and Use, Edmonton, 1986 11, the average stocking rate in this area is shown as 1.72 acres (0.7 hectares) for each "animal unit month." This would be 20.64 acres per animal unit year (12 X 1.72). Under the extensive practices of the early ranchers, however, this would have been about 62 acres per animal.

[153] Pasture damage is avoided because the cattle are moved so often.

[154] He scraped in 2002 and 2009.

lot less than it would take to run the tractors, windrowers, balers, loaders and feeders that would be needed to put up hay and then to haul and feed it to the cattle. “The cows harvest the grass the same as a combine harvests grain,” John points out,[155] and they do not run on gasoline and oil. John tells me that as a result of all the improvements he has instigated, pasture productivity has increased to the amazing level of 10 to 15 acres per cow or cow-calf pair per year. When the A7 ranch was visited, yearling heifers were grazing up to their bellies in rough fescue. John commented on their well-fed appearance: they would be moving to a new pasture the next day. “I keep my grass looking like that year round… that way it prospers and so do the cattle.” One of his cowboys, Rory Sapergia, once said that when he was moving cattle on the A7, “I’d throw my rope and it would stand up,” - the grass being so tall and thick that it would prevent it from falling to the ground. “I was used to a different kind of grazing,” he confessed, “where cows would chew down everything but the rocks.”[156]

[155] http://www.cowboycountrytv.com/trailblazers/aecross.html.

[156] http://www.google.ca/search?q=a7+ranche+Canadian+cowboy&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a

A Longer View of Forest, Water and Fish Conservation in the Pekisko Watershed

There were bids for more intensive use of Pekisko forest resources as early as the turn of the twentieth century, not surprising given the pace of settlement elsewhere and enormous growing demands for wood. The Department of Interior managed dozens of timber berths, large and small, nearby.[157] The upper reaches of the Highwood by this time were being extensively logged, the river ideal for spring-time drives. The Lineham Company, in High River, organized sizeable log drives to its saw mills in town in the first decade of the century.

The same was not true on the Pekisko, however. Only one timber berth was granted on the river by 1910, [158] apparently on section 28 in range 4, on Miller Creek, which flowed into the Pekisko's upper watershed. However, the spring freshet was hardly sufficient to drive logs and the lease, whatever the hopes of its holders, apparently lapsed soon after its granting. Most of the timber on the creek was taken by ranchers for their own uses. A prime consideration for them was suitable logwood for poles, buildings and corrals. Wood hewing and hauling was an important part of ranching on the creek. The Bar U drew much timber from section 30, and contracted a large amount of pole making to Billy MacDougall and George Baker by 1888 to mill materials for its miles of snake fencing connecting the Bar U with the Middle Fork. "Getting out timber," was one of the first tasks for ranchers for badly needing fencing and building materials.[159]

Forest management and fire suppression was also undertaken at a fairly early stage.[160] The amended Dominion Lands Act of 1884 set aside "crests and slopes" on the east slopes as headwaters of prairie rivers and reserved forests along them to protection water draining the parched prairies to the east. As the Federal Government adopted tenats of Progressive Conservation as a mandate at the turn of the century, it followed the appeals of the Canadian Forestry Convention, having its first meeting in Ottawa in 1906, and passed the Dominion Forest Reserves Act that year which began the survey of east slopes forest reserves.[161]

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[157] On the pace of development and growth of logging in the Bow River valley, see Christopher Armstrong, Matthew Evenden and H.V. Nelles, The River Returns: An Environmental History of the Bow (Montreal and Kingston: McGill-Queen's University Press, 2009) 86-111.

[158]PAA It shows as timber berth No. 1304 on Homestead Map, "Department of Interior, Southern Alberta," Corrected to January 1, 1910, Acc. 76-206-211; however, a careful search of the Department of Interior's Timber Berth registration suggests that it showed no returns and was quickly cancelled. It disappeared from subsequent homestead maps.

[159] See Appendix II, which notes that Bob Dixon about 1885 "had a cabin on Dixon Creek and got out timber;" and "When Miller and Lane were getting out timber for the Bar U they had Bob Stevenson build a cabin…."

[160] Gordon Cartwright cited a key change in terms of range management beginning the 1940s, a period when ranchers began attempting to maintain the range itself. Before that, both ranchers and government conservationists attempted to maintain ranges to keep down fuel in the forest reserve. Gordon Cartwright Interview, 14 January 2011

[161] Amanda Dawn Annand, "The 1910 Fires in Alberta's Foothill and Rocky Mountain Regions," BSc honours, Geography, University of Victoria, 1910 5-7.

Especially after the colossal 1910 fire, when some 3.6 million acres burned in the Canadian Rockies, the Dominion Forestry Branch increased efforts to suppress fires and protect western forests, the expansion of forest reserves by act in 1911 being one consequence.[162] The province also stepped up some of its own intercept efforts outside the reserves. The creek valley, along with the larger Bow watershed, became more heavily managed by the Dominion Forestry Branch by the 1920s. Airplane patrols began in September 1920. They were used to spot and reconnoiter fires in the forest reserves south to the international border. These patrols also provided aereal photography.[163] By 1921 the Alberta aircraft base was moved to High River where airplanes equipped with "wireless telegraphic equipment" patrolled and reported fires back to base where it was relayed by telephone to the ranger station.[164] By the late 1920s, a system of lookout stations was created in the forest reserves, connected by roads and trails, telephone lines, buildings and cabines.[165] Improved communications and transport, long advocated for effective fire control, were partly achieved with the roadway built between 1933 and 1935 to improve the old west trail and enhance communications up and down the valley. Heavy fire loss during the drought of the 1930s in turn prompted renewed interest in mountain watershed conservation and in 1947, the Eastern Rockies Forest Conservation Board (ERFCB) shared Federal and Provincial responsibilities and an annual budget for improved programs. By April 1949 some of the more elaborate planning of a manned and temporary fire lookout system in the region, especially on the very upper reaches of the Pekisko watershed, took shape as part of a larger effort of forest inventory, fire protection and reforestation of the forest reserves, work performed by the Alberta Forest Service.[166] ERFCB map plans made a new culminating point the Cameron Fire Tower (near Duncan Cameron's original homestead).[167] The gauging station on Stimson Creek provided better information for irrigation planning, augmenting the information that had previously been collected by the irrigation branch of the Department of Interior.[168] The Pekisko weather station, operational by 1906 on the D Ranch, was supplemented by data gathered at Sentinel, operating by 1950. A telephone system by 1948 connected areas in range 4 of township 16 and hooked up a relay to a ranger station system to the southwest, and the Cameron fire lookout. As had happened in other areas of more effectively managed forest reserve, better road systems and communications had the unplanned consequence of intensified logging and tourism into Bow River tributaries.[169]

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[162] P.39. On fire prevention and control policy, see Peter J. Murphy, History of forest and Prairie Fire Control Policy in Alberta (Edmonton: Energy and Natural Resources, 1985).

[163] Stephen J. Pyne, Awful Splendour: A Fire History of Canada (Vancouver: UBC Press, 2007) 302-303; Murphy, History of Forest and Prairie Fire Control and Policy in Alberta, 209.

[164] Murphy, History of Forest and Prairie Fire Control 211

[165] Murphy, History of Forest and Prairie Fire Control 220.

[166] Armstrong, Evenden and Nelles, The River Returns 113-115.

[167] PAA Reference Maps of East Slope Area, by the Eastern Rockies Forest Conservation Board, 1948-49 acc. 75.305/150

[168] The Highwood, with its tributaries, was managed with information derived from a High River gauging station. See "Highwood River," monthly discharges for 1908-1914, which include "Pekiska Creek" discharges, Leo G. Denis, Water-Powers of Manitoba, Saskatchewan and Alberta (Ottawa: Commissio of Conservation Canada, Committee on Waters and Water-Powers, 1916) 184-185.

[169] The ERFCB spent some $6.3 million to construct some 274 miles of trunk roads and 176 miles of secondary branches in the Saskatchewan River watershed, roads now seeing increased tourist use. Armstrong, Evenden and Nelles, The River Returns 114.

The upper river's grazing divisions by 1949 fell into the Bow River Forest Reserve as a distinct grazing area. The impact of forest conservation in these areas likely affected grazing. In the longterm, it reduced the frequency of fire, which occurred regularly in a 25 or 26 year cycle in the Creek areas, and was most memorable in the great fires of 1910 and 1936, the latter, the great Highwood fire that burned over the Rockies from British Columbia that year.[170] Fire suppression, especially in the upper ends of Pekisko near and within the forestry reserve, likely reduced what had been a frequent forest floor burning early in the pioneer period that kept brush down and contributed grazing space. The fire-free era allowed, at least in the very western reaches, forests to invade and colonize open spaces and gave way to "an aging, dense, closed canopy" growth.[171] Gordon Cartwright estimates that since the 1950s, aspen has expanded significantly on his family's holdings. From film footage of its ranges in that decade, the comparative open nature of the country is evident.[172]

While a reduction of fire hazard was a positive development for the ranchers' physical well being and for the fauna and much of the flora in the area it also provided for the encroachment by forests into pasture space. Another resource the ranchers themselves attempted to enhance could only have augmented their productivity had they been successful. That resource was the water flowing in Pekisko Creek. The cattlemen with government encouragement introduced timothy, brome grass and Kentucky blue grass to riparian areas as a substitute for natural species. Early survey maps make plain that hay fields were also planted near the creek. As noted above, cattle and horses also brought domestic grasses in with them.[173] The cattlemen attempted to contribute to the health of fodder areas along the Pekisko where likely in places where informal inundations and cheap diversions could be made particularly in early spring.

There were few registered irrigation works on the creek, however, in large measure because of the challenging nature of the task of construction. Irrigation projects had to be undertaken on a large scale because of the relatively brief freshet and the need to capitalize on what amounted to only a few extra inches of water in spring river flows.[174] George Lane's application to divert water from Sheppard Creek, to flood the bromus grasses and "other flat lands where the native hay crops will be greatly benefited by an application of water," by necessity had to be large works with "generous ditches," as an Interior Department official familiar with the region's watersheds, pointed out. This was "so that the best use can be put to the largest area during the short time the flood water is available." While badly needed at times, these works were not feasible for financially strapped smaller operations. Even George Lane had to drop his Sheppard Creek improvement because the Department required that it be built quickly once an irrigation lease was granted.[175] The Department of Interior also insisted that such works take only flood waters in prescribed seasons of the year and be used only to irrigate, not for stock watering.

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[170] Gordon Cartwright interview 14 January 2011; and Murphy, History of Forst and Prairie Fire Control Policy in Alberta 239.

[171] See the comparable example cited in Armstrong, Evenden and Nelles, The River Returns 118.

[172] Cartwright seems to have been citing a conclusion of a University of Alberta study of Aspen encroachment of some 3.4% per year between 1950 and 1977 in the D Ranch area. PGPPP 33.

[173] According to Gordon Cartwright, especially around saw pits and horse-driven mills, domestic varieties were spread in horse manure. Gordon Cartwright Interview, 14 January 2011.

[174] PAA Acc.65.44/ 1450 George Lane application to divert water from Sheppard Creek on sec. 12 tp. 16 rge 3 w of 5th, in September 22, 1922.

[175] PAA, Acc. 65.44/1450 George Lane Application to divert water, September 22, 1922.

Ranchers, all the same, required an abundant water supply for their cattle. In most years the region's creek system and moist east slope conditions filled sloughs and natural water catchments to meet most of this need. Natural upwelling in flats also provided ideal natural irrigation for hay fields. But in dry cycles, ranchers drew more heavily from the Pekisko itself. Competition between users almost inevitably rose over riparian use and water rights meted out by the irrigation branch of the Department of Interior. Part of the problem, perceived by irrigation managers, was that the Pekisko, unlike the Highwood River, did not take its source far up in the Rocky Mountains where snow pack might have better fed it and carried ranchers over dryer summers.[176] In these early years, too, the Pekisko was more vulnerable to forest fires which removed cover and adversely affected snow pack accumulation in its upper reaches.[177]

During the extremely dry years of 1919-1921 spring and early summer precipitation dropped off considerably and Pekisko levels fell accordingly. Downstream, the Bar U began drawing more heavily on the river and its irrigation works, built in the NE quarter of section 1.[178] First constructed in 1909, the works were built to take high flow waters at their peak early in the summer. The relatively steep grade along the creek allowed ranch managers to maintain with relatively minimal labour the diversion works once built and keep clear the canals that delivered water to fields a mile or so away on sections 8 and 5 in range 4. Usually, two to four men from the ranch spent a four-day period flooding hayfields at peak periods, early in the summer. By 1916, the ranch irrigated some 90 acres of Alfalfa and 140 acres of Timothy east of the creek.[179] Ranch hands usually did the work early and intensively before creek waters began to fall.

In the dry years, works were used more intensively and for longer periods. Managers frequently exceeded their irrigation license to divert water to a reservoir that serviced the needs of the many ranch buildings, no small quantity. The water branch was also pretty sure that the Bar U's irrigation waters were filling sloughs and the needs of "thousands of [very thirsty] head of stock."[180] Dry years, then, raised water use in general, but they also brought riparian users into potential competition, and some conflict. When the Bar U continued to take Pekisko waters after July, whatever the stipulations of its license, Neils Olson, by then the Bar U manager, admitted that many downstream users "were grumbling that the Bar U was taking all the water."[181]

But the Bar U managers themselves felt their operation was losing water to upstream users. George Lane was "considerably incensed" with an application by the EP operations to draw

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[176] GA. December 21, 1921 (file 1333) The Bar U irrigation applications and reports are found in Part 7: Pioneer Irrigation Developments in the Bow River Basin, 1895-1920 Glenbow Fundation Research Project, Lawrence P. Burns, 1961.

[177] GA. Report August 4, 1922, F.R. Burfield Report and Correspondence, file 1333, Part 7: Pioneer Irrigation Developments in the Bow River Basin.

[178] GA/ Report August 4, 1922, F.R. Burfield Report and Correspondence, file 1333, Part 7: Pioneer Irrigation Developments in the Bow River Basin.

[179] GA. Report October 8, 1916, file 1333, Part 7: Pioneer Irrigation Developments in the Bow River Basin shows the following irrigated crops: 90 acres of Alfalfa on section 5 r.2 tp 17; 45 acres of timothy on section 9; 100 acres of timothy on sec. 5.

[180] GA. E.A. Drake, Director of the Irrigation Branch, 23 Feb 1922. Part 7: Pioneer Irrigation Developments in the Bow River Basin

[181] GA. December 21, 1921 (file 1333) Part 7: Pioneer Irrigation Developments in the Bow River Basin

from the Pekisko above the Bar U diversion in the same years.[182] Despite the fact that the Prince of Wales' operation, too, had license only to take peak flood waters, Lane felt "he had never had sufficient water for his own requirements during dry seasons and felt that any further grants on Pekisko Creek would prejudicially affect his interests."[183]

The EP's own needs had expanded by that time, and peak irrigation works such as its own were used unofficially for longer periods in dry spells.The Bedingfeld ranch, soon after it patented land had first obtained a license to divert water from a small lake on the NE quarter of section 26, to the southeast of Pekisko Creek in 1905. The diversion watered some 171 acres on sections 25, 35 and 36.[184] Later sold, with the land, to the Prince of Wales in 1919, the EP continued to divert these lake waters to its hayfields.[185] Dry periods brought riparian users closer together along the valley, and forced them into an uneasy competition around a very limited water source. The Pekisko, as one water manager pointed out by 1937, when Patrick Burns bought out Lane's Bar U holdings and the extensive water licenses with them, provided a large discharge only in late spring and early summer. "But following this period [by approximately 30 June] the discharge rapidly declines and diversions are limited."[186]

During these years, increased stream use, riparian damage, cattle watering and increased tourism led to the first attempts at conservation that affected the Pekisko Creek itself. The earliest fisheries guardians in the new province after 1906 had little means of enforcing regulations on creeks such as these, even though it was well known that many of the tributaries and out-of-the-way spots were favorite places for lime-bottling, dynamiting and fish-barrelling. After 1913, the creek got more attention from Pekisko resident and guardian appointee H.H. Smith, one of many new guardians posted in these territories where automobiles were now driving outsiders into such local, prized, fishing holes (the fisheries branch of the Department of Marine and Fisheries estimated that about 300 fisheries licenses were given for Highwood River and tributary fishing in 1913; by 1916, that number had risen to 700, with possibly 25,000 trout being landed from the watershed).[187] But even by WWI, many of the first convictions for fishing infractions were dropped because of the "lenient view of offences" taken by High River Justices of the Peace.[188]

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[182] GA. P.J. Jennings, Acting assistant Commissiner of Irrigation. April 26, 1922: Part 7: Pioneer Irrigation Developments in the Bow River Basin

[183] GA. Report, P.J. Jennings, Acting assistant Commissiner of Irrigation. April 26, 1922. Part 7: Pioneer Irrigation Developments in the Bow River Basin.

[184] GA. See EP Ranch file, application and correspondence, Part 6: Pioneer Irrigation Developments in the Bow River Basin.

[185] GA. The EP diversions, reports and applications, are found in Part 6 of the Pioneer Irrigation Developments in the Bow River Basin, 1895-1920.

[186] GA. Memorandum, N.M. Sutherland, of Irrigation branch, to Director of water Resources, August 13, 1937. Part 7: Pioneer Irrigation Developments in the Bow River Basin.

[187] The 1913 estimate is based on "High[wood] River, Flat and Sullivan Creeks", 47th annual report, Fisheries Branch, Department of Marine and Fisheries, 1913-1914 (Ottawa: King's Printer, 1914) 229; the "Highwood River" anglers were some of the largest numbers in the province. 49th annual report, Fisheries Branch, Department of the Naval Service, 1915-1916 (Ottawa: King's Printer, 1916) 230.

[188]Library and Archives Canada [Hereafter LAC] A.A. Dunlop, from high River, was the area's first fisheries guardian. He was replaced by S.H. Smith in 1913. Miller to Assistant Minister, July 26, 1913, RG 23, Vol. 344, File 2995.

Taking matters into its own hands, the Calgary-based Alberta Fish and Game Protective Association, forming in 1907, included representatives of towns and villages throughout southern Alberta. In the context of increased automobile use and more intensive angling, the Highwood River Angling Protective Association, forming in High River in 1920 soon became one of the most influential of the many forming in the province by that time. Its members had a keen interest in the Highwood and its tributaries, especially the "middle fork," or Pekisko Creek.[189]

Indeed, after WWI, the Pekisko and other Highwood tributaries gained value in the eyes of local sportsmen – many of High River's finest and most influential – who saw stream closure as a way to keep main rivers like the Highwood an angling paradise. They also saw tributary closure as a convenient means of controlling the large numbers of tourists ambling into higher reaches of Rocky Mountain watershed. In 1918, High River sportsmen were distressed by the inundation of "larger numbers of people from Calgary, Lethbridge, Vulcan, Okotoks and other towns around about … endangering the fishery," by entering Sullivan, Flat, Cataract and the South fork of the Pekisko, all of them "important spawning grounds." The same charged such visitors with camping out for days on end and salting down catches in barrels. In 1919, George Lane joined the movement of local ranchers to demand nearby streams closed completely to fishing.[190] Closed tributaries, it was believed, would serve as "natural hatcheries" for sporting fish that would be better angled in the mainstreams. A petition in High River in 1919, eventually successful, asked for a general closure of the Highwood in its very upper reaches, and "for the preservation of good sport" the closing of fishing on tributaries, "the natural breeding grounds for trout," including the "Middle" [Pekisko] Creek.[191]

The generally dry cycle falling upon the region in 1919-21 likely gave impetus to such extreme measures. An early fisheries officer in the foothills had found that the "unusually dry weather and local fires, have left many streams dry in places…" and fish "cut off in pools with a temperature of water so high that it is doubtful if they could survive."[192] With such tributaries closed by 1920 and fry stocking from the Banff hatchery now taking place, the first poaching violations were prosecuted along the Pekisko by Smith, some of them gaining prominence in the news: the *Calgary Albertan* reported that the High River protective association was demanding nothing less than a $1000 fine (never actually awarded, but posted on signs association members nailed on trees along the stream) from "Pekisko Poachers" arrested and put on trial in High River for fishing the stream in 1926.[193]

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[189] George Colpitts, "Science, Streams and Sport: Trout Conservation in Southern Alberta, 1900-1930," MA Thesis, University of Calgary, 1993, pp. 48-50. On western protective associations, George Colpitts, *Game in the Garden: a Human History of Wildlife in Western Canada to 1940* (Vancouver: UBC Press, 2002).

[190] LAC. George Lane Letter to Department April 16, 1919, RG 23, Vol. 777, 781-11-1; also Report of Dr. Stanley on Sullivan, Flat, Cataract and Pekisko, September 5, 1918, in same volume and file.

[191] LAC. Petition Febrauary 18, 1919. It was the Geographical Board of Canada that had begun to erroneously term the Pekisko the "middle fork" of the Highwood. See R. Douglas, secretary of the Geographic Board, to Department of Marine and Fisheries, RG 23, Vol. 999; 721-4-37.

[192] LAC. W.A. Found to W.B. Harkin, August 13, 1919, RG 23, Vol. 999, 721-4-37.

[193] LAC. See clipping RG 23 Vol 733, 715-12-1, File 8, and for prosecutions on Pekisko and other closed streams, RCMP notice of prosecutions, in the same file and volume.

In general, High River anglers hoped that these stream closures would allow men living along Sullivan, Flat and Pekisko to feel "more disposed to tell a fisherman to go elsewhere than they would to examine a creel to check up on a man's catch if the creeks were open."[194]

The heavier involvement of ranchers and fish guardians on the creek likely reflected the overall changes to the river itself: heavier grazing, riparian damages, erosion and, likely, the effects of changes to forest cover, affected stream flow. The Banff Hatchery by 1928 was supplying Highwood River tributaries, including Pekisko Creek, some 99,000 rainbow fry annually.[195] It and Sullivan, however, were sometimes deemed as running too low in dry periods for hatchery fry to be at all successful.[196] In addition to encouraging local ranchers to seize the rods and creels of "fish hogs" along the stream, Pekisko's guardian intervened in more overt ways. In February, 1930, winter flooding affected many eastern slopes streams. On the Pekisko, the relatively small stream valley and its fish populations were carried away by the event. Smith frantically worked between Sullivan and Pekisko Creeks rescuing trout pushed up and out of the main channel: on Pekisko itself, he had made channels in the bed by confining the flow of water to a narrow channel, and in 10 days of work had made 65 yards of channels in various places, rescuing some 130 prized cutthroat and rainbow. He also removed 144 suckers and 10 Dolly Varden (bull trouts), considered nuisance fish for the time.[197]

In fact, local residents and the fish guardian were generally hoping that their interventions would make streams such as the Pekisko nurseries for cutthroat by "making room" for them while they concurrently killed off "nuisance varieties" such as bull trout. Ironically, the long term effects of such intervention and, especially, genetic mixing of rainbow introduced in cutthroat streams helped see the virtual disappearance of West Slope Cutthroat and its replacement by the rainbow exotic.[198] In the longterm, ranchers, like many anglers, came to appreciate the Dolly Varden as indigenous to the region and worthy of protection. However, they continue to view their creek now threatened by exotics, foreign species and noxious weedy varieties . One of the arguments ranchers in the Pekisko Group use against the proposed pipeline development on the upper reach of the creek is the value they see in McConnell Falls helping preserve "the genetic integrity of the West Slope Cutthroat."[199]

By the 1930s, dramatic effects of the prairie drought were felt on the creek. Like many mountain streams the Pekisko flowed to a trickle and Pekisko poachers were receiving the highest fines in the province, mostly because of the pressure placed on Justices of the Peace by the High River protective association members who believed the Pekisko's abuse affected overall angling in the Highwood, downstream. Pekisko offenses, in fact, received the highest fines in the province in 1928-29 (one, Joseph Elliot, had his fine of $50 suspended, "provided he leaves place."), four others got the same fine in 1930[200] as the truly dustbowl dry years began.

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[194] LAC. High River Association memorandum to Cootes, April 18, 1922, RG 23, Vol 999, 721-4-37.

