

2008

Indigenous stewardship: lessons from yesterday for the parks of tomorrow

Oetelaar, Gerald A.

Oetelaar, G.A. & Oetelaar, D.J. "Indigenous stewardship: lessons from yesterday for the parks of tomorrow." Contributed paper for the Canadian Parks for Tomorrow: 40th Anniversary Conference, May 8 to 11, 2008, University of Calgary, Calgary, AB.

<http://hdl.handle.net/1880/46905>

Downloaded from PRISM Repository, University of Calgary

**INDIGENOUS STEWARDSHIP: LESSONS FROM YESTERDAY FOR THE PARKS OF
TOMORROW**

by
Gerald A. Oetelaar and D. Joy Oetelaar

ABSTRACT

Most researchers today acknowledge the impact of Indigenous populations on the supposed 'natural' or 'pristine' environments encountered by European explorers and naturalists travelling through the interior of North America. However, few are willing to accept the extent of this landscape management, especially in western North America. In fact, Indigenous populations created their own series of 'parks' through species-level, community-level and landscape-level management strategies such as the manipulation of plants, the selective harvest and displacement of resources, and the use of controlled burns. The resultant 'parks' were scattered across southern Alberta and were the product of disturbance and contingency guided by Indigenous perceptions of the reciprocal relationship between humans and the world around them. Using examples of managed landscapes scattered across southern Alberta, we discuss the origin of these Indigenous preserves and outline the motivation behind their stewardship. The lesson learned from this Indigenous approach to stewardship, we believe, provides guidelines for the management practices of tomorrow.

The establishment of Canada's first national park in 1885 was, at least partially, motivated by a desire to attract tourists to the west but the current policies and practices of Canada's protected areas are clearly aimed at conservation and restoration using measures of biodiversity to assess the ecological integrity of the ecosystem. Thus, management efforts are directed at maintaining ecosystems in as natural a state as possible, the latter being determined primarily by climate as modified locally by topography, drainage and soil parent material. However, several researchers have rejected the concept of a natural or pristine environment in North America at the time of contact arguing instead for the presence of a managed landscape (e.g., Denevan 1992; Dickinson 1995). Similarly, several ecologists today reject the mechanistic view of the systemic relationships among the components of an ecosystem in favour of an organic model where ecosystems are the product of disturbances and historical contingency (e.g., Botkin 1990; Zimmerer 1994). Although sometimes perceived as mere theoretical discussions or debates, these challenges to the conservation ethic have real practical consequences for the implementation of ecosystem management strategies. In this paper, we argue that Blackfoot attitudes toward stewardship may offer guidelines for the management of the parks of tomorrow.

Although many researchers today acknowledge the impact of Indigenous populations on the supposed 'natural' or 'pristine' environments envisioned by European explorers and naturalists, few are willing to accept the extent of this landscape management, especially in western North America. In fact, the Blackfoot created their own series of 'parks' through management strategies such as the manipulation of plants, the selective harvest and transport of resources, and the use of controlled burns. The resultant 'parks' were scattered across southern Alberta and many of these, such as Police Point Park in Medicine Hat, Cypress Hills Interprovincial Park and the mountain parks were, in fact, appropriated by Euro-canadians who initially used them as

tourist attractions and later designated them as Parks and Protected Areas. Significantly, many of these places appear to have been maintained for thousands of years by people whose management strategies were guided by very different perceptions of the systemic relationships between humans and the world around them. Perhaps then, this indigenous approach to stewardship has lessons for the managers of today and tomorrow.

Blackfoot World View

The world of the Blackfoot people, like that of the ecologist, includes a complex web of relationships between living organisms and their environment but these relationships are mediated by spirits who respond to the prayers and actions of the Blackfoot people (Wilson 1910:3). Thus, the universe of the Blackfoot is divided into an upper, a middle, and a lower world. The middle world is home to the earth beings including humans, four-legged animals, plants, rocks, and the earth itself. The above world is home to the sun, moon, morning star and other sky beings as well as thunder and most of the birds. The below world is inhabited by the water beings as well as certain waterfowl, beaver, otter and muskrat (Blackfoot Gallery Committee 2001:9). Even though the animate and inanimate components of the Blackfoot world do not correspond to those of western science, these elements are nonetheless viewed as being interwoven in a complex web of relationships. Further, the Blackfoot people, like their western counterparts, seek to maintain the delicate balance in this world, although the principles underlying their strategies are radically different from those of the modern ecologist.