[195] LAC. From clipping, *Calgary Herald*, November 28, 1928, RG 23, Vol. 779; 718-11-1

[196] LAC. Association Letter to Minister, April 27, 1922, RG 23, Vol. 1001, 721-4-37.

[197] LAC. R.T. Rodd to Found, February 24, 1930, RG 23 Vol 779, 718-11-1.

[198] The phenomenon is discussed in the case of the Bow in Armstrong, Evenden and Nelles, The River Returns, 232.

[199] PGPPP, 22.

[200] See 61st Annual Report, Fisheries Branch, Department of Marine and Fisheries, 1927-28 (Ottawa: King's Printer, 1928) 185; and *63red Annual Report, Fisheries Branch, Department of Marine and Fisheries, 1929-30* (Ottawa: King's Printer, 1930) 304-305.

Ranchers themselves were also beginning a new era of more intensive management and long-term planning, benefiting from hindsight, experience and better understandings of the highly variable climate of the Pekisko valley. Undoubtedly, new techniques were learned in the transition from open to more intensive family-run operations. Some of that environmental sensibility is perceived in the careful attention ranchers like the Cartwrights continued to pay to changing wildlife populations along the creek. At the turn of the century, Aubrey Cartwright took note of the first mule deer on the creek; Jim, his son, could remember the first elk (having been reintroduced from herds in Montana to Banff National Park previously) seen in the Pekisko ranges, about 1935 or 1936. Jim noticed moose around the mid-1940s.[201] Gordon Cartwright, now living in the throes of rapid aspen forest succession, now sees White Tail far more commonly than Mule Deer in the area.[202]

[201] PGPPP 16-19.

[202] PGPPP 21

Conclusion

The Hanen Property is located in a significant watershed in Alberta's ranching history, one that has undergone a social and environmental transformation after the Pekisko Creek was first entered by newcomers in the 1880s. In step with the adaptations made by other ranching interests in the east slopes of the Rockies, Pekisko ranchers began to favor more intensive and smaller scaled operations to cope with the vicissitudes of climate in these, the most northwesterly latitudes of the Great Plains. The Hanen properties have changed hands many times over the past 130 years. Successive generations of individual and combined owners and partnerships have struggled against the limits and capitalized on the opportunities of the region. It was likely with the transition of ownership between Indian Trader/prospector/cow driver and rancher George Emerson to Rod Macleay, who took over full ownership of the Rocking P in 1914, which signified a change from the rough and rowdy traditions of the open range, to one that would see ranchers place operations on deeded footing and within fenced margins. Certainly from that point on, each generation of owners has been part of a more detailed elaboration of a family-based management model. It is no coincidence that George Lane, himself financially overextended, began seeing his Pekisko properties, and the creek itself, differently by the 1920s. The war years left him strapped; so did the harsh winters and droughty springs in the 1919-21 which forced him to enlarge irrigation works to the Bar U, attempt others that he never did complete to Stimson Creek, and finally mortgage finance a buy out of his Winnipeg partners to be able to better control the comparatively smaller Bar U domains in those years. At the same time, Lane was as concerned by the hundreds of newcomers using the creek's other common resources. The Pekisko stream closure movement, and local prosecution of outside poachers, was part of a larger effort of residents to better conserve local resources for their own use, and in the end, their own smaller family enterprises.

Present day ranchers now contend with the legacies of these early years. Ranching families have developed a strong land ethic. They benefit from the know-how, but also mistakes, of previous generations. Their own conservation is also at odds with the provincial government's own programs. These more production-oriented policies extend back to the 1920s when fire suppression, forest reserve grazing leases and exotic grass introductions encouraged in the Progressive Conservation era tended to encourage denser forest succession and, in the end, helped choke out grazing territories. The divergence between those policies and those extolled by Gordon Cartwright, based on a long history and experience on the creek, cannot be more evident. The spokesman for the family that sold a section and a half of land to the Hanens in 1994 advocates a more human dominated landscape, one that would see the almost quintessentially Albertan ranch environment preserved by more selective logging by stewards of the land than clear-cut by outside businessmen, rangeland opened up, rather than overtaken by aspen invasions, and the Pekisko Creek preserved as much as a living heritage as another Alberta development corridor. Reconciling the creek and the Hanen property's historical legacy with the new demands of the modern era will undoubtedly constitute a major challenge for its local inhabitants.

Ranching Historical Report
Appendix 1

Photographs

Photo 1: Frank, Agnes and Josephine Bedingfeld, 1914

Photo 2: Haying on the EP Ranch in the 1920's

Photo 3: Mac Blades at work on the Rocking P – modern times.

Photo 4:

Photo 5:

Photo 6: The Walrond ranch round-up.

Photo 6A: Riders on round-up from Bar U ranch, New Oxley ranch, Walrond ranch and a7 ranch

Photo 7: Foothills Cattle

Photo 8: Foothills round-up

Photo 9: (top, bottom)

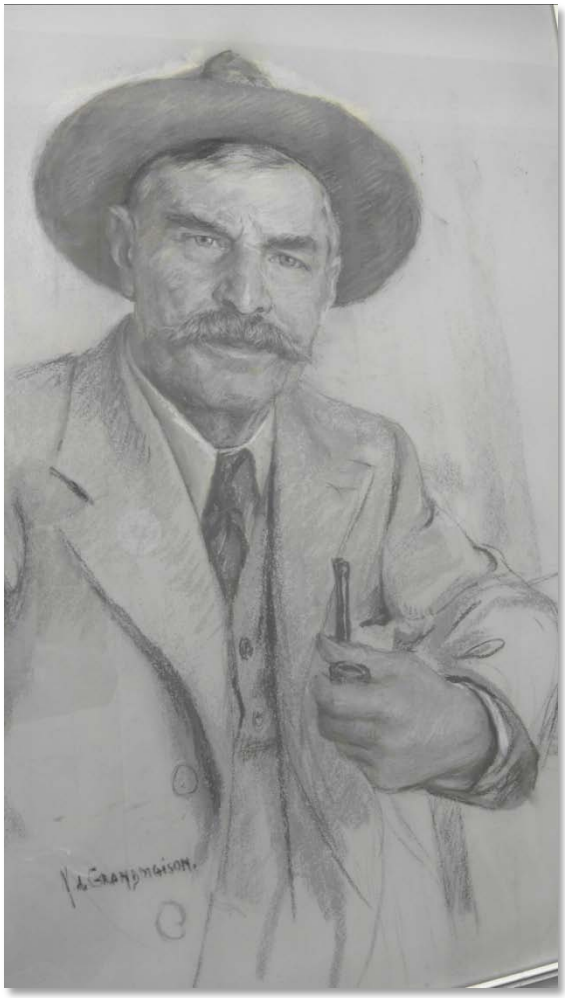
Photo 10:

Photo 11:

Photo 12: John Cross Photo

Ranching Historical Report
Appendix 2

Portrait of Aubrey Cartwright
With reverse inscription
(Cartright Family collection)



On the reverse side of the portrait are the following handwritten notes:

- *1882-83 The [brand symbol Bar U] got out timber SE corner of 30 and a year or so later built a cabin about where [George] Baker had his saw mill on the S side of the [indecipherable] just west of the crossing above the D ranch house. There was no road north of the creek till 1888 when Billy MacDougall and George Baker made it to haul out fence poles. They had cabins on Baker Creek just above the beaver dam and got out timber up the slope where the fence runs.*

Farrell Bros. had a cabin where Farrel Creek empties into Bear Creek. Billy MacDougall & Baker built a cabin where now is the Burke House and later sold it to Horatio Ross who sold it to Gordon McConnell about 1892.

- *Gordon McConnell moved to the flat above the Falls named after him. The depression of his cellar can still be found just near the Falls. E.A.C. [Aubrey Cartwright] worked here Sept. 1900.*
- *Bob Dixon about 1885 had a cabin on Dixon Creek and got out timber. He was the original owner of the D. Brand. He went insane and Mike Herman bought the brand. In turn his cattle and the 'D' brand were bought by E.A.C & John Thorp in 1909 Sept.*
- *When Miller and Lane were getting out timber for the (brand symbol Bar over U) they had Bob Stevenson build a cabin (now the kitchen end of the ranch house) in 1888. It was never used but sold to J. Thorp in Feb 1889. They put hay on the Miller Creek flat, hence its name. J. Thorp first branded 86 on both ribs but later had to change it to left hip. J. Thorp had Guillaime Gervais who built the original T.L. come to him and he built the rest of the old part of the house, he stayed a couple of years with J.T.*
- *E.A.C. joined J.T. after McConnell and Jack Nichol died on Dec. 1900.*
- *Dunc. Cameron came in 1893 and stayed till June 1908 when he started his own place. They became full partners in 1907. J.T. went out of cows on 1900 and both were buying steer calves, but it became difficult to get them so in 1909 they bought some 300 head of mixed cattle from Mike Herman for $8,500 brand included.*
- *In Nov 1914 the camp was bought. It had been a feed camp for the (brand symbol Little Bow Cattle Co. - backward C forward C)*[203] *for many years.*
- *In 1922 Hudson's Bay " "*
- *1925 Sections1,2,11,12 T 17 R4 – from Beaudry*
- *1926 The Roche quarter and 14 and some 50 horses*
- *" The N ½ of 33 and lease of 3 ½ of Fred Nash*
- *The Cameron outfit N ½ of 5, 17, 3, NW ¼ of 14, NE ¼ 23, SW ¼ of 25; the lease of ¼ 14,21, 22, ¾ 23 in W.4 – 29, 30, 33 in T16 R3 about 300 cattle branded VE or (brand symbol upside down V over G), some 55 horses, also a permit for 400 headon the Forest Reserve*
- *The [indecipherable] land first leased in 1920*
- *[E.A.C.] got out logs for stable in March 1905 and built it that fall.*

[203] "Brands," from Knupp, *Leaves from the Medicine Tree*, P. 398.

Southern Alberta Land Trust Society

Chapter Four

Baseline Wildlife Report for the Zahava Hanen Pekisko Creek Property

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Executive Summary

A baseline wildlife report was completed for the Zahava Hanen Pekisko Creek Property Multidisciplinary Study with the purpose to identify wildlife resources on the Hanen Property and to put this information into a regional context.

The 1800 acre parcel is located in southwestern Alberta, southwest of Longview in the Foothills Parkland Natural Subregion. To help discuss wildlife resources in a regional context, a Regional Study Area (RSA) was chosen that included the township the Hanen Property was located in and the surrounding eight townships. Wildlife information was collected from a variety of sources and field surveys were conducted on June 4, June 5, and July 4th, 2010. Prior to the field survey, a habitat map for the property was created using vegetation information collected as part of a range management plan for the property. In addition, eleven riparian health assessments were completed along Pekisko Creek.

The region around the Hanen Property is noted for its ecological and heritage values as well as recreational potential. The Hanen Property is located in a transition zone between montane and sub-alpine habitats to the west and grassland habitats to the east. Vegetation and landforms characteristic of montane, foothills, aspen parkland and grassland can be found on the Property. As a result, wildlife species characteristic of these diverse ecoregions (as well as the transition or ecotone habitats in between them) occur in the RSA. Varied terrain and riparian areas provide both core and corridor habitat for a diversity of wildlife species, including large carnivores, mesocarnivores, semi-aquatic mammals, ungulates, small mammals, a diversity of migratory and resident birds, and several amphibians and reptiles.

While the Hanen Property lies within the Foothills Parkland Natural Subregion, it is strongly influenced climatically by the Montane Subregion immediately to the west with higher precipitation and relatively short growing season which restricts till cropping. Much of the area is either under native cover or produces hay crops. Vegetation communities found in the region range from conifer dominated forest to aspen woodlands, willow shrublands and grassland. Willow groves dominated by beaked willow with a significant tall herb component are a distinct feature of the area around the Hanen Property.

A number of designated areas with significant conservation value for wildlife, vegetation and other terrestrial resources occur within 15 km of the Hanen Ranch including six historical Environmentally Significant Areas (ESA's), eight Current ESA's, eight Protected Areas and three Forest Land Use Zones. The Hanen Property lies directly in an ESA (Pekisko Creek and Uplands), is considered critical winter habitat for ungulates, contributes to headwater watershed protection, and supports intact riparian areas. Finally, because of the relatively low access density in the RSA, this area may provide habitat for species which are sensitive to human caused disturbance.

Pekisko Creek is the main hydrological feature on the Property, and there are several small wetlands, drainages and flooded areas. A number of springs occur along the Pekisko Creek valley. The creek is a tributary to the Highwood River and is part of the Bow River Sub Basin and South Saskatchewan River Basin in Alberta. Pekisko Creek is an important watershed that provides water resources to southern Alberta.

Approximately two thirds of the property is dominated by grassland habitats (64%) consisting of native fescue (41%), modified grasslands (22%) and sedge meadow habitats (<1%). Deciduous treed habitats dominated by aspen and balsam poplar comprises about 19% and are largely associated with the Pekisko Creek riparian area. Shrub willow habitats (10%) are also associated with Pekisko Creek.

One hundred seventy one bird species, 54 mammals, 6 amphibians and 2 reptile species potentially occur in the RSA. During three days of field survey of the Property, 55 bird species, 12 mammals, and 2 amphibians were observed representing roughly one third, one fifth and one quarter of the possible species in the RSA. Observations during three field visits cannot constitute a comprehensive list as many species are cryptic in behavior or difficult to observe, appear during periods of migration or utilize the area as winter residents.

Thirty- two bird species, 9 mammals, 2 reptile and 3 amphibian species are listed either provincially or federally that occur or potentially occur on the property.

The Hanen Property is located in an area where apex predators such as grizzly bear, wolf, and cougar still exist. Suitable ungulate habitat, low access density and disturbance levels contribute significantly to this. The Grizzly bear is listed as Threatened both federally and provincially. While the Hanen Ranch does not fall into primary habitat for grizzly bear it does provide secondary habitat because of its low level of disturbance and low access density. Grizzly bear do use the area and have been observed on the Ranch.

The Hanen Property contributes to critical winter range for four ungulate species (mule deer, white-tailed deer, moose and elk.). Mule deer tend to utilize areas west of the Ranch and are rarely seen on the Ranch itself, white tailed deer are prevalent and abundant on the ranch. Moose utilize riparian habitats and willow dominated shrublands. Hedging of preferred browse along Pekisko Creek shows significant use of riparian mixedwood and willow dominated shrub habitats. Winter elk use was noted in native fescue grassland habitats, especially in section 27.

The riparian area of Pekisko Creek provides suitable habitat for semi-aquatic mammals such as beaver and mink. Beaver sign both new and old were observed throughout the creek. A large willow shrub wetland in the north half of section 34 has two active beaver lodges. Some partial damming of Pekisko Creek occurs also in this northern area of the Property. There is also a flooded beaver impoundment that may not be active in the NW quarter of Section 27, but provides wetland habitat.

A number of small mammals are found on the Ranch. Rocky soils limit ground squirrel numbers, but riparian habitat along Pekisko Creek with mature poplar provide habitat for cavity nesting species such as woodpeckers and provides summer roosting spots for species such as bats.

Key habitats for wildlife found on the Hanen Ranch include native grassland, sedge meadow, willow shrub and all treed habitats along Pekisko Creek.

The results of eleven Riparian Health Assessments indicate that there is a healthy functioning riparian zone on the Hanen Property. Only two of the eleven sites were just below the healthy category to the healthy with problems category. The most common factors for reduced scores were vegetative cover, browse utilization and stream bank root mass protection.

Introduction

The Zahava Hanen Society and Southern Alberta Land Trust Society (SALTS) partnered to gather baseline information on the Zahava Hanen Ranch (the Ranch, or Hanen Property). The Ranch is located in southwestern Alberta approximately 17 km (10.6 miles) southwest of Longview, consisting of 1277 acres (516.8 ha) of deeded land and 522 (211.3 ha) acres provincial grazing lease (Table 1). Access to the property is west approximately 10 km (6.2 mi) via Secondary Highway 540 from Highway 22 along Pekisko Creek in the M.D. of Foothills No. 31 (Figure 1).

Land Description	Legal Land Description
Deeded Land	S1/2 of Section 27-16-3-W5 Section 28-16-3-W5 E1/2 of Section 34-16-3 W5
Grazing Lease	N1/2 of Section 27-16-3-W5 W1/2 of Section 34-16-3 W5.

Table 1
Land Description of Zahava Hanen Ranch

The Ranch (previously part of the Cartwright ranch) was purchased by Zahava Hanen in 1994.

This report documents baseline wildlife conditions on the Ranch and will be used for future management decisions for the property.

Wildlife Study Areas

Local Study Area

The Local Study Area (LSA) is the Ranch consisting of both deeded and grazing lease as outlined above. Local Study Area, The Ranch or Hanen Property are considered synonymous in this report.

Regional Study Area

To give a regional context to the Hanen Property, a larger Regional Study Area (RSA) was selected that included the township the Ranch is located in and the eight surrounding townships around Township 16, Range 3 (Figure 1). The RSA encompasses an area of 839 km2 (324 mi2).

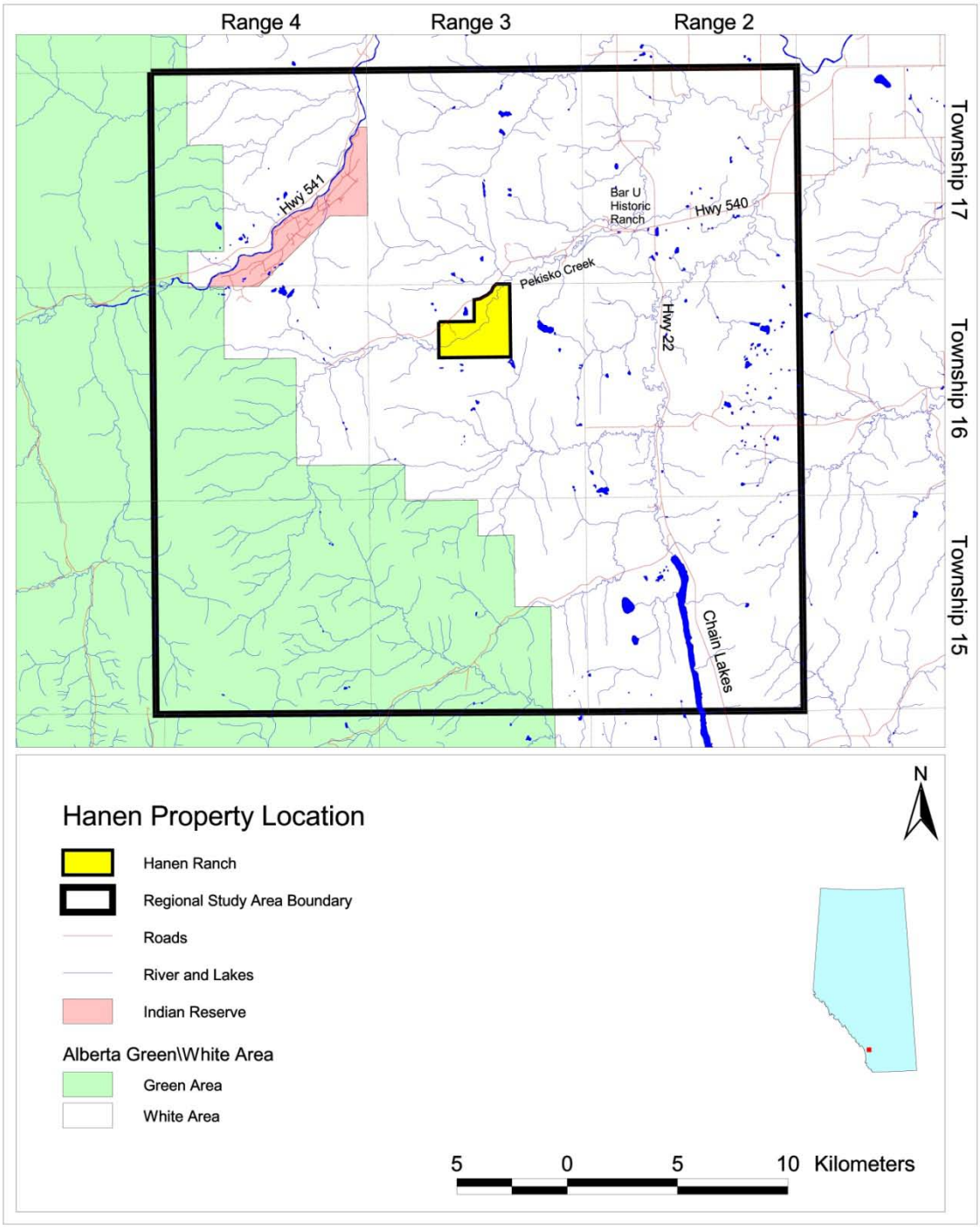

Figure 1
Location of the Hanen Property and Regional Study Area

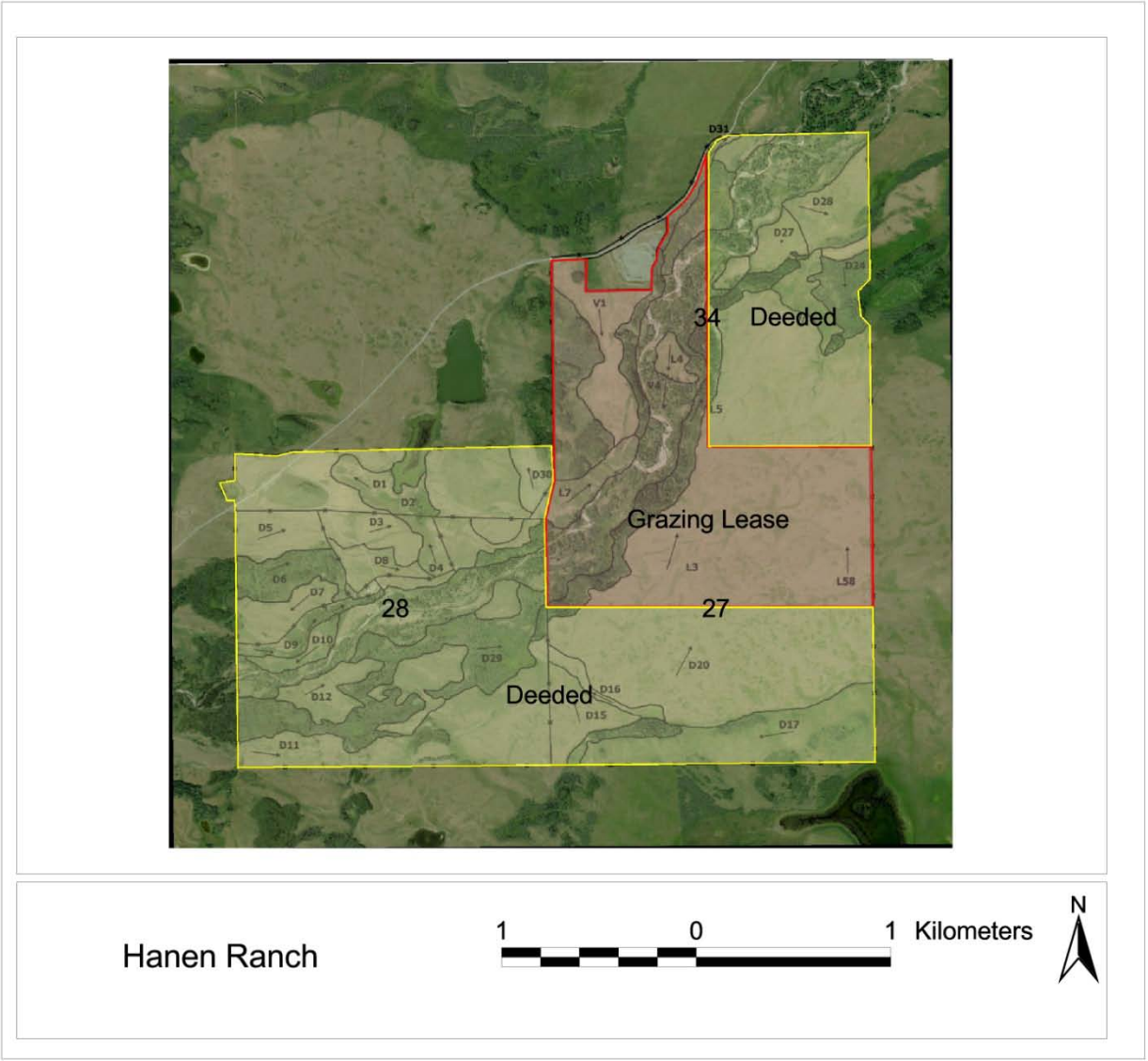

Figure 2
Hanen Ranch Showing Deeded and Grazing Lease Land

Methods

Data on wildlife species and their potential occurrence on or near the Hanen Property was collected to provide baseline information and an overview of wildlife resources potentially occurring on the Ranch, but also within a larger ecological framework. Information gathered and presented here focuses primarily on the Ranch, but the property is discussed in the ecological context of a larger landscape since many species are wide ranging.