In the long ago, the Blackfoot established sacred alliances with the spirits who control the availability of resources (Bastien 2004). These alliances are maintained through rituals in which the Blackfoot communicate and negotiate directly with the spirits of the upper and lower worlds.

They can and do seek the assistance of special helpers, usually animals that move between the land and the sky or between the land and the water. The rituals and negotiations with the spirits tend to occur at specific places on the northern Plains where portals provide direct access to the upper or lower worlds (Mountain Horse 1979:83-84). During the establishment of the sacred alliances, the spirits transferred medicine bundles to the Blackfoot people and these, along with the prayers and offerings, are used in rituals to help maintain or restore the cosmic balance (Blackfoot Gallery 2001:13, 49). The cosmic balance is usually upset because people fail to observe the codes of ethical conduct toward the land, the resources and the people. When this happens, the spirits show their displeasure by withholding resources or by causing some illness to befall the community.

Efforts to maintain or re-establish the balance in the universe involve the actions of individuals, of communities, and of larger social aggregates. Individuals can maintain the balance through their every day actions or by making some offering on the altar in the lodge or at focal points on the landscape. Households and communities participate in similar rituals during the opening of ceremonial bundles, during the harvesting of particular resources, and during important rites of passage. Finally, the larger social aggregates assemble once a year for the most important renewal ceremony of all, the sun dance. This eight to ten day ritual dedicated to the Sun involves several neighbouring groups and is designed to secure the renewal of essential resources and to ensure the continued health of the community. Participation in the sun dance required a scheduled movement from the sheltered river valleys bordering the Rocky Mountains to the open prairie. This journey took the Blackfoot people along well-established trails by familiar landmarks where they were able to renew their ties with the spirits, the ancestors and neighbouring groups, to repeat and transmit the rituals, the songs and the narratives stored in the

archive, and to regenerate the land and its resources (Uhlenbeck, 1912:1-38). Thus, the sun dance and the associated pilgrimage of renewal, not the migratory habits of the bison, was the prime motivation for the annual forays onto the plains.

To the Blackfoot then, people are an integral part of nature, as are streams and mountains, plants and animals. Further, humans play an essential and reciprocal role in helping to maintain an orderly balance in nature through their proper conduct in daily practice, in rituals and ceremonies. Failure to fulfill this critical role will almost certainly disrupt the natural balance, such that the health and survival of flora and fauna will be endangered, as will the general well-being of the people. Guidance for this role comes not from ecology but from mythical heroes or ancestral beings who traveled across the landscape creating the mountain ranges, the scattered boulders, the river valleys, the springs, the cottonwood groves, the berry patches, and the lithic sources. Throughout the year, groups retrace the footsteps of their ancestors stopping near the landmarks created by their heroes, remembering the names of the places, retelling the associated stories, and repeating the appropriate rituals (Oetelaar and Oetelaar 2006, 2007). To these people then, the resources are there because their ancestors visited the places created by their heroes, and they must continue this tradition so that future generations can enjoy the homeland and its resources. It is this conservation ethic which is responsible for the establishment and maintenance of parks and protected areas within the homeland of the Blackfoot before the arrival of Europeans.

Police Point Park and Strathcona Island Park

Police Point Park, near downtown Medicine Hat, is a natural reserve, presumably present in a untouched, unmanicured state, where people welcome the splendor of wildlife mixed with the

flora and fauna of grasslands. But it is also a special place for the Blackfoot people where one of the portals providing access to the water beings is located. This place is known as *saamis*, a term used to refer to a special headdress which was given to a young brave in the long ago (Sanderson 1965:16-17). The story of *saamis* describes not only how the Blackfoot people came to have the special headdress, but also what was so special about this particular place.

During a winter of great famine and hardship, the Elders chose a young Blood to save his people from starvation. He set out with his new wife and favourite wolf dog, and journeyed down the ice-bound South Saskatchewan River. After many difficult days, they made their way to the breathing hole of the Below World spirit. They made camp and the man prayed to the spirit to appear.

A giant serpent came up from the water and demanded that the man sacrifice his wife in exchange for a holy bonnet. The serpent said the bonnet would give the owner special powers and great hunting skill.

The young brave returned to his lodge and told his wife what had happened. His wife said they must do as the spirit asked. But the husband decided to sacrifice his favourite dog instead. Carrying the dog to the opening, he threw it in, and asked the spirit to accept his offering. The spirit refused and said that, unless the brave sacrificed his wife, he could do nothing for him. The man returned to his wife. This time she convinced him to obey, and the man gave her body to the Below World spirit.