Specific objectives were:

- To collect and report baseline wildlife information for the property.
- Help determine the composition of wildlife assemblages on the property.
- Identify habitat use patterns for wildlife species if possible.
- Determine the presence or absence of wildlife species of management concern.

Information on the relative abundance, seasonal distribution, movement and habitat use by key wildlife species and species groups in the RSA and Ranch were collected by:

- Reviewing and incorporating existing information.
- Conducting a field reconnaissance of the Hanen Property.

Collection of Existing Information

Existing information regarding wildlife was reviewed. Three primary sources were used to collect existing information:

- queries of existing provincial and other data sets,
- literature review,
- discussion with regional biologists and area residents.

Data Sets

The Alberta Conservation Information Management System (ACIMS), and Fish and Wildlife Information Management System (FWMIS) are catalogues of location information on wildlife species in Alberta. These databases were queried prior to field survey to determine any known occurrences, past or present, of vertebrate wildlife species within the RSA or occurring on the Hanen Property (birds, mammals, reptiles, and amphibians).

Wildlife species lists, including potential species occurring in the Foothills Parkland Natural Subregion, were established using (Semenchuk 1992, Smith 1993, Federation of Alberta Naturalists 2007, TARAS 2005, ACMIS 2010 and FWMIS 2010).

In addition to these databases, the status of species under COSEWIC (2009) and Alberta's Species at Risk Program (Alberta Sustainable Resource Development 2005) were also reviewed to determine species of concern. COSEWIC uses seven status ranks: extinct, extirpated, endangered, threatened, special concern, not at risk, and data deficient. Alberta's ranking system assigns one of five categories to each species: secure, sensitive, may be at risk, and, at risk, and undetermined. Additional information of how wildlife species are ranked is included in Appendix B.

Literature Review

A review of public domain information, relevant wildlife ecology studies and wildlife survey data from government agencies were reviewed and incorporated into this document where relevant.

Discussions with Regional Biologists and Area Residents

Relevant information on wildlife resources in the Pekisko Creek area by biologists and area residents was used to gain insight and information about wildlife occurrence, habitat use and movements. For some species, there is little existing information on distribution and habitat use and local information may help understand wildlife use of the area around the Hanen Property Wildlife information as a result of discussions with Scott Mckenzie, a resident of the Hanen Ranch for 16 years, and Pat Young, Senior Wildlife Biologist with ASRD, the regional biologist responsible for the Pekisko Creek area are incorporated into this report.

Field Reconnaissance

Three field visits of the Ranch were conducted June 5th, June 6th and July 4, 2010. Access was by foot. Evidence of wildlife presence or use was recorded.

Habitat Mapping

A habitat map was developed based on vegetation mapping completed as part of a range health assessment completed on the Ranch in 2009 (Alta Rangeland Services 2010). Each habitat type was complied from plant communities described in Adams et. al. 2005 (Rangeland Plant Communities and Range Health Assessment Guidelines for the Foothills Fescue Natural Subregion of Alberta), Range Plant Community Types and Carrying Capacity for the Montane Subregion (Willoughby, Alexander, and Adams. 2005), and Range Plant Communities and Carrying Capacity for the Foothills Parkland Subregion (Draft, DeMaere et. al. 2010).

Riparian Health Assessments

During the wildlife field component, eleven riparian health assessments were completed along Pekisko Creek. These assessments were done using the Riparian Assessment field forms and scoring criteria outlined by the Alberta Riparian Habitat Management Society (ARHMS 2008), specifically the Alberta Lotic Wetland Health Assessment for streams and small rivers.
A riparian health assessment is a rapid assessment method for determining the overall health (condition) of the site in question and provides a site rating useful for setting management priorities. A single evaluation provides a rating at only one point in time. Due to the range of variation possible on a riparian site, a single evaluation cannot define absolute status of site health or reliably indicate trend (whether the site is improving, degrading, or stable). To monitor trend, health assessments should be repeated in subsequent years (ARHMS 2008).

Riparian health means the ability of a riparian area and its channel to perform natural functions such sediment trapping, bank building and maintenance, water storage, aquifer recharge, flow energy dissipation, maintenance of biotic diversity, and primary production.

No single factor or characteristic of a wetland site can provide a complete picture of either site health or the direction of trend. A series of eleven factors are used in riparian health assessments and include six vegetative and five soil\hydrological factors.

The survey timing was not ideal. High water levels and cooler spring weather created a late start for plant growth.

Regional Ecological Setting

Natural Regions and Subregions

Of the six natural regions identified in Alberta, the RSA around the Hanen Ranch has three of them (Rocky Mountain, Parkland and Grassland). Specifically the Montane, Foothills Parkland and Foothills Fescue Subregions (Figure 3). The Montane Subregion comprises 1.3% of the province, the Foothills Parkland 0.6%, and the Foothills Fescue 2.1%. The Hanen Property is located in the Foothills Parkland Natural Subregion.

The eastern slopes region in general is an area of unique transitions. Narrow zones between natural regions in an east west direction creates a significance to biodiversity that goes beyond the natural features found in each natural region. Within the RSA, Montane coniferous habitats give way to Foothills Parkland and to Fescue Grasslands farther to the east. While the Ranch sits in the Foothills Parkland Natural Subregion, the property's western boundary lies on the interface between the Montane Natural Subregion and the Foothills Parkland.

The area can be characterized best as a transition zone between the Rocky Mountains and more open parkland environments. Vegetation and landforms characteristic of alpine, subalpine, montane, foothills, aspen parkland and grassland can be found. As a result, wildlife species characteristic of these diverse ecoregions (as well as the transition or ecotone habitats in between them) occur in the RSA. Varied terrain and riparian areas provide both core and corridor habitat for a diversity of wildlife species, including large carnivores, mesocarnivores, semi-aquatic mammals, ungulates, small mammals, a diversity of migratory and resident birds, and several amphibians and reptiles.

Coupled with geology created from the formation of the Rocky Mountains. Low angle thrust faulting has created a generalized north-south pattern of valleys and watercourses and headwater streams, including Pekisko Creek, provide important watershed areas for southern Alberta water supplies to the east.

The Foothills and Montane regions in southwest Alberta provides a landscape important as a migratory corridor for a number of landscape species such as grizzly bear, cougar, wolf and migrating raptors such as golden and bald eagles. Southwestern Alberta is considered internationally significant for helping to maintain viable populations of species south of the Canadian border by allowing movement and dispersal of species southward and northward.

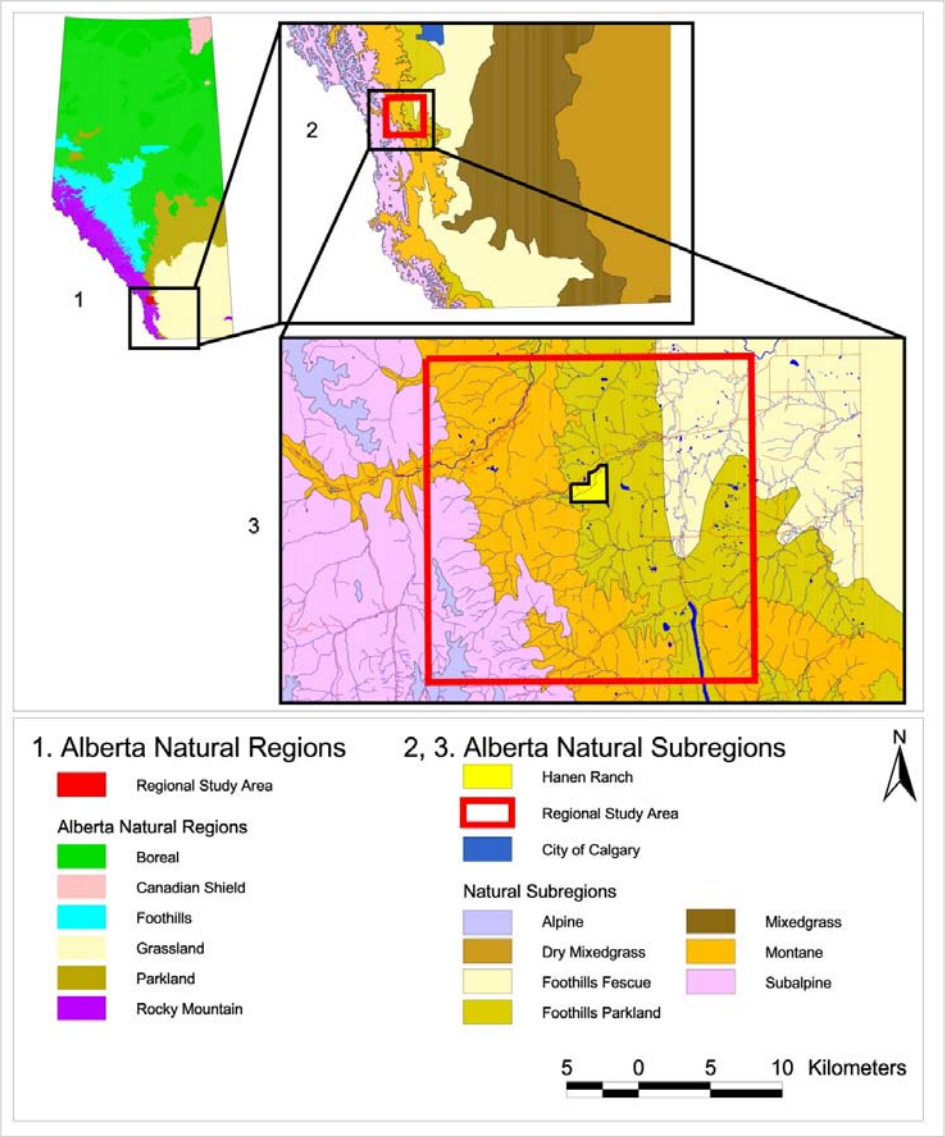

Figure 3
Alberta Natural Regions and Subregions. The Hanen Property is located in the Foothills Parkland Natural Subregion

Climate

There are three major climatic regimes in Alberta and the Hanen Property is strongly influenced by the Cordilleran Ecoclimatic District (Strong and Leggat 1992, Natural Regions Committee 2006). General characteristics of both the Cordilleran and Grassland Ecoclimatic Districts are summarized in Table 2. Marked changes in elevation create correspondingly rapid climate changes.

Three climatic parameters appear to be most useful in explaining the differences between Natural Regions:

- Mean annual temperature—average temperature over an entire year, partly indicative of relative energy available for plant metabolism.
- Mean annual precipitation—average precipitation over an entire year, partly indicative of relative moisture availability for plant growth.
- Growing degree-days greater than 5°C (GDD5)—A measure of energy available for plant growth.

Temperature

Mean annual temperature near the Hanen Property ranges between +1.5 to 3.0 degrees. Temperatures are lower in higher elevation subregions to the west and the only natural region with higher mean annual temperatures is the Grassland Natural Region.

Precipitation

Highest precipitation occurs in the Rocky Mountain Natural Region of Alberta. With the Foothills Parkland Natural Subregion hugging along the montane, this subregion also has higher precipitation than elsewhere in the province and averages around 520 mm per year.

Growing degree days greater than 5°C

The foothills parkland Subregion falls in the center of values in the province with a value of 1158. The range in Alberta Natural Subregions is 317 (Alpine) to 1690 (Dry Mixedgrass).

The Foothills Parkland Natural Subregion has the highest precipitation, warmest winters, and shortest, coolest growing season of any of the parkland Natural Subregions. Proximity to the mountains and greater incidence of Chinooks is responsible for this. Climatically, this subregion is more similar to the Foothills Fescue and Montane Natural Subregions than it is to the other parkland Natural Subregions. Maximum precipitation occurs in June, but May and July are also rainy months. The relatively short growing season restricts till cropping, and much of the area is either under native cover or produces hay crops. Table 3 summarizes some climatic data for the Foothills Parkland Natural Subregion (Natural Regions Committee 2006).

	Ecoclimatic Province	
Distinguishing Characteristic	**Cordilleran**	**Grassland**
Climate Type	Cordilleran	Continental
Temperature regimes	Cold winters, very short cool summers, mean annual temperatures approximately –0.5°C.	Cold winters, short hot summers; July is warmest month. Mean annual temperature approx. +3°C.
Precipitation Patterns	Variable due to aspect and elevation; high relative to other ecoclimatic provinces; higher at high elevations and on west and north aspects. Relatively high annual precipitation (average 800 mm).	Summer-high (June), low annual precipitation (average 410 mm).
Relative insolation	Controlled by latitude and aspect; higher on south- and west-facing slopes, also decreases with increasing latitude.	Relatively high; the highest solar inputs are in southerly latitudes (4600-4800+MJ/m^2 annually).
Growing season	June–August.	May–September
Moisture availability in growing season	May be limiting on southerly aspects with thin soils at high elevations or lower elevation locales, but generally not limiting (except in the Montane Natural Subregion as a result of lower precipitation and exposure to drying winds or alpine ridges that are swept clear of snow in the winter and exposed to drying winds in summer).	Generally limiting to growth after June; high evaporation due to high insolation, drying westerly winds. Availability increases with elevation (higher precipitation) and latitude (lower solar inputs).
Important airflow patterns	Prevailing westerlies (Pacific moisture) and continental airflows from the north and southeast are the dominant influences.	Cold northerly flows in winter. Also, milder Pacific air masses in winter produce higher temperatures in elevated areas to the west, with chinooks mainly in southwest Alberta.
Natural Regions and Subregions	Rocky Mountain Natural Region.	Grassland Natural Region, Parkland Natural Region (transitional between Boreal and Grassland).
Source: Natural Regions Committee 2006		

Table 2
Climate Characteristics of both Cordilleran and Grassland Ecoclimatic Provinces that have a strong influence on the Hanen Property.

Parameter	Foothills Parkland	Montane
	Value	*Value*
Mean annual temperature (°C)	3.0	2.3
Mean temperature, warmest month (°C)	14.7	13.9
Mean temperature, coldest month (°C)	-9.6	10.0
Mean daily maximum of warmest month (°C)	22.1	21.2
Mean daily maximum of coldest month (°C)	-16.0	-16.1
Growing degree days (>5°C)	1158	1017
Frost-free period (days)	76	64
Mean date of last spring frost	June 13	June 21
Mean date of first fall frost	August 28	Sept 2
Mean annual precipitation (mm)	517	589
Growing season precipitation (mm)	377	382
Source: Natural Regions Committee (2006).		

Table 3
Summary of Climatic Data in the
Foothills Parkland Montane Natural Region

Topography, Geology, Soils and Hydrology

Much of the Parkland Natural Subregion is level to gently undulating, and is covered mainly by glacial till. The Hanen Property in particular is underlain by till, kame, pitted outwash deposits and alluvial deposits along Pekisko Creek (Alberta Geological Survey, 2010). The Foothills Parkland Natural Subregion is highest parkland Natural Subregion, and elevations range from 1025 m north of Calgary to about 1400 m in the Porcupine Hills. The Hanen property ranges from 1320 m in the northeast corner of Section 34 to 1400 m in the northeast corner of Section 28.

Black Chernozems are the dominant soils under grasslands or in cultivated areas of the Foothills Parkland. They reflect the long-term occurrence of productive grasslands that developed under relatively long, warm growing seasons and the resulting incorporation of organic matter into deep black surface humus layers.

The soils on the Ranch are dominated by Burmis Soil Series Rego Black Chernozems and gravely to cobbly and are less productive than a typical Orthic Black Chernozem. The Regosolic Order soils of the creek valley walls lack development and are less productive. Soils in the Pekisko Creek flood plain are fluvial deposits consisting of gravel and sand with varying degrees of development and productivity (Alta Rangeland Services 2010).

Pekisko Creek is the main hydrological feature on the Property. There are several springs along the creek escarpment, especially in the grazing lease portion of the property. Pekisko Creek is a tributary to the Highwood River and is part of the Bow River Sub Basin and South Saskatchewan River Basin in Alberta.

Open water and wetlands are uncommon in the Foothills Parkland Natural Subregion, but there are several wetlands features on the Hanen property. Two large beaver impoundments are located in NW quarter of section 27 and the north half of Section 34, a wetland located in the NE quarter of section 28 and a small pond in the NW quarter of Section 28 provide some wetland habitats. In addition, there are several springs along the south side of Pekisko Creek and several small wet drainages.

Vegetation

Rolling to hilly native grasslands, and aspen woodlands or willow shrublands in low-lying areas or on northerly slopes characterize the Foothills Parkland Subregion. The Foothills Parkland consists of two distinct units in southwestern Alberta, ranging from 5 – 50 km wide. Because of rapid topographic and climatic change, the transition occurs over one to five kilometres. This compression results in small geographic areas being very diverse (Sweetgrass Consultants Ltd. 1997). The Hanen property lies within the northern unit, which extends from approximately Willow Creek to about 50 km north of Calgary. Grasslands similar to those in the Foothills Fescue Natural Subregion occur on dry sites, and aspen stands like those in the Montane Natural Subregion occur on moister, cooler northerly aspects and in seepage areas. Willow groves dominated by beaked willow with a significant tall herb component are a distinct feature of the northern unit (ANHIC 2010, Natural Regions Committee 2006).

Because of the relatively short growing seasons and correspondingly less intensive cultivation, the Foothills Parkland Natural Subregion has the highest proportional area remaining in native vegetation of the three parkland Natural Subregions (ANHIC 2006).

Twenty-one plant community types on the Hanen property identified as part of the Range Management Plan (Alta Rangeland Services 2010) included community types from the Foothills Fescue, Montane and Foothills Parkland Natural Subregions. The Hanen property shows it is in a narrow transition zone between these three natural subregions.

Environmentally Significant Areas

Environmentally significant areas (ESAs) are defined as areas that are vital to the long-term maintenance of biological diversity, physical landscape features and/or other natural processes at multiple spatial scales (Jennings and Reganold 1991). Essentially, ESAs represent places in Alberta important to the long-term maintenance of biological diversity, soil, water, or other natural processes, at multiple spatial scales. They contain rare or unique elements in the province, or include elements that may require special management consideration due to their conservation needs. ESAs do not represent government policy and are not necessarily areas that require legal protection, but instead are intended to be an information tool to help inform land use planning and policy at local, regional and provincial scales (Internet Site: Alberta Tourism, Parks and Recreation 2009).

Historical ESA's

The development of ESA's in Alberta began in the early 1980's and was summarized in 1997/98 by Sweetgrass Consultants (1997) and Timoney (1998). Six historical ESA's were identified that were relevant to the Hanen Property and within the RSA (Figure 4):

Highwood-Pekisko Upland was considered of provincial significance and one of the finest Foothills Parkland areas in Alberta with no permanent roads and excellent moose habitat.

Meinsinger Lake located in the southeast portion of the RSA is a small wetland area considered provincially significant for great blue heron breeding habitat and considered important for maintaining natural shorelines for a variety of waterbirds

Pekisko Creek and uplands to the south which runs through the Hanen Property was considered provincially significant because of its extensive foothills parkland willow communities, considered one of the finest moose ranges in Alberta, excellent elk habitat, important spawning habitat for Bow River Rainbow Trout in Pekisko Creek, the area figured prominently in the history of ranching in southern Alberta and of historical interest because the Prince-of-Wales (Edward VIII) once owned a ranch there.

Wildlife Management Unit 404 Considered to have high recreational value; critical habitat for cougar, wolf, grizzly bear, elk, and mountain goat, and provides wildlife migration corridors.

Wildlife management Unit 406 Considered critical habitat for grizzly bear, cougar, wolf, elk, mule deer, white-tailed deer, and moose; and provides wildlife migration corridors; at least 11 rare plant occurrences and one northern leopard frog occurrence.

Plateau Mountain is a well-known area of alpine permafrost and patterned ground with a zone of continuous permafrost above ~ 2305 m. The summit is believed to be a nunatak. Unique plant communities not reported elsewhere may be rare in the province or unique to the area. Other special features include limestone pavement; an ice cave; excellent examples of glacial cirques and hummocky cirque moraines; a small cirque lake; spruce-fir-whitebark pine forest, old-growth limber pine forest stands. The area includes at least 34 rare plant occurrences, and 266 alpine plant species.

Current ESA Delineations

The update of the original 1997/98 ESA compilation data was completed in 2009 (Fiera Biological Consultants 2009) and used seven defined criteria. Each ESA was assigned a significance rating according to the elements present: (1) International, (2) National, and (3) Provincial. These ratings do not reflect the respective importance, but rather signify the scale at which each ESA is significant or rare. In general, the spatial distribution of the updated ESAs is similar to those identified in 1997/98, but with additional areas also identified (Internet Site:

Alberta Tourism, Parks and Recreation 2009). This latest iteration incorporates updated information and changes to the land base that have occurred in the preceding decade.

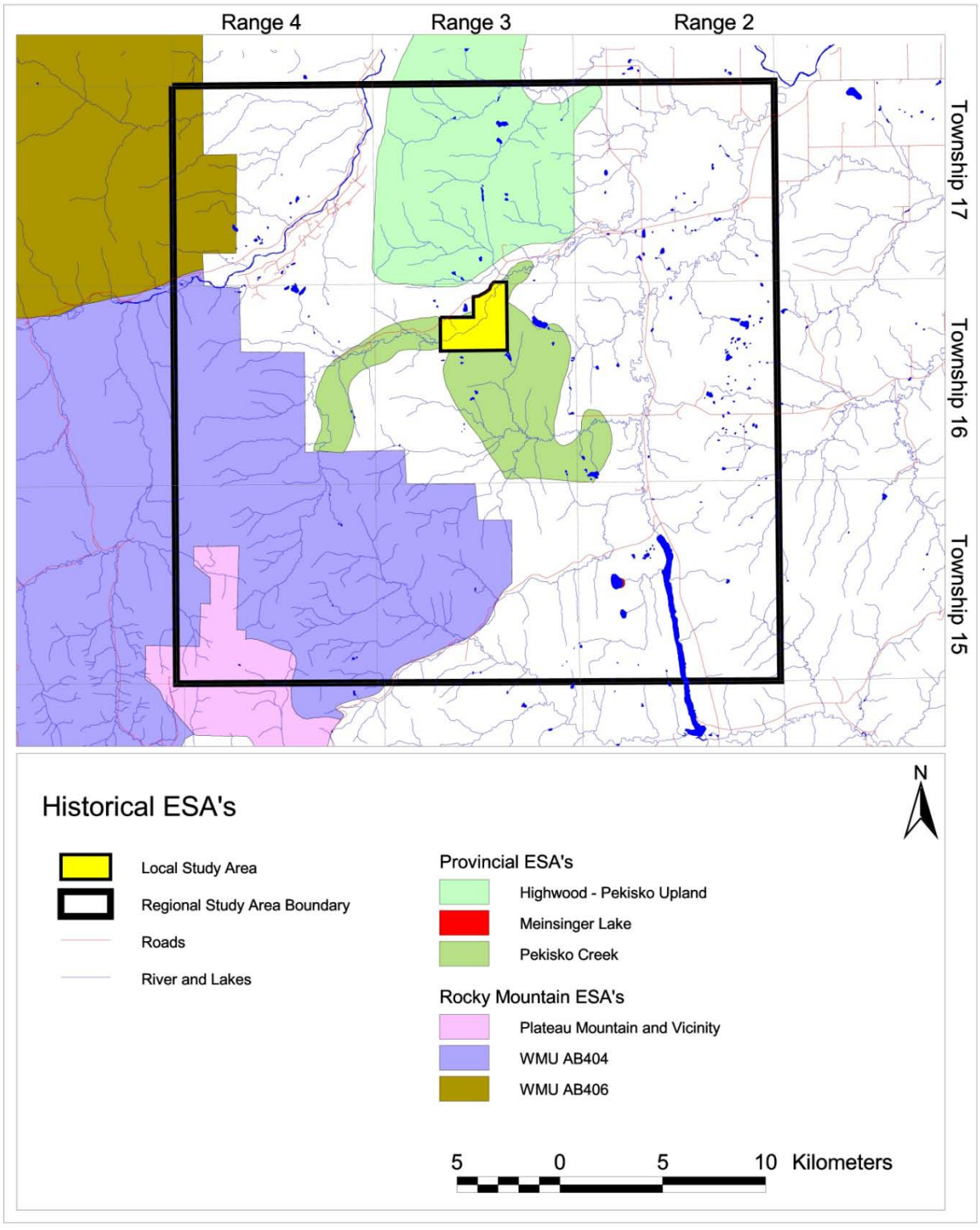

Figure 4
Historical Environmentally Significant Areas

The Seven Criteria used to assess Alberta ESA's included:

- Areas that contain elements of conservation concern.
- Areas that contain rare or unique landforms
- Areas that contain habitat for focal species
- Areas that contain important wildlife habitat
- Riparian areas
- Large natural areas
- Sites of recognized significance

Eight ESA's occur within the RSA and one occurs on the Hanen Property (Figure 5). Current ESA delineation is via number as many ESA's were aggregated. The eight ESA's within the RSA are listed in Table 4. All are provincially significant with the exception of ESA 39 (Plateau Mountain), which is considered nationally significant.

ESA 2 – An amalgamated ESA with numerous conservation features. Of relevance to the RSA are that they contain headwater streams, intact riparian areas, and over 253 elements of conservation concern including amphibians, mammals such as grizzly bear and wandering shrew and a number of plant species and community types.

ESA 5 (Pekisko Creek and Upland) in which most of the Hanen Property is within (the south ½ of section 27 is not included) is important from two of the criteria listed above, Unique landforms (Pekisko Area crag-and-tail) and riparian areas.

ESA 6 Contains headwater streams and one element of conservation concern, a moss (*Grimmia teretinervis*).

ESA 7 Contains Don Getty Wildland Park on the western edge of the RSA, has intact riparian areas and 13 elements of conservation concern including grizzly bear and long-eared bat as well as a number of plant species.

ESA 39 Plateau mountain ecological reserve, 29 elements of conservation concern including 4 species of butterfly, grizzly bear and plant species.

ESA 46 34 elements of conservation concern including grizzly bear and two species of butterfly, and plant species, headwater streams and intact riparian areas.

ESA 50 is a Heritage Rangeland designation for the OH Ranch (August 2008). The grasslands of southern Alberta evolved under grazing by bison. In the absence of bison, sustainable livestock management by ranchers has replaced this process. Heritage rangelands celebrate and legislatively protect Alberta ranching culture and the connection of ranching to the land.

ESA 322 is an expansion of the Meinsinger Lake area to include elements for conservation concern, a moss (*Jaffueliobryum wrightii*) and a Grass (*Alpine foxtail*).

ESA Designation 2009[1]	Original ESA Names	Significance Ranking	Criterion						
			Elements of Conservation Concern.	Rare or Unique Landforms	Habitat For Focal Species	Important Wildlife Habitat	Riparian Areas	Large Natural Areas	Sites Of Recognized Significance
2	WMU AB404, Plateau Mountain and Vicinity, South Plateau Mountain Low Elevation Treelines, Pekisko Creek, AB406. [2]	National	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Highwood, Pekisko Upland, Pekisko Creek	Provincial		Yes			Yes		
6	No Name	Provincial	Yes				Yes		
7	WMU 406, Sheep River, WMU 404	Provincial	Yes		Yes		Yes	Yes	Yes
39	Plateau Mountain and Vicinity, South Plateau Mountain Low Elevation Treelines, WMU AB404.	Provincial	Yes	Yes	Yes		Yes	Yes	Yes
46	46 Burnt Timber, WMU AB406, WMU AB404, South Ghost Wilderness, Forgetmenot Mountain, Ghost River Wilderness, Mount Livingstone Natural Area, WMU BNP8, Beehive Natural Area, Bow Valley, Vermilion Lakes - Banff Sector, WMU BNP 8 South.	Provincial	Yes	Yes	Yes		Yes	Yes	Yes
50	Highwood - Pekisko Upland, WMU AB406.	Provincial					Yes	Yes	Yes
322	Meinsinger Lake.	Provincial	Yes			Yes		Yes	

1 – Fiera Biological Consultants 2009

2 – Names of relevant features shown original ESA's included are: WMU AB404, Front Range Canyons, Livingstone Range, Racehorse - Dutch Forestry Scientific Area, Front Range Ridges, Castle River Headwaters, Middle Castle River, Whaleback, Middle -Upper Crowsnest Valley, West Castle Headwaters, Oldman River Valley, Ptolemy Creek and Area, Livingstone River Valley, West Castle River Valley, Oldman River - Porcupine Hills, Tornado and North Fork Passes, Plateau Mountain and Vicinity, Seven Sisters - Crowsnest Mountains, Rock- Cow Creek Wetlands, Lynch Lakes, Mount Tecumseh and Deadman's Pass, Middle Crowsnest Valley, Gardiner Creek, Crowsnest River, Barnaby Ridge, Upper Crowsnest Valley, Mountain Goat Concentration, Connelly Creek Ridges, Porcupine Hills, Grassy Ridge High Elevation Grasslands, Allison - Sentry Connectivity Corridor, Mount Livingstone Natural Area, Ma Butte, Carbondale Hill, Turtle Mountain and Frank Slide, Blairmore Connectivity Corridor, Margaret Lake (Pincher Creek Area), Leach Colliery Connectivity Corridor, Beehive Natural Area, Frank Slide, South Plateau Mountain Low Elevation Treelines, Cloudy Ridge, Kylo Hill - Mount Backus, Crowsnest Volcanics, Upper Crowsnest Connectivity Corridor, Dungarvan Wetlands, Drywood Mountain Hanging Valley, Todd Creek Ridge, Waterton Lakes National Park, High Elevation ATV Scientific Area, Beauvais Lake Provincial Park, Red Cedar Stand on Snowshoe Creek, Rock Creek Connectivity Corridor, Western Plains Garter Snake Hibernaculum, Dry Canyon, Crowsnest Spring, Horseshoe Lake (Municipal District of Pincher Creek), Spotted Frog Occurrence, Pekisko Creek, Pine Ridge, WMU AB406.

Table 4
Environmentally Significant Areas within the Regional Study Area

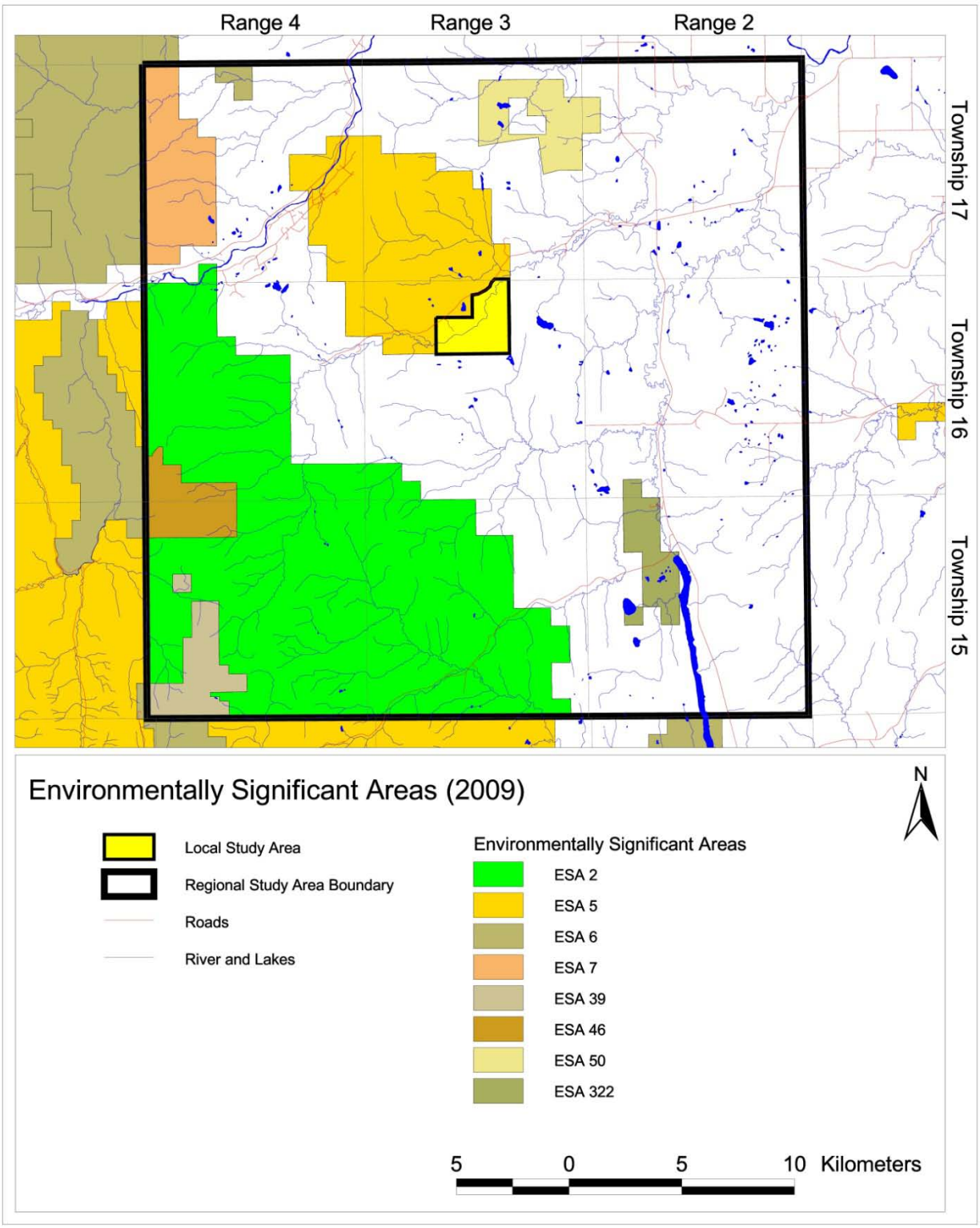

Figure 5
Current Environmentally Significant Areas (ESA's) with the Regional Study Area

Protected Areas

There are eight protected areas within the RSA (Figure 6)

Emerson Creek Natural Area is a creek valley to ridge-top landscape that contains diverse vegetation communities. Limber pine is found along the ridges, while grasslands with groves of aspen and stands of white spruce are found on the slopes. Beaver ponds and wetlands are associated with the creek.

Indian Graves, Greenford and **Highwood** are Provincial Recreation Areas, **Plateau Mountain** is an Ecological Reserve, **Don Getty** is classed as a Wildland Park, **Chain Lakes Provincial Park** is located in the southeast corner of the RSA and the **OH Ranch** is classed as a Heritage Rangeland as discussed in the previous section. In addition, there is the **Bar U National Historic Site** located along Pekisko Creek to the east of the Hanen Property and Along Highway 22.

Forest Land Use Zones

Three Forest Land Use Zones (FLUZ) are found west of the Hanen Property within the RSA. A FLUZ is an area of public land which legislative controls apply to assist management of industrial, commercial, and recreational land uses and resources. They are designed to mange unique local conditions, land use activities and protect sensitive areas (Alberta Sustainable Resource Development Internet Site 2010).

The three FLUZ's are:

- Kananaskis Country FLUZ – A multiple use area where Off Highway Vehicle's (OHV's) and Snowmobiling are not permitted.
- Cataract Creek Snow Vehicle FLUZ a multiple use area with OHV use not permitted and snowmobiling on designated trails only.
- Willow Creek FLUZ – Random camping restricted to designated areas only.

Integrated Resource Plans

The Hanen Property lies partially within an area covered by the Eden Valley Local Integrated Resource Plan (1991). As part of its mandate, the IRP used a table of compatible activities in which to manage land use within this zone.

Of significance to the Hanen Property was the designation of Critical Wildlife Zoning (Zone 2) applied to riparian areas along the Highwood River and several creeks including Pekisko Creek to protect winter elk range, fisheries and to protect areas for moose and deer. Mixedwood montane\aspen parkland was also zoned to protect winter elk range in the southeast region of the IRP area (Figure 7).

Open south and southwest facing slopes are crucial to ungulate survival during winter, and the Highwood River valley and South Pekisko Area are two of the most important ranges for elk in the province Alberta Energy Lands/Forestry and Wildlife (1991). One of the Wildlife objectives of the Local IRP is to maintain the Pekisko elk herd at 300 animals and maintain moose populations at 4 animal per square mile (1.54 animals per km^2).

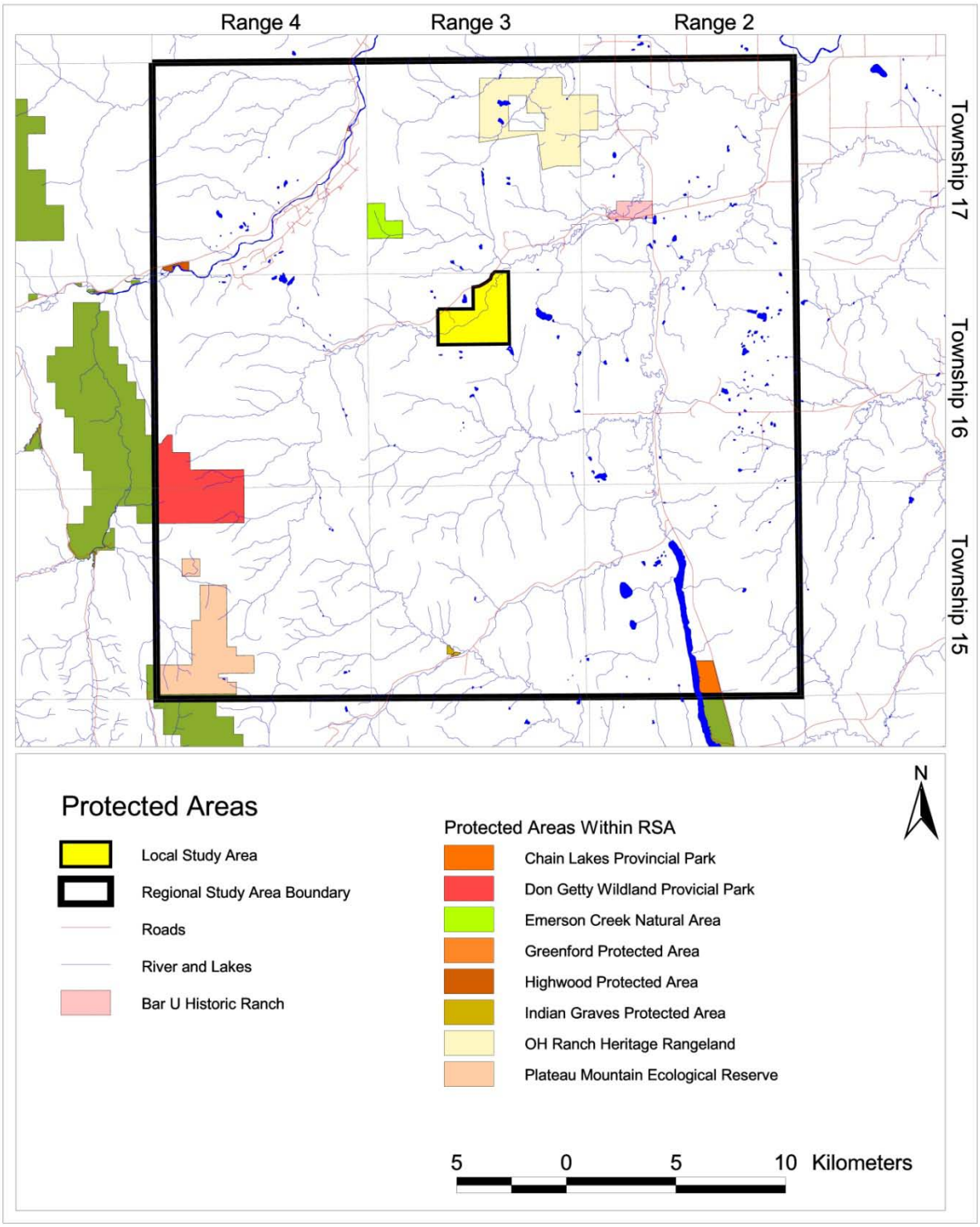

Figure 6
Protected Areas around the Hanen Property

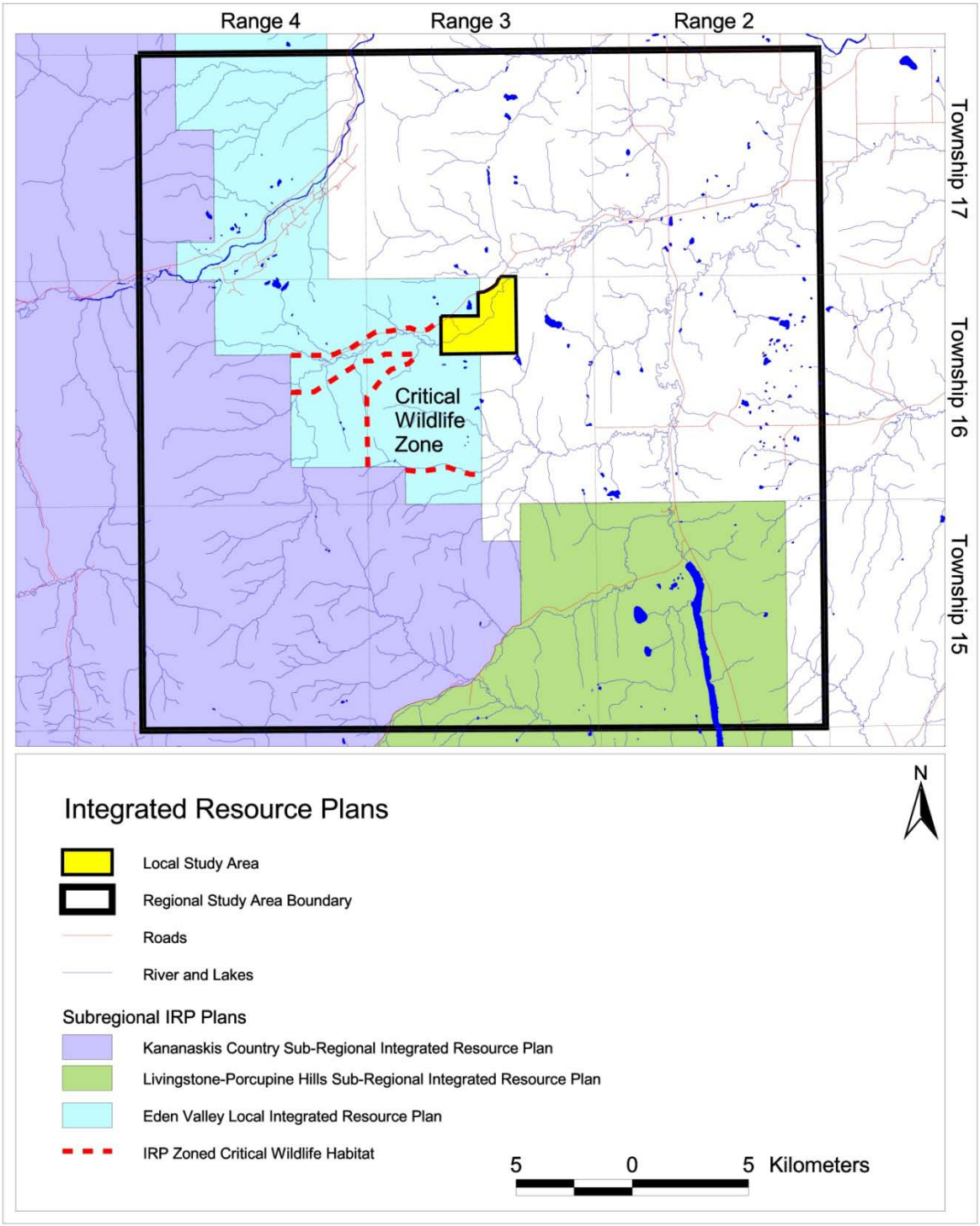

Figure 7
Subregional Integrated Resource Plans and Identified Critical Wildlife Habitat

Regional Summary

The region around the Hanen Property is noted for its ecological and heritage values as well as recreational potential. Of significance is the narrow transition between Montane, Foothills Parkland and Foothills Fescue Natural Subregions which creates a significance to biodiversity that goes beyond the natural features found in each natural region alone. As a result, wildlife species characteristic of these diverse ecoregions and transition or ecotone habitats occur in the RSA. Varied terrain and riparian areas provide both core and corridor habitat for a diversity of wildlife species.

While the Hanen Property lies within the Foothills Parkland Natural Subregion, it is strongly influenced climatically by the Montane subregion immediately to the west with higher precipitation and relatively short growing season which restricts till cropping. Much of the area is either under native cover or produces hay crops.

Vegetation communities found in the region range from conifer dominated forests in the western montane regions to aspen woodlands, willow shrublands and grassland. Willow groves dominated by beaked willow with a significant tall herb component are a distinct feature of the area around the Hanen Property.

Pekisko Creek is the main hydrological feature on the Property. The creek is a tributary to the Highwood River and is part of the Bow River Sub Basin and South Saskatchewan River Basin in Alberta. Pekisko Creek is an important watershed that provides water resources to southern Alberta.

A number of designated areas with significant conservation value for wildlife, vegetation and other terrestrial resources occur within 15 km of the Hanen Ranch:

- 6 Historical ESA's
- 8 Current ESA's
- 8 Protected Areas
- 3 Forest Land Use Zones

The Hanen Property Lies directly in an ESA (Pekisko Creek and Uplands) is considered critical winter habitat for wildlife and contributes to headwater watershed protection, and supports intact riparian areas.

Finally, because of the relatively low access density in the RSA, this area may provide habitat for species which are sensitive to human caused disturbance.

Wildlife Study Areas

Habitat Mapping

Based on vegetation communities described for the Hanen Property (Alta Rangeland Services 2010) a habitat map was compiled from rangeland community types (Appendix A Table A1). Twenty-one range plant community types were classified into eleven habitat types and are summarized in Table 6 and Figure 8.

The Hanen Property is dominated by grassland habitats (64%) with two thirds of that consisting of native fescue and the remaining third modified grasslands. Treed deciduous habitats (19%) are dominant along Pekisko Creek consisting of mostly Aspen and Balsam Poplar. Shrub communities (16%) are mostly associated with Pekisko Creek with willow dominated habitats making up the majority. Although there are several patches of coniferous trees, especially along the north aspects of Pekisko Creek, they are relatively less common than in montane areas west of the property. The Pekisko Creek riparian zone has large diameter trees including aspen, balsam poplar and white spruce, especially on the south side of the creek in moister areas along north facing aspects.

Isolated limber pine where observed along the south edge of the creek escarpment in sections 27 and 34, but where too small to be considered a separate habitat type.

There are a number of small wetland areas associated Pekisko Creek and a few small drainages. Numerous spring and seep areas especially along the south side of Pekisko Creek provide small areas of unique character. These were too small to be mapped. The Shrub-Willow habitat type was also fairly wet. Two areas of beaver impoundments in the NW 27 and the north half of section 34 also provide wetland habitats. In the northwest corner of NE 28, there is a sedge meadow wetland and there is a small pond in the Northwest corner of NW 28.