The Below World spirit then told the man to stay all night on the island nearby, and to rise early next morning. As the sun rose, he must walk toward the cutbank lying to the east. There, at the base of one of the cutbanks, he would find a bag containing medicines and a bonnet trimmed with ermine. He was instructed to bring back the medicine bag and the hat to the spirit, who would explain the purpose of the bonnet, and the power of the medicines. The hat was to be worn only in war, and would insure victory to the wearer.

*Thereafter, the young brave returned home, located the much needed game, and saved his people. This young man eventually became a great medicine man and warrior.*ⁱ

This story explains the origin of an unusual opening in the South Saskatchewan River which is used by the water beings to breathe during the winter. Even though the spirit beings occupy different cosmic spaces within the Blackfoot homeland, they have basic human needs. Thus, the spirit in our story may live under water but, like humans, it must breathe to survive and therefore, maintain an opening in the ice during the winter months.

George Dawson (n.d.:39-40) used the term *saamis* to identify the confluence of the South Saskatchewan River and Seven Persons Creek near what is now Police Point Park. Significantly, a very short stretch of the South Saskatchewan River at the confluence of Seven Persons Creek never freezes, even in the coldest winters (Sanderson 1965:16). Thus this breathing hole in the South Saskatchewan was the best place to communicate with the spirit, especially during the winter months. The story also describes two other physical features which are present today: the island where the young brave was told to spend the night, and the cutbanks lying to the east where the brave found the medicine bag and the holy bonnet. A small island, today known as Strathcona Island Park, is present in the South Saskatchewan River opposite the confluence of the creek. Just east of the confluence, the South Saskatchewan bends sharply to the north creating the impressive cliffs where the *saamis*, the headdress, was found.

The story of *saamis* not only incorporates all of these landmarks, it also highlights the basic philosophy of the Blackfoot with respect to the rights of the individual and the collective. For the majority of nomadic groups, including the Blackfoot, the welfare of the larger community takes precedence over the well-being of the individual (Wissler 1905:176). In the case of this narrative, the young warrior does not question the decision of the Elders because they are doing what is best for the community. Similarly, the young bride is obviously willing to, and does, make the ultimate sacrifice for the welfare of her people. Finally, the young brave receives the headdress and the medicines from the water being and these give him the power to intercede on behalf of his people, thus saving them from starvation. Even though the headdress makes him a powerful Medicine Man, this new role entails even more obligations (see McClintock 1948) toward the land, the people and the resources.

The location of *saamis* also offers a number of practical solutions to the problems facing the

traveler who relies on the dog travois to move from place to place within the Blackfoot homeland (Henderson 1994; Oetelaar and Meyer 2007). Of these, perhaps one of the most challenging is finding a suitable place to safely cross major rivers such as the South Saskatchewan. As noted by McDougall (1911:86), suitable river crossings require “an approach, a ford and a departure...”; that is, a relatively shallow ford with a smooth bottom and quiet current as well as gently sloping ravines providing access to and egress from the deeply entrenched river valleys. *Saamis* includes all of these elements. The opening in the frozen river occurs because of the turbulent flow over a shallow section of the river bed. Similarly, three gently sloping ravines provide easy access to the shallow ford from the south while the point bar on the north allows one to reach the ford from this direction.

Another challenge facing the Blackfoot people as they traveled from the sheltered river valleys to the sun dance grounds was the availability of fuel and water. Even though these critical resources are scarce on the open prairie (Vickers and Peck 2004), explorers traveling with Indigenous guides always seemed to come upon a small clump of trees after a long day of travel. Such isolated clumps of trees are clearly represented on Dawson’s (1884) map where they occur at regular intervals along the Red Deer, Bow, Oldman and South Saskatchewan Rivers. Although ecologists have explained the presence of isolated clumps of cottonwoods and aspens within the Prairie ecozone as the result of unique ecological circumstances (e.g., Bradley and Smith 1986; Mahoney and Rood 1998; Moss 1932:406–407; Smith and Pearce 2000), the regular spacing of these groves (ca 14–16 km), as well as their association with trails, springs and river crossings, suggests that only some of these copses escaped the ravages of uncontrolled grass fires (Oetelaar and Oetelaar 2003, 2007). To protect these selected groves, the Blackfoot people used low intensity burns at strategic times of the year to check the nature and extent of the undergrowth

and to remove unwanted debris. This practice created a park-like setting where the absence of underbrush and dead wood prevented fires from igniting the canopy and destroying the trees.