Grouped Habitat Type Acres (% of LSA)	Habitat Type	Area in Acres	Percent of Ranch
Anthropogenic 2.2 (0.1 %)	1. Anthropogenic	2.2	0.1
Treed Deciduous 342.2 (19.1%)	Treed - Aspen Grassland	48.4	2.7
	Treed - Aspen Shrub	52.8	2.9
	Treed - Balsam Poplar	241	13.5
Treed Coniferous 13.7 (0.8%)	Treed - Coniferous	13.7	0.8
Grassland 1140.5 (63.7%)	Modified Grassland	392.4	21.9
	Native Grassland	741.3	41.4
	Sedge Meadow	6.8	0.4
Shrub 292.7 (16.3%)	Shrub - Silverberry	33.8	1.9
	Shrub - Willow	186.2	10.4
	Shrub - Buckbrush	72.7	4.1
Total		1791.3	100.0

Table 6
Summary of Habitat Types on the Hanen Property

Baseline Wildlife Information

From distribution information available for wildlife (Semenchuk (1992), Federation of Alberta Naturalists (2007), Smith (1993), Russell and Bauer (2000), TARAS 2005, ASRD 2010) 233 vertebrate wildlife species may occur in the RSA including 171 bird species, 54 mammals, 6 amphibians, and 2 reptiles.

Appendix B provides information on how wildlife species are given conservation status at both the federal and provincial levels. Many species are protected legislatively and some species because of population status or sensitivity to human disturbance have been designated under federal and provincial legislation specifically. Appendix C lists the potential species in the RSA and indicates species observed on the Hanen Property during 2010 field visits and reported by other observers. The list also provides both federal and provincial status (COSEWIC 2009, ASRD 2005 and ACMIS 2009).

Observations during field visits do not constitute a comprehensive list as a few visits cannot adequately represent wildlife presence or use as many species are cryptic in behavior or difficult to observe. During periods of migration or as winter residents, additional animals may occur and are hopefully captured in the list of potential species in the region.

During three field visits to the Property, 55 bird species, 12 mammals and 2 amphibians were observed, several of which are considered species of management concern or species at risk, either federally or provincially.

Wildlife species occurring or likely to occur on the Hanen Property are arranged into the following species groups:

Mammals	Large Carnivores
	Mesocarnivores
	Ungulates
	Semi-aquatic Mammals
	Small Mammals
	Bats
Birds	Waterbirds
	Waterfowl
	Raptors
	Owls
	Woodpeckers
	Passerines
Reptiles	Reptiles
Amphibians	Amphibians

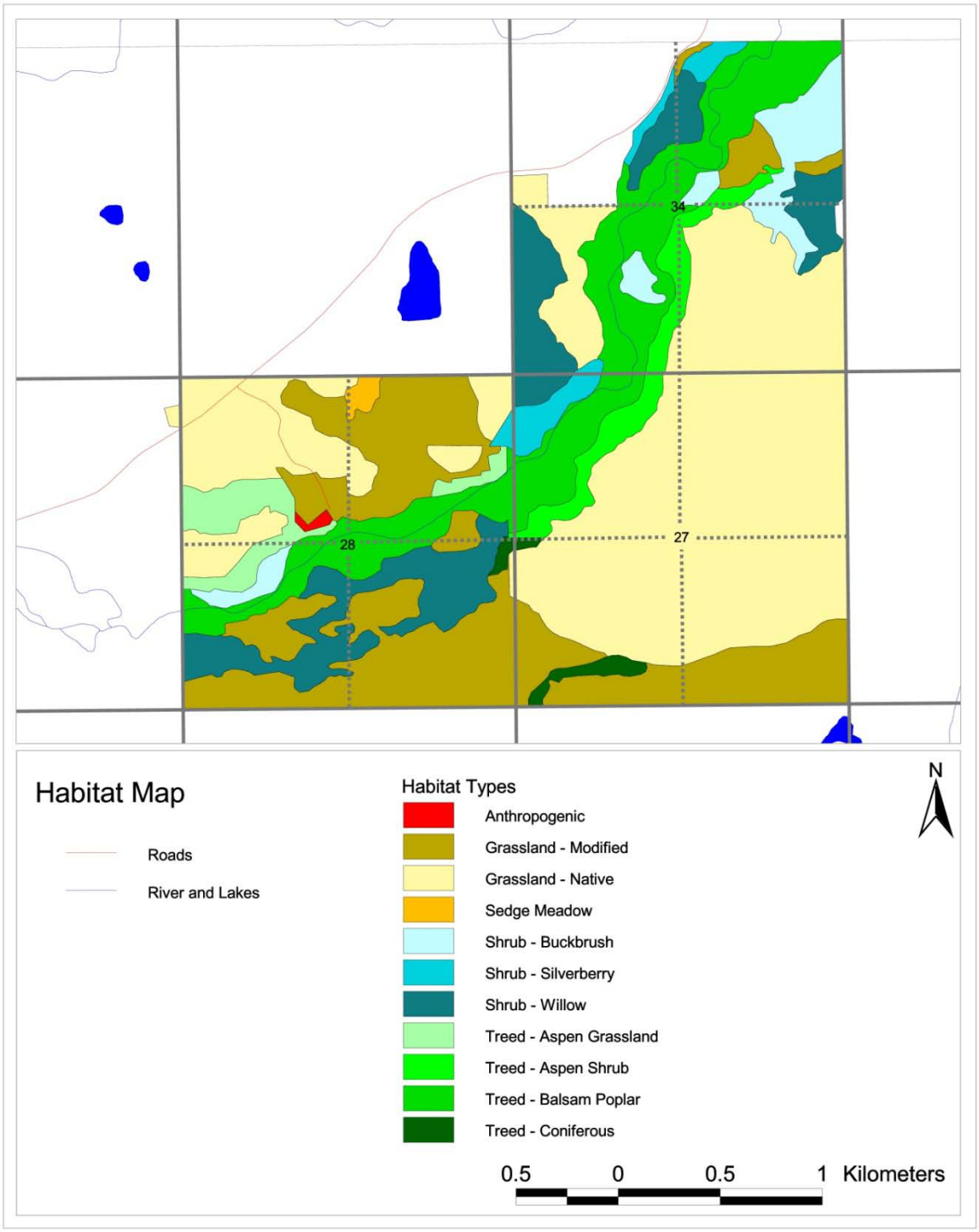

Figure 8
Habitat Map of the Hanen Property

Mammals

Large Carnivores

Eight species of large carnivore species (Table C1 – Appendix C) are likely to occur in the RSA, including:

- grizzly bear (*Ursus arctos*)
- black bear (Ursus americanus)
- grey wolf (*Canis lupus*)
- coyote (Canis latrans)
- cougar (Puma concolor)
- Canada lynx (*Lynx canadensis*)
- bobcat (*Lynx rufus*)
- wolverine (*Gulo gulo*)

Bears

The grizzly bear has been designated as threatened under the Alberta's Wildlife Act in June of 2010 and considered a species of Special Concern federally (Table C1 – Appendix C). The designation comes after better understanding of grizzly bear population numbers in Alberta currently estimated at less than 700 animals province wide. This species requires large home ranges 150 to 4700 km^2, has low population numbers, low reproduction rates and has high mortality risk due to human-bear interaction (ASRD and ACA 2010).

An estimated 90 bears occur between Highway 1 and Highway 3. While the Hanen property does not fall within core habitat areas defined in 2008 (Core areas are considered the Green Area between Highway 1 and Highway 3 - boundary found on the on the western edge of the RSA). Grizzly bears have been observed on the Hanen Property on a number of occasions (S. McKenzie pers. com.) and bear sign was observed during field visits to the property.

Since habitat use varies by seasonal food availability, bears use different habitats during different seasons. Higher elevation areas are used for denning during winter months. Bears typically den at elevations between 2000 and 2450 m in the Upper Subalpine Subregion (Stevens and Gibeau 2005, Raine and Riddell 1991). Since the Hanen property is below these elevations, it is not likely that grizzly bears would den on the property. Hair snagging data and radio telemetry data of several collared bears (FCIMS Data) suggests that bears tend to stay farther west although with such large home ranges bear are likely to utilize the habitat around the Hanen property especially in early spring when plant green up occurs at lower elevations first. The Pekisko Creek riparian corridor, low road density and presence of moose calves in spring may also contribute to bears utilizing the property.

Black bears are frequently seen on the property and utilize the habitats along Pekisko Creek (S McKenzie pers. com.). Black bear sign was noted in several locations along Pekisko Creek during field visits.

Canids

Coyotes are not designated federally or provincially. Coyotes were observed during field visits to the property and numerous scat and sign was observed in a number of locations on the property.

What is known as the Willow Creek wolf pack utilizes areas to the west of the Hanen Ranch property. Two natal dens and a rendezvous site were identified in documents associated with the PetroCanada Sullivan Project. Wolves utilize areas that provide security and prey. Ungulate use of the Pekisko valley would indicate that wolves do utilize the region. No wolf sign was observed during field visits but a long time resident of the Hanen property said that they were observed occasionally (S. McKenzie pers. com.). When asked whether there were any cattle depredation problems associated with wolves in the past, he indicated that there was probably some, but it was not significant.

Cats

Cougar populations are considered secure in Alberta and are not listed federally. Four wildlife management units WMUs encompassing the RSA have been reported by Jalkotzy et al. (1992) to have some of the highest cougar densities in Alberta (0.25 to 1.5 individuals/100 km^2 in WMUs 406 and 404, and 3.5 individuals/100 km 2 for WMUs 310 and 312). The Hanen Property in WMU 310 – Pekisko.

Cougar sign (tracks) was observed along Pekisko Creek during field visits. Cougar prey on mainly deer, elk and moose. The high number of white-tailed deer and elk during winter months in the vicinity of the Hanen property as well as the presence of moose calves in riparian areas along Pekisko creek make this area attractive to cougar.

Bobcat and lynx both have been designated as sensitive species in Alberta and the bobcat is on the ACIMS watch list to track and verify its status in Alberta. Both species have been observed on the property (S. McKenzie pers. comm.).

Lynx are typically forest species that are highly dependant on snowshoe hare as a food source. Populations fluctuate with hare populations. Lynx tend to associate with conifer dominated and mixedwood forest types more typically found to the west of the property in the montane subregion. Open grassland habitats would not be high quality habitat for lynx but the Pekisko Creek riparian area may provide habitat.

Little information is available in the literature on bobcat in Alberta. Current Tracking by ACIMS is to help determine more information on this species. Bobcats utilize a wider range of habitats than lynx and highest numbers would be expected along the transition between montane and foothills parkland region of which the Hanen Property falls.

Wolverine

Wolverine are listed as a species of Special Concern Federally and considered May Be At Risk provincially. This species prefers subalpine habitats but will utilize montane and alpine habitats. The Hanen property because of its location in foothills parkland habitats is not considered a area of high quality habitat for this species, but because of the low road density in the area, its proximity to montane habitats to the west and the riparian corridor of Pekisko Creek this wide ranging carnivore could potentially be present at certain times of the year.

Mesocarnivores

Eight species of mesocarnivores are expected to occur in the RSA (Table C1 – Appendix C). Two species are provincially listed. The long-tailed weasel is considered May Be At Risk provincially and the American badger is considered Sensitive.

Because of the glacial till surficial geology of the Hanen property, the soil is very rocky. While Columbian ground squirrels, a prey species for the badger do inhabit the property, they are in low densities and in only a few localized areas of the Hanen Ranch. No evidence of badger dens were observed during field visits to the property. It is expected that badgers do utilize areas farther east.

The long-tailed weasel inhabits grassland, parklands and open coniferous forests, as well as intermountain valleys (Smith 1993). This species is an "edge" species preferring ecotonal margins between terrestrial and wetland areas. The long-tailed weasel is designated provincially as May be at Risk because it has experienced dramatic declines and even disappearance from some areas, however, the cause of these declines is not known. The abundance of northern pocket gopher, columbian ground squirrel a number of microtine species such as meadow voles provide a prey base for this carnivore and it is expected to be on the property.

Other mesocarnivores include the marten, striped skunk, ermine, least weasel, and red fox. A marten observed this past winter living under one of the buildings on the Property (S. McKenzie pers com.). This species prefers coniferous habitats with an abundance of red squirrels. The Pekisko Creek valley provides only small areas of mixedwood and coniferous stands. The Hanen property is not considered prime habitat for marten.

Ungulates

Moose, elk, white-tailed deer and mule deer are the four ungulate that occur in the RSA. During field visits to the property, white-tailed deer, and moose were observed, and elk sign was observed. None of the ungulate species is listed either federally or provincially but are considered species of management concern and are managed as big game in Alberta.

Deer

No mule deer were seen during field visits. S. McKenzie, a long time resident of the Hanen property, said that he had never seen a mule deer on the Hanen Property, although immediately to the west mule deer occur.

White-tailed deer and deer sign were observed all along Pekisko Creek and in the trees in the south half of section 27. Numerous deer tracks were seen throughout the property with the exception of the center of the large grassland areas in section 27.

Elk

Elk winter pellet groups were noted along the south side of Pekisko Creek and in the large grassland area of the north half of section 27. These areas coincided with the critical winter range as identified in the Eden Valley Local Integrated Resource plan, historical ESA maps and Critical Winter Range maps (Figures 4 and 6 and XX). Elk use higher elevation habitats (subalpine and alpine) during summer months and a majority of summer elk location data from ASRD show elk using areas to the west of the Hanen Property during the summer.

During winter months, elk respond to snow conditions and move to areas of lower snow depth at lower elevations in valley-bottom grasslands or on steep wind-swept slopes. South, southwest and southeast-facing aspects retain less snow and are utilized more heavily.

Under the Eden Valley Local Integrated Management Plan the Pekisko elk herd is to be managed at 300 animals. Currently the herd is estimated at 350 animals (P. Young, pers com.).

The Hanen property provides critical winter range in grassland areas and thermal cover for elk along Pekisko Creek. The property is not used for calving and summer use.

Moose

Moose sign and observations were prevalent in almost all areas of the property. The willow dominated areas along the south side of Pekisko Creek in Section 28 and north side of the creek in section 34 provide a number of preferred browse species such as willow, red osier dogwood and Saskatoon. Hedging on red osier dogwood was moderate to severe along Pekisko Creek in the north half of 34. Abundant winter moose pellets indicate the creek valley is important winter range. This area has also been identified as important winter ungulate range in the Eden Valley Local Integrated Resource Plan and current identified areas of critical winter range for ungulates. Vegetation communities providing the best access to tall willow cover are often selected by moose, particularly in winter (Banfield 1974).

Semi-Aquatic Mammals

Two species of Semi–aquatic mammal occur on the Hanen Property, both are considered secure in Alberta and have no federal designation.

- Beaver (*Castor canadensis*)
- Mink (*Mustela vison*)

Beaver sign was observed along Pekisko Creek, in the north half of section 34 especially the north side of the creek in a large willow marsh area and in a wetland area in NW 27. Fresh tree

and shrub cuttings were observed along Pekisko Creek in NW 27, SW 34 and North Half of 34. Older sign was observed in SW 28 along the creek at the western boundary of the Property. An older lodge and associated dam structures were observed in a wetland area on the south side of Pekisko Creek in NW 27. No bank lodges were observed along Pekisko Creek, but two additional lodges were noted in the willow shrub habitat in the north half of section 34.

There was a partial dam extending into Pekisko Creek that was associated with the Willow shrubland in the north half of section 34.

Mink sign was noted along Pekisko Creek in the northeast quarter of 34 associated with the riparian area and willow shrub\wetland habitat and in the beaver impoundment in NW 27.

In general, the riparian corridor along Pekisko Creek provides habitat for both these species.

Muskrat are also potentially within the RSA. This species prefers cattail or bulrush dominated wetlands which do not occur on the Property. The beaver dam area in the willow shrub habitat in the north half of section 34 would have the best potential for muskrat.

Small Mammals

Twenty-six small mammal species potentially occur in the RSA including porcupines, mice, voles, woodrats, lemmings, squirrels, ground squirrels, chipmunks, marmots, hares, and shrews (Table C1 – Appendix C). Only one species the water vole (*Microtus richardsoni*) is provincially listed as sensitive.

Based on habitat preferences and habitat on the Hanen Ranch, species such as the hoary marmot and pika which prefer alpine and talus slopes farther to the west are not likely to occur on the Property.

Small mammals are important prey sources for other mammalian predators as well as raptors and owls. Northern pocket gopher, columbian ground squirrel, red squirrel, and meadow vole were observed during field visits. Northern pocket gopher mounds were observed in a number of habitats including, surprisingly some coarse till areas. Columbian ground squirrels were noted in modified grassland habitats in SE 28 and native grassland in the south half of section 27. This species was not in abundance and the coarse nature of underlying soils may be the reason for low numbers. Observations by a long term resident confirms that there are not large numbers of ground squirrels (S. McKenzie pers. com.)

Red squirrels prefer coniferous tree habitat and there are only a few areas on north aspect slopes along Pekisko Creek that support small numbers of red squirrel. The montane coniferous dominated forests to the west of the property are considered better habitat for this species.

Bats

Six species of bat potentially occur in the RSA, including:

- little brown bat (*Myotis lucifugus*)
- big brown bat (*Eptesicus fuscus*)
- long-legged bat (*Myotis volans*)
- western long-eared bat (*Myotis evotis*)
- hoary bat (*Lasiurus cinereus*)

- silver-haired bat (*Lasionycteris noctivagans*)

None of these species are federally listed and two are considered sensitive (silver-haired and hoary). All bat species are being tracked by ACIMS to determine status. The silver-haired and hoary bats are considered sensitive because they are susceptible to mortality caused by wind energy projects (ACIMS 2009).

It is not know if these species actually occur on the Ranch, however, large poplar snags along Pekisko Creek provide ample summer roosting areas close to riparian and wetland habitats that provide insects. The riparian treed balsam poplar habitat provides suitable habitat for these species.

Most bat species are widely distributed in Alberta. The long-legged bat is distributed along the foothills and mountain regions, and the long-eared bat is found in the southern third of Alberta and foothills and mountains (Smith 1993).

Silver hair and hoary bats do not over winter in Alberta and use summer roosting habitats. Hibernating habitat requirements of bat species may occur in the RSA for other species. On the Hanen property, the ranch buildings may support some winter hibernating habitat. The prevalence of till and some shale outcrops limits wintering cave hibernacula. No evidence of hibernacula was observed during field visits.

Birds

Waterbirds

There are 18 species of waterbirds that have been observed or are potentially in within the RSA (Appendix C, Table C2). This species group includes the loons, grebes, herons, pelicans, coots, cranes, shorebirds, gulls and terns.

There are no federally listed species and six species are listed provincially as Sensitive and include:

- American White Pelican (*Pelecanus erythrorhynchos)*
- Great Blue Heron (*Adrea herodias*)
- Sora (*Porzana carolina)*
- Sandhill Crane (*Grus canadensis*)
- Upland Sandpiper (*Bartramia longicauda)*
- Black Tern (*Chlidonias niger)*

The Hanen Ranch has potential for two of these listed species, the great blue heron and sandhill crane. The lack of large wetlands on the Ranch provides sub-optimal habitat for species such as pelican, sora and black tern, although two black terns were seen foraging during field visits.

The great blue heron is a colonial nesting bird that is sensitive to disturbance, while there is no breeding colony on the Hanen property, there is foraging habitat along Pekisko Creek. A single bird was observed along Pekisko Creek during field visits.

Sandhill cranes have been observed on the Hanen ranch in the past. One pair of birds arrived every year for several years. Afterwards a single bird would show up for a brief time in the spring (S. McKenzie pers com.).

Spotted sandpipers were the most common waterbird observed during field visits to the property. Several active nests with eggs were observed along Pekisko Creek. Killdeer were also observed nesting north of the ranch buildings.

Waterfowl

Twenty of 23 species of waterfowl in Alberta have potential to occur in the RSA (Appendix C – Table C2). There are no federally listed species. Four species are listed provincially as sensitive.

- Northern Pintail (*Anas acuta*)
- Green-winged Teal (*Anas crecca*)
- Lesser Scaup (*Aythya affinis*)
- Harlequin Duck (*Histrionicus histrionicus*)

Northern pintail favor terrain with seasonal shallow ponds, marshes and reedy shallow lakes, usually with drier margins (Federation of Alberta Naturalists 2007). The Hanen Property supplies some habitat along Pekisko Creek, but it is not optimal for this species. This species is distributed farther to the east in the grassland natural region.

The green-winged teal and lesser scaup are widespread species that are experiencing declines in numbers. Green-winged teal prefer wooded streams and ponds, while the lesser scaup prefer permanent wetlands. Pekisko Creek and the beaver flooded are in the north half of Section 34 may provide some habitat for these species.

The harlequin duck is restricted to the foothills and mountain areas of the province and prefers fast flowing mountain streams as breeding habitat. The species is very sensitive to disturbance. There is one recorded occurrence in the very western portion of the RSA (FWIMS 2010). Breeding harlequin ducks have been observed west of the RSA and the Atlas of Breeding Birds of Alberta (2007) notes observations of individuals in parkland natural regions during non-breeding period. There are no records of harlequin duck on Pekisko Creek (MacCallum 2001).

Mallard and Canada goose were the most common waterfowl species seen on the Hanen Property during field visits, mostly along Pekisko Creek. Along Pekisko Creek, Canada goose with young of the year, common mergansers, and ring-necked ducks were observed in a beaver flooded area in the north half of Section 34.

Raptors

Twelve species of raptor (hawks, eagles, falcons) have the potential to occur in the RSA. The ferruginous hawk (*Buteo regalis*) is considered threatened federally and considered at risk provincially. This species is vulnerable to human disturbance and habitat alteration and is found most often in the Grassland Natural Region but occasionally in the Rocky Mountain Natural Region (Federation of Alberta Naturalists 2007, ASRD and ACA 2006). It prefers native grasslands and breeding densities are associated with ground squirrel distribution, its main prey. Although there is a significant native grassland component to the ranch, low

numbers of ground squirrels and the Ranch's peripheral location to the distribution of this hawk indicate a low probability that this species will breed on the Hanen Ranch. There is potential for migrating individuals to utilize habitats during spring and fall movements.

Six species are considered to be Sensitive provincially and include:

- Bald Eagle (*Haliaeetus leucocephalus*)
- Northern Harrier (*Circus cyaneus*)
- Northern Goshawk (*Accipiter gentiles*)
- Swainson's Hawk (*Buteo swainsoni*)
- Golden Eagle (*Aquila chrysaetos*)
- Prairie Falcon (*Falco mexicanus*)

All six species are likely to utilize habitats on the Property. There was no evidence of eagle or falcon nesting along Pekisko Creek during field surveys (large stick nests, cliff structures and whitewash areas where birds defecate).

A male northern harrier was observed just to the north of the Property during field visits. This species nest on the ground in open areas that are usually associated with grassland and shallow wetlands. It is considered sensitive because of declines in numbers across much of its range.

Swainsons hawks are considered sensitive after a major poisoning event in its wintering range in South America. This species is one of the two most common species seen in the region. None were observed during field visits.

The northern goshawk is a forest species that prefers mixedwood forests with high canopy closure. The riparian corridor along Pekisko Creek and montane habitats to the west of the property are suitable habitat for this species. The goshawk is considered sensitive due to its dependence on older aged trees for nesting (ASRD 2005, Alberta Federation of Naturalists 2007)

Two red-tailed hawks were observed on the property during field visits as well as a merlin.

Owls

Six species of owl potentially occur in the RSA:

- Great Horned Owl (*Bubo virginianus*)
- Northern Hawk Owl (*Surnia ulula*)
- Northern Pygmy-Owl (*Glaucidium gnoma*)
- Long-eared Owl (*Asio otus*)
- Short-eared Owl (*Asio flammeus*)
- Northern Saw-whet Owl (*Aegolius acadicus*)

The short-eared owl is considered as a species of Special Concern Federally and May Be At Risk provincially due to declines in numbers although the cause of these declines is unknown. This ground nesting species prefers open areas and is found more frequently in the Grassland Natural Region but is found in the Parkland Natural region. The significant proportion of grassland habitats associated with the Hanen Property provides habitat for this species

The northern hawk owl and northern pygmy owl are both considered Sensitive species in Alberta due to low population numbers, requirement for mature forest habitats and difficulties in detecting population trends. Because Pekisko Creek provides forested habitats that extend westward into the montane regions to the west, it is likely that the creek valley may provide some peripheral habitat for these species.