Although the trees provided relief from the sun as well as a needed supply of wood for campfires, the prime incentive for the management of the groves was the protection of their ancestors whose bodies were resting on platforms in the cottonwood trees. (Medicine Hat News, 1962; Morrow 1974:33) The practice of placing the bodies of the dead on platforms in the branches of the cottonwood trees was designed to allow the Sun to release the spirit of the deceased. When done properly, the spirits of dead relatives would continue to communicate with the living and serve as mediators between the people and the sky or water beings. While camped at these locations, people could thus find relief in the shade of the trees, satiate their body and soul by drinking water from nearby springs and commune with their ancestors whose bodies were resting in the limbs of the trees (Oetelaar and Oetelaar 2003).

To the Blackfoot then, the cottonwoods in Police Point Park and Strathcona Island Park are sacred groves because they are the product of creative acts by mythical heroes, they are the burial grounds of the ancestors and they are repositories of traditional knowledge. The groves are present on the landscape because they were maintained by the ancestors and this practice must continue for the benefit of future generations. The bodies of the ancestors in the trees establish this sense of continuity and spiritual attachment to the place. Repeated use and maintenance of the place is thus an obligation promoted by the ideology and traditions of the group.

The Blackfoot people therefore were integral to the establishment and maintenance of *saamis*, a sacred place which connected them to their familial and spiritual ancestors. From their perspective, *saamis* would lose its spiritual power and the resources would cease to exist without their intervention. They were obligated to visit and to manage the place on a regular basis. The

product of this stewardship philosophy was a well-maintained cottonwood grove with a manicured understory (see Figure 1). By contrast, the recent ecosystem management plan for this park strives to maintain the biodiversity of the park ecosystem within historical ranges of variability, to maintain the heritage, esthetic and recreational values of the park ecosystem, to manage fire hazard and fire suppression activities in the park and to achieve these goals in a fiscally responsible manner. The result of these management efforts is a series of trails traversing a mixed community of plants and animals (see Figure 2).

Each approach to conservation serves the particular interests of the respective communities. To the Blackfoot, *saamis* is there *because of* the people whereas, to the people in the Parks and Outdoor Recreation Department of Medicine Hat, Police Point Park is there *for* the education, appreciation and enjoyment of people. In the former case, the attachment to place is spiritual as well as practical and the culture of conservation is shared by all people who visit the site. Furthermore, there is a strong sense of continuity in the attachment to place. In the latter case, the connection to place is episodic and experiential while the culture of conservation is promoted primarily by the people who manage the site. Under these circumstances, the users of the park do not feel a strong attachment to place and thus fail to appreciate the efforts of the park managers who tend to have a more historical perspective on the current state of the ecosystem.

Cypress Hills Interprovincial Park

Over the last century, many changes have occurred in the administration and management of the Cypress Hills. It has been developed through a series of shifting jurisdictions and policy trends: first as a federal forest reserve; next as a provincial forest reserve, then provincial park; and, finally as an interprovincial park, the first in Canada. Boundaries have changed, growing

and retracting over time. (Scace 1972:112) Yet the competition for land and resources among a variety of users has remained a constant, not only in the past hundred years but thousands before. Descriptions of the Cypress Hills by some early Euro-canadians as a neutral, or common, ground, reflect, at the very least, the extent to which the area met the needs of, and was used by, a multiplicity of Plains groups. A policy of multiple use continues to be the basis for administering the park, but with each decade, the ever-widening range of user groups, each with an apparently reasonable claim to “their right of access” (Scace 1972:183), administering policy has become more difficult and delicate.