The great horned owl was observed during field visits and is one of the most common owls seen in southern Alberta.

Of note was a historical observation of a burrowing owl on the property in Section 28. It has not been seen for a number of years (S. McKenzie, pers com.). This species is considered Endangered federally and listed under SARA (Species At Risk Act) and considered At Risk in Alberta. This is outside the historical range of this species and the range of burrowing owls has decreased in the western portion of its range by some 44% in the last 30 years (ASRD and ACA 2005, Federation of Alberta Naturalists 2007). Core habitat for this species is in the Grassland Natural Region east of Lethbridge, north to Drumheller, Hana and Oyen and to the Alberta Saskatchewan border. There are several records of burrowing owl in the RSA (FWIMS 2010) dating from 1990-1992 and located northeast of the Hanen property. Potential for this species occurrence on the Hanen Property is considered low but possible.

Northern saw-whet owls and long-eared owls are expected on the Hanen property because of mature trees in Riparian areas of Pekisko Creek, large open areas for foraging and proximity to montane forest to the west.

Woodpeckers

Eight species of woodpecker are expected to occur in the RSA.

- Yellow-bellied Sapsucker (*Sphyrapicus varius*)
- Red-naped Sapsucker (*Sphyrapicus nuchalis*)
- Downy Woodpecker (*Picoides pubescens*)
- Hairy Woodpecker (Picoides villosus)
- American Three-toed Woodpecker (*Picoides dorsalis*)
- Black-backed Woodpecker (*Picoides arcticus*)
- Northern Flicker (*Colaptes auratus*)
- Pileated Woodpeckern (*Dryocopus pileatus*)

None are listed federally and two are considered Sensitive provincially:

- Black-backed Woodpecker (*Picoides arcticus*)
- Pileated Woodpeckern (*Dryocopus pileatus*)

Woodpeckers are cavity-nesting species and require mature trees and standing dead trees as suitable nesting sites. The two sensitive species require mature forests. The black-backed woodpecker prefers coniferous forest found farther to the west of the Property in montane habitats. Small areas of coniferous trees and mature trees along Pekisko Creek provide some suitable habitat for this species.

Pileated woodpeckers prefer mixedwood stands of mature trees and utilize deciduous trees for nesting. Large diameter deciduous trees like aspen and poplar are found especially along the south side of Pekisko Creek and show significant woodpecker use and cavity excavations suitable for this species.

Passerines

Ninety-five species of passerine birds are likely to occur in the RSA (Appendix C Table C2). Twenty-four species were observed during field visits. One species, the olive-sided flycatcher is considered Threatened federally because it requires open mature coniferous and mixedwood stands associated with tall live trees or snags for perching and foraging. This species has experienced declines related to habitat alteration on both breeding and wintering habitat (Govt of Canada 2010).

Nine species are considered Sensitive provincially:

- Least Flycatcher (*Empidonax minimus*)
- Eastern Phoebe (*Sayornis phoebe*)
- Clark's Nutcracker (*Nucifraga Columbiana*)
- Barn Swallow (*Hirundo rustica*)
- Brown Creeper (*Certhia Americana*)
- Common Yellowthroat (*Geothlypis trichas*)
- Brewer's Sparrow (*Spizella breweri*)
- Western Tanager (*Piranga ludoviciana*)
- Baltimore Oriole (*Icterus galbula*)

The barn swallow, Baltimore oriole and common yellowthroat were observed during field visits and are expected to breed on the Property. Barn swallows were found associated with the ranch buildings, orioles were found all along Pekisko Creek and yellowthroats were associated with willow-dominated wetlands. These species have shown declines in population numbers throughout North America. The Hanen property provides a number of habitats for passerine bird species.

Upland Game Birds

Six species of upland game birds potentially occur in the RSA:

- dusky grouse (*Dendragapus obscurus* also known as blue grouse)
- ruffed grouse (*Bonasa umbellus*)
- spruce grouse (*Falcipennis canadensis*)
- white-tailed ptarmigan (*Lagopus leucurus*)
- sharp-tailed grouse (*Tympanuchus phasianellus*)
- gray partridge (*Perdix perdix*)

None are listed federally. All are non-migratory, year-round residents. The sharp-tailed grouse is listed provincially as Sensitive (ASRD 2005) due to declines in numbers and sensitivity to disturbance on dancing grounds called leks. Sharp-tailed grouse are likely to occur on the Hanen property. Sharp-tailed grouse have been observed in the RSA but no dancing grounds have been identified. This species is typically found within several kilometers of the dancing ground through out the year, so it is expected that they do occur in the region. No birds were observed during field visits and it was too late in the year to identify any potential leks.

The dusky grouse prefers montane conifer habitats that begin west of the Hanen property. The Pekisko Creek riparian area may provide some habitat for this species, but it is expected that blue grouse would not be common on the Hanen Ranch. Similarly, the white-tailed ptarmigan prefers alpine and subalpine habitats found farther west in the RSA and are not likely to be found on the Hanen Property.

Ruffed grouse were both observed and heard drumming during field visits and are likely to be the most common upland game bird. This species utilizes aspen dominated and mixedwood habitats and is considered an 'edge' species that like small openings and the ecotonal habitats along forest edges. Pekisko Creek with associated treed aspen, aspen shrub and balsam poplar, and willow shrub habitat types provide good habitat for this species.

Spruce grouse prefer coniferous and mixedwood habitat and are probably more abundant in montane areas to the west of the property, however, mixedwood and conifer habitats along Pekisko Creek does provide suitable habitat for this species.

The gray partridge is a non-native introduced species.

Upland Game bird hunting seasons run from September 15 through November 30 depending on species and all species have a hunting season.

Other Bird Species

Five other species do not fit into the species groups discussed above:

- Pigeons and doves
- Goatsuckers
- Kingfishers
- Swifts and Humming Birds

Two species of pigeons and doves occur within the RSA, the rock dove (pigeon) and mourning dove. The pigeon is an introduced species and the native mourning dove is considered secure in Alberta. Neither is listed federally. Mourning doves were observed and one active nest was observed along Pekisko Creek.

The common nighthawk has been listed federally as Threatened and considered Sensitive in Alberta (ASRD 2005). The species has experienced widespread declines since the mid 1960's. This species is found throughout Alberta and has relatively low detection rates in breeding bird surveys (Alberta Federation of Naturalists, 2007).

The belted kingfisher is not listed federally and is considered Secure in Alberta. Two individuals were observed along Pekisko Creek during field visits. This species nest in burrows along stream and riverbanks and feeds primarily on fish.

Two species of hummingbird, the rufous and calliope hummingbird are expected to occur in the RSA. A female rufous hummingbird was observed during field visits. Both species are considered Secure in Alberta and are not listed federally.

Amphibians and Reptiles

Six species of amphibians potentially occur in the LSA:

- long-toed salamander (*Ambystoma macrodactylum*)
- tiger salamander (*Ambystoma tigrinum*)
- spotted frog (*Rana luteiventris*)
- boreal chorus frog (*Pseudocris maculata*)
- wood frog (*Rana sylvatica*)
- western toad (*Bufo boreas*)

The western toad has been listed as a species of Special Concern federally (COSEWIC 2009) and considered sensitive provincially. Long toed salamanders and spotted frog are considered Sensitive species in Alberta. The long toed salamander is considered sensitive due to patchy, disjunct populations in mountain riparian areas, declining distribution and vulnerability to habitat destruction/alteration associated with industrial, recreational and transportation development. The spotted frog is considered Sensitive because population status is unknown; it has low maturation and reproductive rates, has a limited distribution and has undergone a possible population decline since the 1970s.

Boreal Chorus frogs were observed calling at a small wetland on the northwest corner of the property immediately north of the road in the Northwest quarter of Section 28. Wood frogs were also observed in the west half of section 28.

Tiger salamanders have been reported in the small lake immediately north of the Hanen Property (SE ¼ section 33, S. McKenzie and P. Young pers com). Tiger salamanders have also been observed in the sedge meadow that extends into the NE quarter of Section 28 from this lake.

There are several spring areas found along Pekisko Creek and wet willow shrub habitats that offer potential habitat for amphibians. Small temporary and ephemeral ponds, as well as small watercourses (those associated with Pekisko Creek and beaver impoundment areas, and spring areas along Pekisko Creek provide the best habitat for these species. The wet sedge meadow in the NE quarter of section 28 provides a natural extension of the larger lake to the north and provides significant habitat for amphibians.

Two species of snake potentially occur in the region, the wandering garter and red-sided garter snake both are listed as Sensitive provincially and are not listed federally. Both species are associated with permanent water such as lakes and river valleys. Pekisko Creek provides adequate habitat for this species.

Wildlife Summary

The Hanen Ranch is located in an area where apex predators such as grizzly bear, wolf, and cougar still exist. Suitable ungulate habitat, low access density and disturbance levels contribute significantly to this.

Of 38 species of mammal expected to occur in the region, 9 are listed; 2 federally and 7 provincially (Table 7).

The Grizzly bear is listed as Threatened both federally and provincially. While the Hanen Ranch does not fall into primary habitat for grizzly bear (the green area between Highway One and Highway Three) it does provide secondary habitat because of its low level of disturbance and low access density. Grizzly bear do use the area and have been observed on the Ranch.

The wolverine is listed as special concern and more likely to use subalpine and alpine habitats to the west of the Ranch. The Hanen property because of its location in foothills parkland habitats is not considered a area of high quality habitat for this species, but because of the low road density in the area, its proximity to montane habitats to the west and the riparian corridor of Pekisko Creek, this wide ranging carnivore could potentially be present at certain times of the year.

The long-tailed weasel is listed as May Be At Risk in Alberta and is likely found on the Hanen Property.

Bobcat and lynx, both listed as Sensitive do occur in the region. Lynx are more likely to use montane habitats to the west of the Property, but may use the riparian corridor afforded by Pekisko Creek.

The Hanen property contributes to critical winter range for four ungulate species (mule deer, white-tailed deer, moose and elk.). Mule deer tend to utilize areas west of the Ranch and are rarely seen on the ranch, white tailed deer are prevalent and abundant on the ranch. Moose utilize riparian habitats and willow dominated shrublands. Hedging of preferred browse along Pekisko Creek shows significant use of riparian mixed wood and willow dominated shrub habitats. Winter elk use was noted in native fescue grassland habitats, especially in section 27.

The riparian area of Pekisko Creek provides suitable habitat for semi-aquatic mammals such as beaver and mink. Beaver sign both new and old were observed throughout the creek. A large willow shrub wetland in the north half of section 34 has two active beaver lodges. Some partial damming of Pekisko Creek occurs also in this northern area of the Property.

A number of small mammals are found on the Ranch. Rocky soils limit ground squirrel numbers, but riparian habitat along Pekisko Creek with mature poplar provide habitat including summer roosting for species such as bats.

171 species of birds potentially occur in the region. The Hanen Ranch provides grassland, shrub and treed habitats types as well as riparian and small areas of wetland habitats. 32 species are listed; 3 species federally and 31 provincially (Table 7).

2 species of reptile potentially occur in the region, both are listed provincially as sensitive in Alberta. 6 Species of amphibian occur in the region; one is listed federally and three are listed provincially.

Key habitats for wildlife found on the Hanen Ranch include native Grassland Sedge meadow, Willow Shrub and all treed habitats along Pekisko Creek.

Table 7: (below – spanning two pages)
Listed Species Occurring or with Potential To Occur on the Hanen Property

Common Name[1]	Scientific Name	COSEWIC Status (Aug 2009)	COSEWIC Schedule	SARA Status	2005 Status
MAMMALS					
Silver-haired Bat	*Lasionycteris noctivagans*				Sensitive
Hoary Bat	*Lasiurus cinereus*				Sensitive
Water Vole	*Microtus richardsoni*				Sensitive
Grizzly Bear	*Ursus arctos*	Prairie population Extirpated Northwestern Population Special Concern	Prairie Population Schedule 1 Northwestern Population No schedule	Prairie Population Extirpated Northwestern Population No Status	May Be at Risk
Long-tailed Weasel	*Mustela frenata*	Not at Risk			May Be at Risk
Wolverine	*Gulo gulo*	Special Concern	No schedule	No Status	May Be at Risk
American Badger	*Taxidea taxus*				Sensitive
Canada Lynx	*Lynx canadensis*	Not at Risk			Sensitive
Bobcat	*Lynx rufus*				Sensitive
BIRDS					
Northern Pintail	*Anas acuta*				Sensitive
Green-winged Teal	*Anas crecca*				Sensitive
Lesser Scaup	*Aythya affinis*				Sensitive
Harlequin Duck	*Histrionicus histrionicus*				Sensitive
Sharp-tailed Grouse	*Tympanuchus phasianellus*				Sensitive
American White Pelican	*Pelecanus erythrorhynchos*	Not at Risk			Sensitive
Great Blue Heron	*Ardea herodias*				Sensitive
Bald Eagle	*Haliaeetus leucocephalus*	Not at Risk			Sensitive
Northern Harrier	*Circus cyaneus*	Not at Risk			Sensitive
Northern Goshawk	*Accipiter gentilis*	Not at Risk			Sensitive
Swainson's Hawk	*Buteo swainsoni*				Sensitive
Ferruginous Hawk	*Buteo regalis*	Threatened	Schedule 1	Threatened	At Risk

Golden Eagle	*Aquila chrysaetos*	Not at Risk			Sensitive
Prairie Falcon	*Falco mexicanus*	Not at Risk			Sensitive
Sora	*Porzana carolina*				Sensitive
Sandhill Crane	*Grus canadensis*				Sensitive
Upland Sandpiper	*Bartramia longicauda*				Sensitive
Black Tern	***Chlidonias niger***	**Not at Risk**			**Sensitive**
Northern Hawk Owl	*Surnia ulula*	Not at Risk			Sensitive
Northern Pygmy-Owl	*Glaucidium gnoma*				Sensitive
Short-eared Owl	*Asio flammeus*	Special Concern	Schedule 3	Special Concern	May Be at Risk
Common Nighthawk	*Chordeiles minor*	Threatened	Schedule 1	Threatened	Sensitive
Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Schedule 1	Threatened	Secure
Least Flycatcher	*Empidonax minimus*				Sensitive
Eastern Phoebe	*Sayornis phoebe*				Sensitive
Clark's Nutcracker	*Nucifraga columbiana*				Sensitive
Barn Swallow	*Hirundo rustica*				Sensitive

Table 7: (continued)
Listed Species Occurring or with Potential To Occur on the Hanen Property

Riparian Health Assessments

Eleven riparian health assessments were completed on the Hanen Property (Figure 8). Six where located on deeded property (1-4, 10, 11) and five were on crown lease (5-9).

Table 8 and 9 summarizes the riparian health assessments and Appendix D includes other information and photographs of the beginning and end of each assessment reach.

In general, the riparian health assessments indicate a healthy functioning riparian area with 9 of 11 sites (82%) in the healthy range and 2 sites (18 %, No. 3 and 10) just slightly under the healthy category and in the healthy but with problems category. The most common factors for a reduced score were vegetative cover, browse utilization and stream bank root mass protection.

Vegetative Cover: Reduced vegetative cover was naturally occurring and probably as a function of flooding events and stream bank morphology. There was little alteration of stream banks by human activity.

Browse utilization: Preferred browse species included red osier dogwood (Cornus stolonifera), Willow (Salix sp.), Saskatoon (Amelanchier augustafolia), Cottonwood and Aspen regen (Populus sp.) and chokecherry (Prunus virginiana) There were significant use of these species by ungulates in some sites (1,3,9,10). Hedging indicates significant use in previous years as well.

Stream bank root mass protection: Sites 5 and 8 showed lower densities of deep-rooted species that help stabilize the stream bank and prevent erosion. Pekisko Creek appears to flood based on observations of debris above the normal water levels, but appears to be moderately armoured by larger stream bank rock size.

Although plant green up was not as far along as hoped during the assessment period, there were few invasive species noted. During a subsequent field visit in July there was no significant change in observation of invasive plants species. Alta rangeland Services (2010) noted Canada thistle (Cirsium arvense) and field scabious (Knautia arvensis) as invasive plant species. Canada thistle was noted in several locations and a patch of scentless chamomile (Matricaria perforata) was noted on the road leading down to the A-frame ranch building. As noted in the range health assessments, dandelion (Taraxacum officinale) was the most common decreaser species noted along riparian areas.

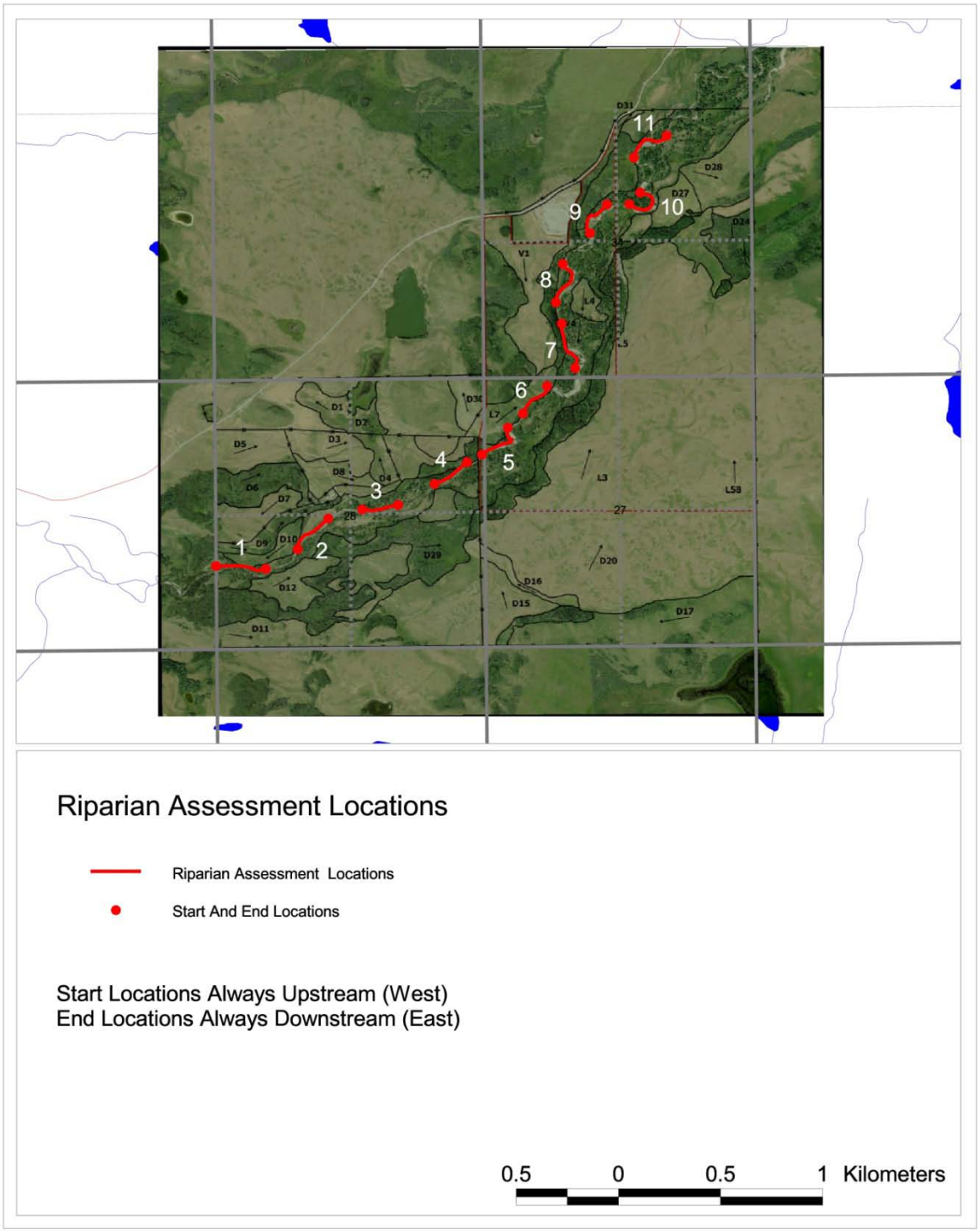

Figure 8
Location of Riparian Assessments

Assessment Factors	Total Possible Score	Assessment Sites[1]										
		Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11
Location		SW 28	SW 28	NE 28	NE 28	NW 27	NW 27	SW 34	SW 34	NW 34	NE 34	NE 34
Vegetative Factors												
1. Vegetative Cover of Floodplain and streambanks	**6**	4	2	2	4	2	6	4	2	4	4	4
2a. Total Canopy Cover of Invasive Plant Species (Weeds)	**3**	3	3	3	3	3	3	3	3	3	3	3
2b. Density/Distribution Pattern of Invasive Plant Species (Weeds)	**3**	3	3	3	3	3	3	3	3	3	3	3
3. Disturbance-Increaser Undesirable Herbaceous Species	**3**	2	3	2	2	3	2	2	2	2	2	2
4. Preferred Tree and Shrub Establishment and/or Regeneration	**6**	4	6	6	6	4	4	4	6	6	6	4
5a Browse Utilization of the Preferred Trees and Shrubs	**3**	1	2	1	2	2	2	2	2	1	1	2
5b. Live Woody Vegetation Removal by Other Than Browsing	**3**	3	2	3	3	3	3	3	3	3	2	3
6. Standing Decadent and Dead Woody Material	**3**	2	2	2	2	2	3	2	2	1	2	2
Soil\Hydrology Factors												
7. Streambank Root Mass Protection	**6**	4	2	4	4	2	6	4	2	4	4	4
8. Human-Caused Bare Ground	**6**	4	6	4	4	6	6	6	6	6	6	6
9. Streambank Structurally Altered by Human Activity	**6**	6	6	6	6	6	6	6	6	6	6	6
10. Human Physical Alteration to the Rest of the Polygon	**3**	3	3	2	3	3	3	3	3	3	2	3
11. Stream Channel Incisement (Vertical Stability)	**9**	9	9	9	9	9	9	9	9	9	6	9
Total	**60**	**48**	**49**	**47**	**51**	**48**	**56**	**51**	**49**	**51**	**47**	**51**
Actual Score \ Total Score X 100	**100**	**80**	**82**	**78**	**85**	**80**	**93**	**85**	**82**	**85**	**78**	**85**

Table 8
Riaparian Health Assessment Factors and Scores for All Health Assessment Locations

Riparian Health Assessment Site	Location	Actual Score	Actual Score \ Total Score X 100	Descriptive Health Category[1]	Comments
Site 1	SW 28	48	80	**Healthy** - (Proper Functioning Condition)	Red osier dogwood, willow and wolf willow shrub communities. Heavy hedging on willow by ungulates. Common dandelion most common weed species.
Site 2	SW 28	49	82	**Healthy** - (Proper Functioning Condition)	Some areas drier with bearberry, wolf willow, Saskatoon, cottonwood regen, rose and buffalo berry. Reduced vegetative cover. Common dandelion most common weed species.
Site 3	NE 28	47	78	**Healthy, but with problems** (Functional at risk)	Wolf willow, buffalo berry, poplar regen, Saskatoon, wild rose and red osier dogwood shrub communities. Dogwood heavily hedged by ungulates.
Site 4	NE 28	51	85	**Healthy** - (Proper Functioning Condition)	Wolf willow, poplar regen, red osier dogwood, buffalo berry and gooseberry. Some sporadic shrubby cinquefoil. Common dandelion.
Site 5	NW 27	48	80	**Healthy** - (Proper Functioning Condition)	Willow, water birch, red osier dogwood, buffalo berry, rose and gooseberry. Chokecherry on slope away from creek.
Site 6	NW 27	56	93	**Healthy** - (Proper Functioning Condition)	Red osier dogwood, wild rose, Saskatoon, willow, poplar regen Fresh beaver activity.
Site 7	SW 34	51	85	**Healthy** - (Proper Functioning Condition)	Red osier dogwood, wild rose, Saskatoon, willow, poplar regen, wolf willow, buffalo berry. Hedging moderate on dogwood.
Site 8	SW 34	49	82	**Healthy** - (Proper Functioning Condition)	Red osier dogwood, wild rose, Saskatoon, willow, poplar regen, chokecherry and snowberry.
Site 9	NW 34	51	85	**Healthy** - (Proper Functioning Condition)	Willow, snowberry, poplar regen, wolf willow, gooseberry. Significant stand dead shrub (wolf willow) Significant browse utilization.
Site 10	NE 34	47	78	**Healthy, but with problems** (Functional at risk)	Willow, snowberry, red osier dogwood, gooseberry. Significant browse utilization of red osier dogwood.
Site 11	NE 34	51	85	**Healthy** - (Proper Functioning Condition)	Wolf willow, snowberry, rose