The Cypress Hills Forest Reserve was created under the Federal Forest Reserve Act in 1906, and was expanded in 1911 to include the Elkwater Block in Alberta. The primary purpose of federal forests reserves was to maintain and protect timber, water supplies and certain wildlife species. However, in keeping with the scientific forestry principles of the day, conservation did not mean preserving natural resources by non-use (Scace 1972:101). Instead, the goal was “...to encourage regulations and technical efficiency to ensure continued use of resources...” (Scace 1972:93). Under this management system, timber was considered too valuable an economic resource to lay wholly untouched. Long-standing licenses for commercial timber berths which accounted for the bulk of accessible mature timber on federal lands were continued and exempted from reserve regulations including the Cypress Hills. Settlers could also extract timber, and many took advantage of the resource as more timber permits were issued in the Cypress Hills than in any of the other reserves in Alberta (Scace 1972: 95-97, 140). Of course, extracting timber from the Hills was not new, and had been carried on in a fairly unrestricted manner by settlers and lumber companies since the late 1880s. (Michael 1972: 7, 12-13; Medicine Hat Times, 1885, 1886)

In the beginning, the forestry branch adopted an equivocal approach toward the issue of grazing domestic stock on reserve lands. Initially, grazing was to be excluded but, the Cypress Hills constituted a special problem since grazing lands were intertwined with timber. Moreover, applying a similar rationale to that which guided timber extraction, forestry experts believed the ample grass in the Hills should be used by those best advantaged by it, the ranchers and mixed farmers. Further, it was held that grass left uncut or ungrazed presented an extreme fire hazard, a concern which was rapidly gaining increasing attention from foresters and the public alike. (Scace 1972:135). The bountiful grass and hay resources drew ranchers and small stockmen to area, with Dominion grazing leases being granted from 1885 on (Michael 1972:8-12, 24-25; Morrow 1974:60-62). The area was well-suited for grazing domestic livestock and a considerable ranching community was established rather quickly, one which continues to the present.

In 1930, the federal government transferred jurisdiction of natural resources to the provinces, at which time the Alberta government designated the Cypress Hills as a provincial forest. In its approach to forest reserves, the provincial government retained the purposes and the multiple use management policies which had predominated under the federal reserve system. The establishment of Cypress Hills Provincial Park in 1951 generated considerable interest in the geology and ecology of the area which resulted in the development of interpretive programs and the construction of a visitor centre in 1967. By the early 1980s, the newly approved master plan for the management of Cypress Hills Provincial Park emphasized the conservation and restoration of the unique ecology of this island forest.

Today, Cypress Hills Interprovincial Park is managed more as an ecological preserve, one with a unique constellation of montane species (Alberta Research Council 2003). The presence

of Rocky Mountain species in the Cypress Hills first attracted the attention of ecologists during the 1950s as they compiled inventories of plants and animals present in the area (e.g., Breitung 1954; Coupland 1950; Godfrey 1950; Russell 1951). Given the absence of species endemic to the Cypress Hills, these researchers argued that the taxa from the foothills and Rocky Mountains must represent remnants from a post glacial forest present in the area (Breitung 1954:56; Russell 1951)). The relict plant and animal communities were then able to survive in the Cypress Hills because the local climate and soils were conducive to their survival.

The suggestion that submontane plant communities in the Cypress Hills represented relict species from an early postglacial forest gained wide acceptance during the 1960s and 1970s (e.g., Halladay 1965; McCorquedale 1965; Newsome and Dix 1968; Thompson and Kuijt 1976). Today, the model proposed by Thompson and Kuijt (1976) remains the most widely accepted explanation for the persistence of relict species in the Sweetgrass Hills (e.g., Strong and Hills 2003; 2005) and the Cypress Hills (e.g., Pielou 1991:283–286). Despite its appeal among ecologists, the Thompson and Kuijt (1976) model is receiving little support from recent paleoecological studies in and around the Cypress Hills which have failed to yield evidence of a post-Pleistocene forest in the area (e.g., Barnosky 1989:71; Barnosky, *et al.* 1987; Oetelaar and Oetelaar 2007; Yansa 2006, 2007). Instead, the evidence suggests that prairie colonized the plains of Montana and southern Alberta shortly after deglaciation, primarily in response to increased summer insolation during the late Pleistocene. At the same time, the record from Harris Lake indicates a significant increase in spruce and pine pollen around 5,000 BP, a change in vegetation which is attributed to the onset of cooler, wetter conditions at the end of the Hypsithermal (Sauchyn and Sauchyn 1991). Although climate may have created better conditions for the growth of these plants, this environmental variable cannot account for the

presence montane species. Instead, the evidence points to an alternate, perhaps more recent, origin for the montane species present in the Cypress Hills. We argue that people are the agents responsible for the introduction of these species.

Throughout the year, the patterned movement of the Blackfoot covered a very large area extending from the Rocky Mountains to the Cypress Hills in southeastern Alberta (Oetelaar 2004; Oetelaar and Oetelaar 2007). During this annual subsistence round, ritual pilgrimage and historical journey, they collected and moved plants over a very large area thereby contributing to the biodiversity of island forests such as the Sweetgrass Hills and the Cypress Hills. To appreciate the role of the Blackfoot as agents of dispersal, however, it is necessary to understand the ideology of the people, particularly their attitudes toward the collection and use of plants. In the world of the Blackfoot, one always makes an offering when collecting plants, especially those used for ceremonial or medicinal purposes (Johnston 1987; Peacock 1992). Failure to do so compromises the potency and effectiveness of the remedy. Similarly, one disposes of these botanical remains with equal reverence; that is, the unused parts of the plant are carefully returned to the Earth with appropriate offerings (Siegfried 1994:128–129 documents similar practices among the Cree). Given that roots and seeds remain viable after processing or after years of storage, such careful collection and disposal of plant remains almost guarantees subsequent propagation or germination. Once these desired resources appear in the new setting, they are carefully managed, like the grove at *saamis*, to encourage their growth at the expense of species which are of limited importance. As agents responsible for the displacement of plant species over very large areas and for the introduction of species into new environments (e.g., Wilson, *et al.* 1988), the Blackfoot contributed to the biodiversity evident in the Cypress Hills today.

The case of the Cypress Hills illustrates the integral role of the Blackfoot people in the establishment and maintenance of biodiversity within the ecosystem. However, the montane species introduced into the ecosystems of the Sweetgrass Hills and the Cypress Hills were those commonly used by the Blackfoot people. Moreover, the introduced species thrived in these environments because the spirits looked favourably upon the actions of the Blackfoot people who managed these island forests. This perspective on the ecological integrity of the island forest ecosystem is consistent with the new ecology where disturbance and historical contingency better explain the origin of unique constellations of plants and animals such as those observed in the Cypress Hills. At the same time, the strategies used by the Blackfoot people are reminiscent of the principles advanced by advocates of adaptive ecosystem management or co-management. That is, the Blackfoot and their neighbours worked to establish and maintain plant communities which were beneficial to the welfare of the people and the animals they hunted.

The Foothills and Mountain Parks

The beauty and magnificence of the Foothills and Rocky Mountains in southern Alberta have been recognized for well over a century and today most of this picturesque landscape occurs within national and provincial parks, forest reserves and special places. In the early years, many of the locations designated today as parks and protected areas were developed and promoted as expensive destinations for tourists who flocked to western Canada for adventure, for health or for the majestic beauty (Bella 1987:5-24). Although many of the parks and protected areas remain important tourist attractions to this day, the management policies have changed and, today, place a greater emphasis on ecological integrity, particularly the conservation and restoration of biodiversity. Ironically, fire is again being considered as a management tool to restore native

biodiversity and ecosystem functions in these mountain parks after years of suppression.

Although the managers of these parks and protected areas recognize the beneficial effects of controlled burns, few actually recognize the extent to which the areas so designated in the past were managed landscapes. Further, fire was the instrument of choice for the Blackfoot and their neighbours who created the spectacular vistas which so attracted the attention of the early tourists who traveled by railway to visit the Rocky Mountains.

Despite years of debate, there remains considerable disagreement over the nature, extent and impact of anthropogenic burning on the native prairie and the adjoining mountain valleys (e.g., Anderson and Nabhan 1991; Boyd 1999; Budiansky 1995; Johnson and Miyanishi 2001, 2007; Pyne 1982, 2006; Vale 2002, 2006). In western North America, anthropogenic burning was apparently used to extend the limits of the grasslands and to create clearings in low mountain valleys (Barrett 1981; Barrett and Arno 1982, 1999; Gruell 1985; Higgins 1986; Lewis and Ferguson 1999; Nelson and England 1971; Stewart 1955, 2002). To substantiate these claims, the proponents of anthropogenic burning use oral history, historical documents, fire scars in tree rings, pollen records, and charcoal accumulation rates in lake cores. Opponents of this management strategy discredit many of the historical accounts because of (1) low population density; (2) observer bias (3) failure to observe ignitions, and (4) ignorance with respect to lightning's role in starting fires (Baker 2002). They also dismiss tree-ring-based fire histories as of limited utility and pollen/charcoal as unable to distinguish anthropogenic from natural fires. Instead, the proponents of natural fires argue for the importance of climate as a controlling factor in Rocky Mountain fire regimes and identify lightning as the most likely source of ignition.