Notes:
1 - Descriptive Health Category: 80 to 100% = Proper Functioning Condition (Healthy), 60 to less than 80% = Functional At Risk (Healthy, but with Problems) Less than 60% = Nonfunctional (Unhealthy)

Table 8

Riaparian Health Assessment Factors and Scores for All Health Assessment Locations

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Baseline Wildlife Report
Appendix A

Habitat Mapping

Habitat Type	Habitat Area acres (Percent LSA)	Plant Community Code[1]	Plant Community Description	Polygon ID[1]	Area (Acres)
Anthropogenic	2.2 (0.1)	YARD	Ranch Yard Area	44	2.2
Treed - Aspen Grassland	48.4 (2.7)	FPD3	Aspen - Kentucky Bluegrass - Timothy	35	6.9
				45	26.8
				47	14.7
Treed - Aspen Shrub	52.8 (2.9)	FPD1	Aspen - Rose - Hairy Wild Rye	22	33
				19	3.9
				20	7
		FPD6	Aspen - Balsam Poplar - Marsh Reed Grass	12	8.9
Treed - Balsam Poplar	241.0 (13.5)	FPD5	Balsam Poplar - Silverberry - Kentucky Bluegrass	3	60.4
				14	103.2
				41	62.5
		FPD7	Balsam Poplar - Aspen - Snowberry - Kentucky Bluegrass	15	14.9
Shrub - Buckbrush	72.7 (4.1)	FPC2	Buckbrush - Rose - Kentucky Bluegrass	4	32.4
				11	16.1
				13	5
				18	8.1
				48	11.1
Modified Grassland	392.4 (21.9)	C8	C8 - northern wheatgrass -Kentucky bluegrass	1	1.7
		FPB1	Kentucky Bluegrass - Parry Oat Grass	9	4.1
				26	41.1
				42	5
				43	15.5
				53	26.5
				54	102.3
		FPB4	Kentucky Bluegrass - Timothy - Dandelion	32	10.4
				33	15.6
				40	7.7
				55	24.2
				56	21.5
				28	20.2
		FPB6	Awnless Brome - Kentucky Bluegrass	51	82.5
			Kentucky Bluegrass - Field Scabious - Awnless Brome	8	14.1

Table A1
Range Plant Community Types used to Develop a Habitat Map for the Hanen Property

Habitat Type	Habitat Area acres (Percent LSA)	Plant Community Code[1]	Plant Community Description	Polygon ID[1]	Area (Acres)
Native Grassland	741.3 (41.4)	FFA10	Parry Oat Grass - Rough Fescue - Idaho Fescue	17	48.3
				29	46.8
				30	25.3
				31	22.6
				34	6.5
				46	22.8
		FFA18	Parry Oat Grass - Rough Fescue - Idaho Fescue	50	8.8
		FFA9	Rough Fescue - Parry - Oat Grass - Western Porcupine Grass	21	126.6
				36	227.8
				37	192.8
		FPA2	Parry Oat Grass - Rough Fescue - Idaho Fescue	25	13
Sedge Meadow	6.8 (0.4)	FPA7	Sedge meadow	27	6.8
Shrub - Silverberry	33.8 (1.9)	FPC3	Silverberry - Kentucky Bluegrass	2	7.2
				6	4.9
				23	19.2
				24	2.5
Treed - Coniferous	13.7 (0.8)	E12	White Spruce - Moss	52	9.3
		FPF6	White Spruce - Moss	38	2.1
				39	2.3
Shrub - Willow	186.2 (10.4)	FFC2	Beaked Willow - Sedge - Tufted Hair Grass	7	10.3
		FPC5	Beaked Willow - Kentucky Bluegrass	5	10.6
				10	21.9
				49	94.6
				16	48.8
Total	**1791.3 (100.0)**				**1791.3[2]**

1 – Polygon Identifiers as given by Alta Rangeland Services (2010) completed as part of the range management plan for the Hanen Property.
2 – 6.8 acres identified as creek and 2.2 acres identified as road have not been included because they were inconsistent between polygons.

Table A1 (continued)
Range Plant Community Types used to Develop a Habitat Map for the Hanen Property

Baseline Wildlife Report
Appendix B

Wildlife Status Definitions

Status Definitions

Committee On The Status of Endangered Wildlife In Canada (COSEWIC)

COSEWIC is a committee of experts that assesses and designates which wildlife species are in some danger of disappearing from Canada at a federal level. The categories of designation are show in Table A1 and are the same categories used in the designation of species listed under the Species At Risk Act (SARA).

Status Designation	Definition
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC)	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD)	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

Table B1
COSEWIC Designation Categories

Species at Risk Alberta

Alberta produces a report every five years that provides a snapshot of the status of wild species in the province. These assessments are based on criteria that include species' population size, distribution and trends, and threats to habitats.

Definitions of assessment categories used provincially by ASRD (2005) are shown in Table B2. These categories are used to identify species that need attention.

Status Designation	Designation Definition
At Risk	Any species known to be at risk after formal detailed status assessment and designation as Endangered or Threatened in Alberta
May be at Risk	Any species that may be at risk of extinction or extirpation, and is therefore a candidate for detailed risk assessment
Sensitive	Any species that is not at risk of extinction or extirpation but may require special attention or protection to prevent it from becoming at risk
Source: ASRD 2005	

Table B2
Alberta Provincial Wildlife Status Designations

Alberta Conservation Information Management System (ACIMS)

ACIMS, established in 1996, provides biodiversity information necessary for making informed decisions concerning conservation, natural resource management, and development planning. The ACIMS collects, updates, analyzes and disseminates information about the location, condition, status, and trends of selected species and plant communities.

Usually, species with an S1, S2, or S2S3 status are considered rare and occur either on the tracking or watch list. In some cases, species may not be ranked in these three categories, but ACIMS is tracking them to acquire information on distribution, population numbers, breeding, hibernacula, or other factors. Table A3 outlines the ranking system used by ANHIC and its definitions.

S Rank Alberta	G Rank Global	Description
S1	G1	5 or fewer occurrences; or only a few remaining individuals. May be especially vulnerable to extirpation because of some factor of its biology
S2	G2	6 to 20 occurrences or with many individuals in fewer occurrences. May be especially vulnerable to extirpation because of some factor of its biology
S3	G3	21-100 occurrences, may be rare and local throughout its range, or in a restricted range (may be abundant in some locations or may be vulnerable to extirpation because of some factor of its biology). May be susceptible to extirpation because of large scale disturbances
S4	G4	Apparently secure under present conditions, typically >100 occurrences but may be fewer with many large populations; may be rare in parts of its range, especially peripherally.
S5	G5	Demonstrably secure under present conditions, > 100 occurrences, may be rare in parts of its range, especially peripherally.
SNR	GNR	unranked, or under review.
S?	G?	not yet ranked.
SOURCE: Gould (2006) and Alberta Tourism,Parks and Recreation website 2010		

Table B3
ACIMS Rankings of Rare Species

Baseline Wildlife Report
Appendix C

Vertebrate Species Expected To Occur on or near the Hanen Property

(Note: Species that are bolded were observed or definite sign was seen during field visits)

Common Name[1]	Scientific Name	COSEWIC Status (Aug 2009)	Alberta 2005 Status	Alberta 2000 Status	ACIMS Tracking List	S - Rank	G - Rank	Comments
Masked Shrew	*Sorex cinereus*		Secure	Secure				
Dusky Shrew	*Sorex monticolus*		Secure	Secure				
Water Shrew	*Sorex palustris*		Secure	Secure				
Arctic Shrew	*Sorex arcticus*		Secure	Secure				
Pygmy Shrew	*Sorex hoyi*		Secure	Secure				
Little Brown Bat	*Myotis lucifugus*		Secure	Secure	Yes	S5	G5	
Long-eared Bat	*Myotis evotis*		Secure	Secure	W	S2	G5	
Long-legged Bat	*Myotis volans*		Undetermined	Undetermined	T	S2	G5	
Silver-haired Bat	*Lasionycteris noctivagans*		Sensitive	Secure	T	S3B	G5	Species is sensitive to mortality at current and (potentially) future wind energy projects. More research necessary to determine population size.
Big Brown Bat	*Eptesicus fuscus*		Secure	Secure	Yes	S4S5	G5	
Hoary Bat	*Lasiurus cinereus*		Sensitive	Secure	T	S2B	G5	Species is sensitive to mortality at current and (potentially) future wind energy projects. More research necessary to determine population size.
Pika	*Ochotona princeps*		Secure	Secure				Not likely on Hanen property but found within the RSA to the west in alpine habitats.
Snowshoe Hare	*Lepus americanus*		Secure	Secure				
Least Chipmunk	*Tamias minimus*		Secure	Secure				

Common Name[1]	Scientific Name	COSEWIC Status (Aug 2009)	Alberta 2005 Status	Alberta 2000 Status	ACIMS Tracking List	S - Rank	G - Rank	Comments
Yellow-pine Chipmunk	*Tamias amoenus*		Secure	Secure				
Hoary Marmot	*Marmota caligata*		Secure	Secure				More likely on subalpine and alpine habitats to the west.
Columbian Ground Squirrel	***Spermophilus columbianus***		**Secure**	**Secure**				
Thirteen-lined Ground Squirrel[1]	*Spermophilus tridecemlineatus*		Undetermined	Undetermined				
Golden-mantled Ground Squirrel	*Spermophilus lateralis*		Secure	Secure				
Red Squirrel	***Tamiasciurus hudsonicus***		**Secure**	**Secure**				**Resticted to riparian habitats with white spruce pockets**
Northern Flying Squirrel	*Glaucomys sabrinus*		Secure	Secure				
Northern Pocket Gopher	***Thomomys talpoides***		**Secure**	**Secure**				
Beaver	***Castor canadensis***		**Secure**	**Secure**				
Deer Mouse	*Peromyscus maniculatus*		Secure	Secure				
Bushy-tailed Woodrat	*Neotoma cinerea*		Secure	Secure				
Southern Red-backed Vole	*Clethrionomys gapperi*		Secure	Secure				
Heather Vole	*Phenacomys intermedius*		Secure	Secure				
Meadow Vole	***Microtus pennsylvanicus***		**Secure**	**Secure**				
Long-tailed Vole	*Microtus longicaudus*		Secure	Secure				
Water Vole	*Microtus richardsoni*		Sensitive	Sensitive	T	S3	G5	Relatively low population size; trend unknown. Extremely restricted range with most specimen records from the Bow River to Turner Valley region and Waterton area.

Common Name[1]	Scientific Name	COSEWIC Status (Aug 2009)	Alberta 2005 Status	Alberta 2000 Status	ACIMS Tracking List	S - Rank	G - Rank	Comments
Muskrat	*Ondatra zibethicus*		Secure	Secure				
Northern Bog Lemming	*Synaptomys borealis*		Secure	Secure				
Western Jumping Mouse	*Zapus princeps*		Secure	Secure				
Common Porcupine	*Erethizon dorsatum*		Secure	Secure				
Coyote	***Canis latrans***		**Secure**	**Secure**				
Gray Wolf[1]	*Canis lupus*	Not at Risk	Secure	Secure				
Red Fox	*Vulpes vulpes*		Secure	Secure				
Black Bear	***Ursus americanus***	**Not at Risk**	**Secure**	**Secure**				
Grizzly Bear	***Ursus arctos***	**Prairie population Extirpated Northwestern Population Special Concern**	**Upgraded to Threatened (Jun 2010)**	**May Be at Risk**	**T**	**S3**	**G3T3T4**	**The Hanen property does not fall in priority grizzly bear habitat, but location data shos that this area is used as secondary habitat. Grizzly bear sign was observd on the Property. Population estimates are currently underway. Currently sustaining its population under a very restrictive sport hunting regime. Greatest threat is loss and degradation of wilderness habitats through resource extraction and recreational development.**
Marten[1]	*Martes americana*		Secure	Secure				
Ermine	*Mustela erminea*		Secure	Secure				
Least Weasel	*Mustela nivalis*		Secure	Secure				

Common Name[1]	Scientific Name	COSEWIC Status (Aug 2009)	Alberta 2005 Status	Alberta 2000 Status	ACIMS Tracking List	S - Rank	G - Rank	Comments
Long-tailed Weasel	*Mustela frenata*	Not at Risk	May Be at Risk	May Be at Risk				Has experienced dramatic declines and even disappearance from some areas, but the cause is uncertain. Habitat lost through some agriculturally induced fragmentation, pesticide use, and wetland drainage. Population trend extremely difficult to monitor.
Mink	***Mustela vison***		**Secure**	**Secure**				
Wolverine	*Gulo gulo*	Special Concern	May Be at Risk	May Be at Risk				An uncertain provincial estimate of less than 1000 has been proposed. Trends in distribution and population unknown, but populations may be declining. Human disturbance and associated habitat fragmentation may negatively affect this secretive animal.
American Badger	*Taxidea taxus*		Sensitive	Sensitive				Dependent on fluctuating ground squirrel populations. Badgers have likely declined on a provincial scale, but increased at smaller scales around the province. Badger burrows provide a key habitat element for burrowing owls and swift fox.
Striped Skunk	*Mephitis mephitis*		Secure	Secure				
Cougar	*Felis concolor*		Secure	Sensitive				
Canada Lynx	*Lynx canadensis*	Not at Risk	Sensitive	Sensitive				Cyclic species. Estimated less than 8 000 individuals at the bottom of the cycle. Population has decreased in recent years, and some concern exists over habitat loss and fragmentation. Harvest is now set by quota.
Bobcat[1]	*Lynx rufus*		Sensitive	Sensitive	W	S3	G5	Perhaps fewer than 1 000 individuals. Harvest of bobcats is very low, but population is presumed to be stable.
Wapiti (Elk)	***Cervus elaphus***		**Secure**	**Secure**				

Common Name[1]	Scientific Name	COSEWIC Status (Aug 2009)	Alberta 2005 Status	Alberta 2000 Status	ACIMS Tracking List	S - Rank	G - Rank	Comments
Mule Deer	*Odocoileus hemionus*		Secure	Secure				
White-tailed Deer	***Odocoileus virginianus***		**Secure**	**Secure**				
Moose	***Alces alces***		**Secure**	**Secure**				

Sources of distribution information Smith (1993), FWMIS (2010)

1 – Wildlife observation mentioned by S. macKenzie.

Table C1 (multi-page)
Mammals Observed or Expected To Occur on the Hanen Property or Within the RSA

Bird Species Expected To Occur on or near the Hanen Property

(Note: Species that are bolded were observed or definite sign was seen during field visits)

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Anseriformes					
Anatidae					
Canada Goose	***Branta canadensis***	**Br/w**		**Secure**	
Wood Duck	*Aix sponsa*	rBr/w		Secure	
Gadwall	*Anas strepera*	Br/w		Secure	
American Wigeon	*Anas americana*	Br/W		Secure	
Mallard	***Anas platyrhynchos***	**Br/W**		**Secure**	
Blue-winged Teal	*Anas discors*	Br		Secure	
Cinnamon Teal	*Anas cyanoptera*	Br incr		Secure	
Northern Shoveler	*Anas clypeata*	Br		Secure	
Northern Pintail	*Anas acuta*	Br/w		Sensitive	Widespread species with severe population declines across North America in last 40 years. Wetland habitat threatened by drought and drainage. Conservation of temporary wetlands in native habitats essential.
Green-winged Teal	*Anas crecca*	Br/w		Sensitive	A common, widespread species with no known threats but is rapidly decreasing in Alberta, Canada, and North America.
Canvasback	*Aythya valisineria*	Br/w		Secure	
Ring-necked Duck	***Aythya collaris***	**Br/w**		**Secure**	
Lesser Scaup	*Aythya affinis*	Br/w		Sensitive	Surveys show a long-term decline in populations within Alberta and surrounding jurisdictions. Alteration and loss of suitable habitat may pose threats.
Harlequin Duck	*Histrionicus histrionicus*	Br/w		Sensitive	Provincial population estimated at 2 000- 4000 individuals. Habitat integrity may be threatened by logging, mining, grazing and recreational activities. Site-specific mitigation of disturbances may be necessary.

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Bufflehead	*Bucephala albeola*	Br/w		Secure	
Common Goldeneye	*Bucephala clangula*	Br/W		Secure	
Barrow's Goldeneye	*Bucephala islandica*	Br/w		Secure	
Hooded Merganser	*Lophodytes cucullatus*	rBr/uMig/w		Secure	
Common Merganser	***Mergus merganser***	**Br/w**		**Secure**	
Ruddy Duck	*Oxyura jamaicensis*	Br		Secure	
Galliformes					
Phasianidae					
Gray Partridge	*Perdix perdix*	Int (1908) PR		Exotic/Alien	
Ring-necked Pheasant	*Phasianus colchicus*	Int (1908) PR		Exotic/Alien	
Ruffed Grouse	***Bonasa umbellus***	**PR**		**Secure**	
Spruce Grouse	*Falcipennis canadensis*	sPR		Secure	
Dusky Grouse	*Dendragapus obscurus*	sPR		Secure	
Sharp-tailed Grouse	*Tympanuchus phasianellus*	PR decl?		Sensitive	A common, widespread species; however, population appears to be declining, and farming intensification has decreased habitat availability in central Alberta.
Gaviiformes					
Gaviidae					
Common Loon	*Gavia immer*	Br	Not at Risk	Secure	
Podicipediformes					
Podicipedidae					

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Red-necked Grebe	*Podiceps grisegena*	Br	Not at Risk	Secure	
Eared Grebe	*Podiceps nigricollis*	Br		Secure	
Pelecaniformes					
Pelecanidae					
American White Pelican	*Pelecanus erythrorhynchos*	Br	Not at Risk	Sensitive	Population increasing but number of active colonies decreasing, leading to concerns about disease, predation, and pesticide contamination. Comprehensive colony protection essential. Drought elsewhere may have contributed to increase in Alberta.
Ciconiiformes					
Ardeidae					
Great Blue Heron	***Ardea herodias***	**Br/w**		**Sensitive**	**Overall trend for this species may be decreasing. Entire Alberta population dependent on fewer than 100 known nesting colonies. Management of these key habitats and protection from human disturbance is essential.**
Falconiformes					
Accipitridae					
Bald Eagle	*Haliaeetus leucocephalus*	Br/w	Not at Risk	Sensitive	A species once at risk throughout much of its North American range, but now recovering; low density in Alberta. Nests vulnerable to human disturbance, and as such, require protection.
Northern Harrier	***Circus cyaneus***	**Br/w**	**Not at Risk**	**Sensitive**	**Appears to be declining in Alberta and across much of its North American range. Several threats to population and habitat identified. Maintenance and preservation of wetlands for waterfowl is beneficial to the Northern Harrier.**
Sharp-shinned Hawk	*Accipiter striatus*	Br/w	Not at Risk	Secure	
Cooper's Hawk	*Accipiter cooperii*	Br (decl?), w	Not at Risk	Secure	
Northern Goshawk	*Accipiter gentilis*	Br/w decl?	Not at Risk	Sensitive	Logging, industrial development, and human encroachment on nesting habitat may reduce populations in the boreal forest. Maintenance of mature forest breeding habitat needs to be incorporated into forest planning on both public and private lands.

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Swainson's Hawk	*Buteo swainsoni*	Br		Sensitive	Adult population recently subjected to mass poisoning on winter range. Dependent on healthy ground squirrel population.
Red-tailed Hawk	***Buteo jamaicensis***	**Br/w**	**Not at Risk**	**Secure**	
Ferruginous Hawk	*Buteo regalis*	Br	Threatened Schedule 1	At Risk	Fewer than 700 pairs estimated in Alberta. Dramatic declines and range reduction have occurred as a result of human disturbance and habitat alteration. Research on ground squirrel prey base required. Designated as "Threatened" under the Wildlife Act.
Golden Eagle	*Aquila chrysaetos*	Br/w	Not at Risk	Sensitive	Most recent estimate suggests 100-250 breeding pairs in Alberta. Disturbance from human related activities is greatest threat. Because of its low population and dispersal over a large area, nest site inventory and protection are necessary.
Falconidae					
American Kestrel	*Falco sparverius*	Br/w		Secure	
Merlin	***Falco columbarius***	**Br/w**	**Not at Risk**	**Secure**	
Prairie Falcon	*Falco mexicanus*	Br/w	Not at Risk	Sensitive	Core range in southern Alberta dependent on availability of secure nest sites and adequate ground squirrel prey base.
Gruiformes					
Rallidae					
Sora	*Porzana carolina*	Br		Sensitive	Large (>50%) declines have occurred in Alberta and all surrounding jurisdictions since 1994. Species threatened by loss of wetland habitat.
American Coot	*Fulica americana*	Br/w	Not at Risk	Secure	
Gruidae					
Sandhill Crane[1]	*Grus canadensis*	Br		Sensitive	Sparsely distributed through boreal and foothill bogs and marshes. Vulnerable to wetland loss; sensitive to human disturbance. Land use planning needs to incorporate the maintenance of breeding habitat.
Charadriiformes					
Charadriidae					

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Killdeer	***Charadrius vociferus***	**Br/w**		**Secure**	
Scolopacidae					
Spotted Sandpiper	***Actitis macularius***	**Br**		**Secure**	
Greater Yellowlegs	*Tringa melanoleuca*	Br		Secure	
Willet	*Tringa semipalmata*	Br		Secure	
Upland Sandpiper	*Bartramia longicauda*	Br decl?		Sensitive	Multiple threats to populations and habitat identified. Population has likely declined with loss of native prairie grassland nesting areas. Appears to have relatively narrow habitat requirements.
Least Sandpiper	*Calidris minutilla*	Mig		Secure	
Wilson's Snipe	***Gallinago delicata***	**Br/w**		**Secure**	
Wilson's Phalarope	*Phalaropus tricolor*	Br		Secure	
Laridae					
California Gull	*Larus californicus*	Br		Secure	
Black Tern	***Chlidonias niger***	**Br**	**Not at Risk**	**Sensitive**	**Wetland habitat vulnerable to alteration; species declining across its North American range, likely a result of habitat loss on both breeding and wintering grounds.**
Columbiformes					
Columbidae					
Rock Pigeon	*Columba livia*	Int PR		Exotic/Alien	
Mourning Dove	***Zenaida macroura***	**Br**		**Secure**	
Strigiformes					
Strigidae					
Great Horned Owl	***Bubo virginianus***	**PR**		**Secure**	
Northern Hawk Owl	*Surnia ulula*	sPR, W erratic	Not at Risk	Sensitive	A widely distributed, but uncommon species. Natural fluctuations make determining population trends difficult. Requires stands of mature forest for nesting and also uses burns extensively, and as such is vulnerable to certain forestry practices.
Northern Pygmy-Owl	*Glaucidium gnoma*	sPR(l)		Sensitive	Local populations in boreal forest, foothills and Rocky Mountains. Forest management plans need to ensure breeding habitat maintained.