From our perspective, the proponents and critics of anthropogenic burning have failed to examine properly the available historical evidence and to incorporate indigenous world views

and practices. Instead, researchers tend to select specific passages without taking into account the context of the observations or the agendas of the observers. To illustrate the benefits of an integrated approach, we offer the observations of Peter Fidler (1991) who spent the winter of 1792-1793 with a group of Piikani (Peigan) in the Foothills of southern Alberta. He left Buckingham House in early November 1792 and travelled as far south as the *Naw pew ooch e tay cotts* river (Old Man) before returning to the post in late March of 1793. His primary goals were to learn the language and lifeways of the Piikani, to examine the economic potential of the area in terms of fur bearing animals, and to explore the potential of establishing trade relations with groups living west of the mountains. During his travels, Fidler recorded his observations on the manners and customs of the people as well as on the ecology and geography of the Foothills. His observations on prairie fires, which are summarized in Table 1, are particularly informative because they clearly reveal the management strategies of the Piikani.

First, Fidler (1991:36) encounters active fires or recently burned areas during thirty one separate days of travel and clearly identifies humans as the source of ignition for all of the fires. This observation is consistent with the rare occurrence of lightning at this time of year in southwestern Alberta (e.g., Burrow, *et al.* 2002). In fact, Fidler (1991:92) hears thunder only once on March 18, 1793 as he approaches Buckingham House. Second, although Fidler describes extensive areas of burning or burnt grass, he also notes that the group invariably ends the day's journey in the vicinity of an aspen, cottonwood or pine grove (See, for example, Fidler 1991: 38-39, 55, 68, 82-83). In fact, he explicitly describes how people can protect themselves and their possessions from wild grass fires by simply "...setting fire to the Grass they are at, & when a little space is burnt themselves, Horses, &c. go upon the burnt part & when the fire comes to this place just burnt, it becomes dark in an Instant when this happens at night" (Fidler 1991:36).

Similar strategies were no doubt used to protect the groves of trees from the grass fires which, even in winter, were sometimes spurred on by dry fuel and high winds. Third, even though extensive tracts of land were burning or recently burnt, Fidler notes the presence of fine meadows near some buffalo jumps (1991: 26-27, 86-88), large group encampments with 2000 horses grazing in a fine level near the tents (1991: 56), and large herds of buffalo numbering in the millions around the Red Deers [sic] river (1991:75-82).

Obviously, the burning of the prairie at this time and in this portion of the homeland was far from being indiscriminant. Rather, the strategy seems to have been designed to maintain pastures for the horses and to concentrate bison in the vicinity of jumps and their associated drive lane complexes which are especially common in the Foothills of southern Alberta (e.g., Brink and Rollans 1990; Reeves 1990). Finally, Fidler (1991:59) offers an additional reason for the winter burning stating that, “These fires burning off the old grass, in the ensuing Spring & Summer makes excellent fine sweet feed for the Horses & Buffalo, &c.”. As such, the act of burning the grass had not only immediate but also future returns.

Although Fidler (1991:36) witnessed the grass fires primarily during the winter months, he notes that, “Every fall & spring, & even in the winter when there is no snow, these large plains either in one place or other is constantly on fire,...The lightning in the Spring & Fall frequently light the Grass, & in the winter it is done by Indians.” Several other researchers have noted this seasonality of anthropogenic fires but have identified humans as the source of ignition for the early spring and late fall fires in grassland and forested environments (e.g., Barrett and Arno 1982, 1999; Boyd 1999; Gruell 1985; Higgins 1986; Lewis 1982a, 1982b, 1985, 1989a, 1989b). Although humans can set fires at almost any time of year, lightning can only ignite the vegetation in an area at certain times of the year when conditions are favourable. Favourable

conditions include, at minimum, a certain number of lightning strikes of sufficient intensity and an accumulation of appropriate fuel.

For southwestern Alberta, lightning strikes are absent during the months of January and February, November, and December, extremely rare during the months of March, April, May, September, and October and very common during the months of May, June, July, and August (Burrows, *et al.* 2002). Significantly, the Blackfoot year is divided into two seasons; a summer during which Thunder is master and a winter during which Raven rules (Blackfoot Gallery 2001:16-17). More importantly, the first thunder of spring is the signal from the master of summer heralding the Blackfoot to open the Thunder Medicine bundle and to make preparations for the move to the sun dance grounds (McClintock 1968:426). The journey to the sun dance grounds probably started sometime in late April or early May with the return to the wintering grounds in the Foothills sometime in late September or early October. The fires in southwestern Alberta are thus occurring when people are present and lightning strikes are relatively infrequent.