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Long-eared Owl	*Asio otus*	sBr		Secure	
Short-eared Owl	*Asio flammeus*	Br/w decl?	Special Concern Schedule 3	May Be at Risk	Causes of population decline unknown. Multiple threats relating to cultivation of natural habitat exist. Population size unknown; irruptive nature of population makes population trend assessments extremely difficult.
Northern Saw-whet Owl	*Aegolius acadicus*	Br/w		Secure	
Caprimulgiformes					
Caprimulgidae					
Common Nighthawk	*Chordeiles minor*	Br decl?	Threatened Schedule 1	Sensitive	Species has declined across most of its North American range since 1966, and has even disappeared from some parts of Canada. Declines require investigation. Food supply may be affected by pesticide use in urban and suburban areas.
Apodiformes					
Trochilidae					
Calliope Hummingbird	*Stellula calliope*	Br		Secure	
Rufous Hummingbird	***Selasphorus rufus***	**Br**		**Secure**	
Coraciiformes					
Alcedinidae					
Belted Kingfisher	***Megaceryle alcyon***	**Br/w**		**Secure**	
Piciformes					
Picidae					
Yellow-bellied Sapsucker	***Sphyrapicus varius***	**Br**		**Secure**	
Red-naped Sapsucker	*Sphyrapicus nuchalis*	Br		Undetermined	
Downy Woodpecker	*Picoides pubescens*	PR		Secure	
Hairy Woodpecker	***Picoides villosus***	**PR**		**Secure**	
American Three-toed Woodpecker	*Picoides dorsalis*	PR		Secure	

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Black-backed Woodpecker	*Picoides arcticus*	PR		Sensitive	Maintenance of mature coniferous forests important. Standing dead trees (snags) required for nesting. Forestry and fire suppression practices may decrease the availability of these stand types.
Northern Flicker	*Colaptes auratus*	Br/w		Secure	
Pileated Woodpecker	*Dryocopus pileatus*	PR		Sensitive	Requires mature to old-growth trees for nesting. Essential to incorporate maintenance of breeding habitat into management plans on both public and private lands. Some threats to populations identified.
Passeriformes					
Tyrannidae					
Olive-sided Flycatcher	*Contopus cooperi*	Br decl?	Threatened Schedule 1	Secure	
Western Wood-Pewee	***Contopus sordidulus***	**Br**		**Secure**	
Alder Flycatcher	*Empidonax alnorum*	Br		Secure	
Willow Flycatcher	*Empidonax traillii*	Br(l)		Secure	
Least Flycatcher	***Empidonax minimus***	**Br**		**Sensitive**	**Species has been declining in Alberta and surrounding jurisdictions. May be threatened by habitat changes on wintering range.**
Hammond's Flycatcher	*Empidonax hammondii*	sBr(l)		Secure	
Dusky Flycatcher	*Empidonax oberholseri*	Br		Secure	
Eastern Phoebe	*Sayornis phoebe*	Br		Sensitive	Populations are declining in Alberta and across parts of North America, possibly due to loss of habitat on wintering range.
Say's Phoebe	*Sayornis saya*	Br		Secure	
Western Kingbird	*Tyrannus verticalis*	Br		Secure	
Eastern Kingbird	***Tyrannus tyrannus***	**Br**		**Secure**	
Vireonidae					

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Warbling Vireo	*Vireo gilvus*	Br		Secure	
Red-eyed Vireo	*Vireo olivaceus*	Br		Secure	
Corvidae					
Gray Jay	***Perisoreus canadensis***	**PR**		**Secure**	
Blue Jay	*Cyanocitta cristata*	PR		Secure	
Clark's Nutcracker	*Nucifraga columbiana*	PR		Sensitive	The Clark's nutcracker has a restricted distribution within the province's mountain parks. Its dependency on declining species such as limber pine and whitebark pine may cause population declines. It may also be susceptible to the West Nile Virus.
Black-billed Magpie	***Pica hudsonia***	**PR**		**Secure**	
American Crow	***Corvus brachyrhynchos***	**Br/w**		**Secure**	
Common Raven	***Corvus corax***	**PR incr**		**Secure**	
Alaudidae					
Horned Lark	*Eremophila alpestris*	Br/Mig/w		Secure	
Hirundinidae					
Tree Swallow	***Tachycineta bicolor***	**Br**		**Secure**	
Violet-green Swallow	*Tachycineta thalassina*	Br		Secure	
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Br		Secure	
Bank Swallow	*Riparia riparia*	Br		Secure	
Cliff Swallow	*Petrochelidon pyrrhonota*	Br		Secure	
Barn Swallow	***Hirundo rustica***	**Br**		**Sensitive**	**A common species that is declining in Alberta and all surrounding jurisdictions.**
Paridae					
Black-capped Chickadee	*Poecile atricapillus*	PR		Secure	
Mountain Chickadee	***Poecile gambeli***	**PR**		**Secure**	

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Boreal Chickadee	*Poecile hudsonicus*	PR		Secure	
Sittidae					
Red-breasted Nuthatch	***Sitta canadensis***	**Br, w erratic**		**Secure**	
White-breasted Nuthatch	*Sitta carolinensis*	PR		Secure	
Certhiidae					
Brown Creeper	*Certhia americana*	Br/w		Sensitive	A mature forest-dependent species that is vulnerable to forest fragmentation, and certain forest management practices.
Troglodytidae					
Rock Wren	*Salpinctes obsoletus*	Br		Secure	
House Wren	***Troglodytes aedon***	**Br**		**Secure**	
Winter Wren	*Troglodytes troglodytes*	Br		Secure	
Cinclidae					
American Dipper	*Cinclus mexicanus*	Br/w		Secure	
Sylviidae					
Golden-crowned Kinglet	***Regulus satrapa***	**Br/w**		**Secure**	
Ruby-crowned Kinglet	***Regulus calendula***	**Br**		**Secure**	
Turdidae					
Western Bluebird	*Sialia mexicana*	vrBr (1984)		Secure	
Mountain Bluebird	*Sialia currucoides*	Br		Secure	
Townsend's Solitaire	*Myadestes townsendi*	Br/w		Secure	
Veery	*Catharus fuscescens*	Br		Secure	
Swainson's Thrush	***Catharus ustulatus***	**Br**		**Secure**	
Hermit Thrush	*Catharus guttatus*	Br		Secure	
American Robin	***Turdus migratorius***	**Br/w**		**Secure**	

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Varied Thrush	*Ixoreus naevius*	Br/w		Secure	
Mimidae					
Gray Catbird	***Dumetella carolinensis***	**Br**		**Secure**	
Brown Thrasher	*Toxostoma rufum*	Br		Secure	
Sturnidae					
European Starling	***Sturnus vulgaris***	**Int Br/w**		**Exotic/Alien**	
Motacillidae					
American Pipit	*Anthus rubescens*	Br/Mig		Secure	
Bombycillidae					
Cedar Waxwing	***Bombycilla cedrorum***	**Br**		**Secure**	
Parulidae					
Tennessee Warbler	***Vermivora peregrina***	**Br**		**Secure**	
Orange-crowned Warbler	*Vermivora celata*	Br		Secure	
Yellow Warbler	***Dendroica petechia***	**Br**		**Secure**	
Yellow-rumped Warbler	*Dendroica coronata*	Br		Secure	
Townsend's Warbler	*Dendroica townsendi*	Br		Secure	
American Redstart	*Setophaga ruticilla*	Br		Secure	
Ovenbird	*Seiurus aurocapilla*	Br		Secure	
Northern Waterthrush	***Seiurus noveboracensis***	**Br**		**Secure**	
MacGillivray's Warbler	*Oporornis tolmiei*	Br		Secure	
Common Yellowthroat	***Geothlypis trichas***	**Br**		**Sensitive**	**A common, widespread species with a declining population in Alberta and surrounding jurisdictions. Threats to habitat identified.**
Wilson's Warbler	*Wilsonia pusilla*	Br		Secure	
Emberizidae					
Spotted Towhee	*Pipilo maculatus*	Br		Secure	

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Chipping Sparrow	***Spizella passerina***	**Br**		**Secure**	
Clay-colored Sparrow	***Spizella pallida***	**Br**		**Secure**	
Brewer's Sparrow	*Spizella breweri*	Br		Sensitive	Steep population decline in Alberta since 1994. Prairie population of the species relies on availability of natural sage brush. Thought to be declining because of its specific habitat requirements.
Vesper Sparrow	***Pooecetes gramineus***	**Br**		**Secure**	
Savannah Sparrow	***Passerculus sandwichensis***	**Br**		**Secure**	
Le Conte's Sparrow	***Ammodramus leconteii***	**Br**		**Secure**	
Fox Sparrow	*Passerella iliaca*	Br/w		Secure	
Song Sparrow	***Melospiza melodia***	**Br/w**		**Secure**	
Lincoln's Sparrow	*Melospiza lincolnii*	Br		Secure	
White-crowned Sparrow	*Zonotrichia leucophrys*	Br/w		Secure	
Golden-crowned Sparrow	*Zonotrichia atricapilla*	sBr(l)		Secure	
Dark-eyed Junco	*Junco hyemalis*	Br/w		Secure	
Cardinalidae					
Western Tanager	*Piranga ludoviciana*	Br		Sensitive	Prefers old coniferous and mixedwood forest; obligate neotropical migrant. Species may be vulnerable to habitat loss or deterioration by various forecast land uses, mainly timber harvest.
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Br		Secure	
Black-headed Grosbeak	*Pheucticus melanocephalus*	sBr(l) incr		Secure	
Lazuli Bunting	*Passerina amoena*	Br		Secure	
Icteridae					
Red-winged Blackbird	***Agelaius phoeniceus***	**Br/w**		**Secure**	
Western Meadowlark	***Sturnella neglecta***	**Br/w**		**Secure**	

Common Name	Scientific Name	General Status[1]	COSEWIC Status (Aug 2009)	Alberta Status (2005)	Comments
Brewer's Blackbird	***Euphagus cyanocephalus***	**Br/w**		**Secure**	
Common Grackle	*Quiscalus quiscula*	Br		Secure	
Brown-headed Cowbird	***Molothrus ater***	**Br**		**Secure**	
Baltimore Oriole	***Icterus galbula***	**Br**		**Sensitive**	**Species has largely declined within Alberta and surrounding jurisdictions since 1994. Parkland habitat threatened by cultivation.**
Fringillidae					
Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*	Br/W		Secure	
Pine Grosbeak	*Pinicola enucleator*	Br/WV erratic		Secure	
Purple Finch	*Carpodacus purpureus*	Br/w		Secure	
House Finch	*Carpodacus mexicanus*	Br/W (1944) incr		Secure	
Red Crossbill	*Loxia curvirostra*	PR erratic		Secure	
White-winged Crossbill	*Loxia leucoptera*	PR erratic		Secure	
Common Redpoll	*Acanthis flammea*	Mig/WV, vrBr		Secure	
Pine Siskin	***Spinus pinus***	**Br, w**		**Secure**	
American Goldfinch	***Spinus tristis***	**Br/w**		**Secure**	
Passeridae					
House Sparrow	*Passer domesticus*	Int PR		Exotic/Alien	

Notes:

1 - General Status Source: http://www.royalalbertamuseum.ca/natural/birds/birdlist/intro.htm accessed 27-may-10

Br: a regular breeder in the province. Does not stay year-round but rather come to the province in the spring to breed, leaving again in the fall.

PR: a permanent resident. These species stay in the province year-round.

Mig: these species only pass through the province. They do not breed or winter regularly in the province. SMig: spring migration; FMig: fall migration; F: fall.

WV: a winter visitor, individuals occurring during the winter period but not necessarily remaining all winter.

WR: a winter resident species, individuals arriving in the winter and remaining until they leave for the north in the spring.

W: a species wintering in the province in some numbers but usually lower than during the breeding season.

w: very few individuals winter in the province, species is irregular in winter, or does not winter on an annual basis. It should be noted that more species are attempting to winter in the province.

Acc: an accidental. Documented on fewer than ten occasions in the province. Not likely to reoccur, or at best only infrequently (Br indicates that the species has bred in the province, however).

V: a vagrant. These species have been documented more than 10 times in the province, but fewer than 50 times. Very irregular occurrence. Br indicates that the species has bred in the province.

Acc/V: though it may have been reported more than 10 times, is not well supported by documentation or material evidence.

Ext: extirpated. A species which no longer occurs in the province.

Int: introduced. A species introduced and now well established in the province.

Decl: a species known to be declining in abundance (question mark when it is suspected).

Incr: a species known to be increasing in abundance (a question mark when it is suspected).

Table C2 (multi-page)
Potential Bird Species Occurring in the RSA and Observed on the Hanen Property

Amphibian Species Expected To Occur on or near the Hanen Property

(Note: Species that are bolded were observed or definite sign was seen during field visits)

Common Name	Scientific Name	COSEWIC Status (Aug 2009)	2005 Status	2000 Status	Comments
REPTILES					
Wandering Garter Snake	*Thamnophis elegans*		Sensitive	Sensitive	Common but localized. Least abundant garter snake. Maintenance of stable populations is dependent on habitat protection and public education. Threatened by oil and gas development, and destruction of den sites.
Red-sided Garter Snake	*Thamnophis sirtalis*		Sensitive	Sensitive	Common but localized. Public perception of declining population. Protection of key habitats and public education will ensure a stable population. Threatened by increased human development surrounding oil and gas activity.
AMPHIBIANS					
Long-toed Salamander	*Ambystoma macrodactylum*	Not at Risk	Sensitive	Sensitive	Few patchy, disjunct populations in mountain riparian areas. Distribution may be declining. Vulnerable to habitat destruction/alteration associated with industrial, recreational and transportation development. A "Species of Special Concern" in Alberta.
Tiger Salamander[1,2]	*Ambystoma tigrinum*	Not at Risk	Secure	Secure	
Western Toad	*Bufo boreas*	Special Concern Schedule 1	Sensitive	Sensitive	Population declining elsewhere and possibly within Alberta. Concentrated mainly in northern and western Alberta. Population requires long-term monitoring. Pollution and pesticides are threats in other parts of range, while drought poses a local threat.
Boreal Chorus Frog	***Pseudacris maculata***		**Secure**	**Secure**	
Wood Frog	***Rana sylvatica***		**Secure**	**Secure**	
Spotted Frog	*Rana luteiventris*	Not at Risk	Sensitive	Sensitive	Population status unknown. Extremely limited distribution; possible population decline since the 1970s requires investigation. Threatened by introduced fish, and naturally low maturation and reproduction rates may impede recovery.

Note: Bolded Species observed during field visits
1 – Reported observed by S. MacKenzie
2 – Reported observed by P. Young, Senior Wildlife Biologist, Prairies Area, Alberta Sustainable Resource Development, High River, Alberta

Table C3
Potential Amphibian and Reptile Species Occurring in the RSA and Observed on the Hanen Property

Southern Alberta Land Trust Society

Baseline Wildlife Report
Appendix D

Riparian Health Assessments

Score Sheet used for Riparian Health Assessment from
Alberta Riparian Habitat Management Society (Cows and Fish) 2008

LOTIC WETLAND SURVEY FIELD SCORE SHEET

1. Vegetative Cover of Floodplain and Streambanks. Score:_____/ 6
   - 6 = More than 95% of the reach soil surface is covered by live plant growth.
   - 4 = 85% to 95% of the reach soil surface is covered by live plant growth.
   - 2 = 75% to 85% of the reach soil surface is covered by live plant growth.
   - 0 = Less than 75% of the reach soil surface is covered by live plant growth.

2a. Total Canopy Cover of Invasive Plant Species (Weeds). Score:_____/ 3
   - 3 = No invasive plant species (weeds) on the site.
   - 2 = Invasive plants present with total canopy cover less than 1% of the polygon area.
   - 1 = Invasive plants present with total canopy cover between 1 and 15% of the polygon area.
   - 0 = Invasive plants present with total canopy cover more than 15% of the polygon area.

2b. Density/Distribution Pattern of Invasive Plant Species (Weeds). Score:_____/ 3
   - 3 = No invasive plant species (weeds) on the site.
   - 2 = Invasive plants present with density/distribution in categories 1, 2, or 3.
   - 1 = Invasive plants present with density/distribution in categories 4, 5, 6, or 7.
   - 0 = Invasive plants present with density/distribution in categories 8, or higher.

3. Disturbance-Increaser Undesirable Herbaceous Species. Score:_____/ 3
   - 3 = Less than 5% of the site covered by disturbance-increaser undesirable herbaceous species.
   - 2 = 5% to 25% of the site covered by disturbance-increaser undesirable herbaceous species.
   - 1 = 25% to 50% of the site covered by disturbance-increaser undesirable herbaceous species.
   - 0 = More than 50% of the site covered by disturbance-increaser undesirable herbaceous species.

4. Preferred Tree and Shrub Establishment and/or Regeneration. Score:_____/ 6

   Scoring: (If the site has no woody vegetation [except for the species listed to be excluded], replace both Actual Score and Possible Score with NA.)
   - 6 = More than 15% of the total canopy cover of preferred trees/shrubs is seedlings and saplings.
   - 4 = 5% to 15% of the total canopy cover of preferred trees/shrubs is seedlings and saplings.
   - 2 = Less than 5% of the total canopy cover of preferred tree/shrubs is seedlings and saplings.
   - 0 = Preferred tree/shrub seedlings or saplings absent.

5a. Browse Utilisation of Preferred Trees and Shrubs. Score:_____/ 3

Scoring: (If the site has no woody vegetation [except for the species listed to be excluded], replace both Actual Score and Possible Score with NA.)

3 = None (0% to 5% of available second year and older leaders of preferred species are browsed).
2 = Light (5% to 25% of available second year and older leaders of preferred species are browsed).
1 = Moderate (25% to 50% of available second year and older leaders of preferred species are browsed).
0 = Heavy (More than 50% of available second year and older leaders of preferred species are browsed).

5b. Live Woody Vegetation Removal by Other Than Browsing Score:_____/ 3

Scoring: (If the site has no trees or shrubs AND no cut plants or stumps of any trees or shrubs [except for the species listed to be excluded], replace both Actual Score and Possible Score with NA.)

3 = None (0% to 5% of live woody vegetation expected on the site is lacking due to cutting).
2 = Light (5% to 25% of live woody vegetation expected on the site is lacking due to cutting).
1 = Moderate (25% to 50% of live woody vegetation expected on the site is lacking due to cutting).
0 = Heavy (More than 50% of live woody vegetation expected on the site is lacking due to cutting).

6. Standing Decadent and Dead Woody Material. Score:_____/ 3

Scoring: (If the site has no woody vegetation [except for the species listed to be excluded], replace both Actual Score and Possible Score with NA.)

3 = Less than 5% of the total canopy cover of woody species is decadent and/or dead.
2 = 5% to 25% of the total canopy cover of woody species is decadent and/or dead.
1 = 25% to 50% of the total canopy cover of woody species is decadent and/or dead.
0 = More than 50% of the total canopy cover of woody species is decadent and/or dead.

7. Streambank Root Mass Protection. Score:_____/ 6

6 = More than 85% of the streambank has a deep, binding root mass.
4 = 65% to 85% of the streambank has a deep, binding root mass.
2 = 35% to 65% of the streambank has a deep, binding root mass.
0 = Less than 35% of the streambank has a deep, binding root mass.

8. Human-Caused Bare Ground. Score:_____/ 6

6 = Less than 1% of the polygon is human-caused bare ground.
4 = 1% to 5% of the polygon is human-caused bare ground.
2 = 5% to 15% of the polygon is human-caused bare ground.
0 = More than 15% of the polygon is human-caused bare ground.

9. Streambank Structurally Altered by Human Activity. Score:_____/ 6

6 = Less than 5% of the bank is structurally altered by human activity.
4 = 5% to 15% of the bank is structurally altered by human activity.
2 = 15% to 35% of the bank is structurally altered by human activity.
0 = More than 35% of the bank is structurally altered by human activity.

10. Human Physical Alteration to the Rest of the Polygon. Score:_____/ 3

3 = Less than 5% of the polygon is altered by human causes.
2 = 5% to 15% of the polygon is altered by human causes.
1 = 15% to 25% of the polygon is altered by human causes.
0 = More than 25% of the polygon is altered by human causes.

11. Stream Channel Incisement (Vertical Stability). Score:_____/ 9

9 = Channel vertically stable and not incised; 1-2 year high flows access a floodplain appropriate to the stream type. Active downcutting is not evident. Any old incisement is characterised by a broad floodplain inside which perennial riparian plant communities are well established. This condition is illustrated in Figure 3 by the following three stages.
Stage A-1. A stable, unincised meandering meadow channel (Rosgen E-type). Flows greater than bankfull (1-2 year event) spread over a floodplain more than twice the bankfull channel width. Stage A-2. A fairly stable, unincised wide valley bottom stream with broad curves and point bars (Rosgen C-type). Although these streams typically cut laterally on the outside of curves and deposit sediment on inside point bars, bankfull flows (1-2 year events) have access to a floodplain more than twice bankfull channel width.Stage A-3. A stable, unincised mountain (Rosgen A-type) or foothill (Rosgen B-type) channel with limited sinuosity and slopes greater than 2%. Although bankfull flow stage is reached every 1-2 years, the adjacent floodplain is often narrower than twice the bankfull channel width. Consequently, overflow conditions are not so obvious as in Stages A-1 and A-2 systems.

6 = Either of two incisement phases: (a) an improving phase with a sinuous curve/point bar system (Rosgen C-type) or a narrow, meandering stream (E-type) establishing in an old incisement which now represents the new floodplain, although this may be much narrower than it will become;(b) an early degrading phase in which a narrow, meandering meadow stream (E-type) is degrading into a curve/point bar type (C-type) or a wide, shallow channel (Rosgen F-type). In either case, the 1-2 year high flow event can access only a narrow floodplain less than or only slightly wider than twice the bankfull channel width. Perennial riparian vegetation is well established along much of the reach. These conditions are represented in Stage B of Figure 3.

3 = Two phases of incisement fit this rating. (a) A deep incisement that is starting to heal. In this phase new floodplain development, though very limited, is key. This phase is characterised by a wide, shallow channel unable to access a floodplain (Rosgen F-type) evolving into a curve/point bar system (C-type) through sediment deposition and lateral cutting. Pioneer perennial plants are beginning to establish on the new depositional surfaces. (b) An intermediate phase with downcutting and headcuts probable. Flows less than a 5-10 year event can access a narrow floodplain less than twice bankfull channel width. These conditions are represented in Stage C of Figure 3.

0 = The channel is deeply incised to resemble a ditch or a gully. Downcutting is likely ongoing. Only extreme floods overtop the banks, and no floodplain development has begun. Both Stages D-1 and D-2 of Figure 3 fall into this rating. Stage D-1. An incised stream with a wide, shallow (F-type) channel. Commonly found in fine substrates (sands, silts, and clays), channel banks are very erodible. Only limited vegetation, primarily pioneer species, is present along the side of the stream. Stage D-2. A narrow, deep “gully” system (Rosgen G-type) downcut to the point that only extreme floods can overtop the banks. Distinguished from narrow mountain streams (A-type) by the presence of a flat floodplain through which the stream has downcut and by banks consisting of fine materials rather than larger rocks, cobbles, or boulders.

Comments and Observations:

Administrative Data for Riparian Assessments

RIPARIAN ASSESSMENT DATA
Zahava Hanen Pekisko Creek Property

Date Field Data Collected:	5-Jun-10
Data Collected by:	R. Rowell
Province	Alberta

County/Municipal District	MD Foothills 31
UTM Zone	11
Datum	NAD 83
Natural Region	Parkland
Sub-Region	Foothills Parkland
Major Watershed	South Saskatchewan
Minor Watershed	Bow River
Sub-Basin	Pekisko Creek

Riparian Assessment No.	Legal Land (1/4, Section,Twp, Range, Meridian)	Start Waypoint		End Waypoint		Photo's
		UTM Upper Easting	UTM Upper Northing	UTM Lower Easting	UTM Lower Northing	
1	SW 28 16-3-W5	687107	5583355	687407	5583347	
2	SW 28 16-3-W5	687598	5583469	687778	5583662	
3	NE 28 16-3-W5	687983	5583722	688199	5583757	
4	NE 28 16-3-W5	688415	5583889	688609	5584025	
5	NW 27 16-3-W5	688699	5584076	688850	5584240	
6	NW 27 16-3-W5	688939	5584330	689082	5584500	
7	SW 34 16-3-W5	689248	5584612	689161	5584878	
8	SW 34 16-3-W5	689121	5585009	689157	5585243	
9	NW 34 16-3-W5	689318	5585432	689414	5585609	
10	NE 34 16-3-W5	689550	5585614	689614	5585686	
11	NE 34 16-3-W5	689570	5585897	689766	5586037	

Table D1
Administrative Data for Riparian Assessments