Although Fidler describes a number of fires in the vicinity of the Rocky Mountains, he does not actually observe any burning in the mountain valleys. However, Dawson (1884) does illustrate a number of grassy areas extending beyond the Livingstone Range on his “Map Showing Wooded and Prairie Tracts &c. in the Region in the Vicinity of the Bow and Belly Rivers Embracing the Southern portion of the District of Alberta and part of Assiniboia North West Territory.” One of the grassland tracts extends up the Crownest River to the base of Crowsnest Mountain, the home of Raven in the world of the Blackfoot. The establishment and persistence of these grasslands in the lower mountain valleys have again been attributed to the management practices of indigenous populations (e.g., Pickard 1981:56-58; White 1985:22-23, 97). In this case, low intensity controlled burns apparently were used to remove the litter and

shrubs thereby reducing the chances of a serious crown fire. At the same time, these grassland extensions created ideal pastures for the bison populations, especially during severe winters with substantial accumulations of snow. Today, even the staunchest proponents of natural fires in mountainous environments acknowledge the possible role of humans in the maintenance of low-elevation meadows and forests (e.g., Vale 2006). Significantly, it is precisely those managed mountain valleys that first attracted the attention of the people who proposed the establishment of the mountain parks in Canada.

Conclusion

Even though the Blackfoot management practices were guided by a very different world view, their approach to the conservation and restoration of the southern Alberta landscape incorporated most, if not all, of the principles and guidelines advocated by the managers of today's parks and protected areas. The Blackfoot narratives associated with places such as Police Point Provincial Park, Cypress Hills Interprovincial Park, and the Mountain Parks were obviously sources of natural and cultural knowledge but the stories dealt with much more than the origin of the place and the practical relationships between people and resources. In fact, these components of the narratives were secondary to the nature and history of the spiritual relationship between the people and the places which emphasized the critical link between the past, present and future. The narratives also placed a greater emphasis on the proper codes of ethical conduct not only toward resources but also the land and the people. From the Blackfoot perspective however, the land and the resources were there *because of* the people not *for* the education, appreciation and enjoyment of people. Further, only proper conduct by the people today could ensure the renewal of the land and the resources for future generations.

In recent discussion of management practices, there are frequent references to the merits of moving from islands to networks of protected areas. The Blackfoot actually created a network of places connected by paths, movement and narratives. Every year, they moved from the sheltered valleys in the Foothills to the sun dance grounds located in the vicinity of the Cypress Hills following a well-established network of trails. As they journeyed along these well-worn paths, they literally retraced the footsteps of their ancestors and stopped at the same places where they repeated the stories, the songs, and the rituals. As such, each place was a repository of knowledge akin to the files in our archives. Further, each file contained a wealth of information on the proper conduct toward the land, the resources, and the people. Each file also included information on rituals to be performed at this place along with instructions on how to care for the well being of the local plants, animals, stones, and springs. More importantly, the files were opened and read in a prescribed order such that movement from place to place became an excursion through the history of the group. Further, the bodies of the ancestors resting in the branches of the trees re-enforced the connection between the actions of the present with those of the past. Thus, the places were connected not only across space but also across time.

Finally, biodiversity today seems to be the measure through which the ecological integrity of the ecosystem can be evaluated. The management practices of the Blackfoot obviously involved the encouragement of desirable resources through controlled burning, selective harvest, active dissemination, and plant manipulation. In the process of following the instructions of the spirits and of their ancestors, they created a series of disjunct plant communities which contributed to the biodiversity of the grasslands, parkland and mountain valleys. Of course, their actions were never designed to increase biodiversity; instead, these disjunct plant communities were created and managed for the benefit of the Blackfoot people. Ecologists today recognize the biodiversity

but refuse to acknowledge the role of the Blackfoot in creating these unique constellations of plants and animals, instead assuming that these microniches are the product of natural processes. Efforts to conserve and restore these biodiverse communities have met with limited success but have curtailed people's access to the parks and protected areas. This is not an appropriate management strategy if the intent is to develop a culture of conservation at the level of the municipality, province or nation. Nor is such an approach sustainable because an inadequate number of people share the attachment to place. If there is one lesson to be learned from the Blackfoot perspective on stewardship, it is that parks and protected areas must be managed for all the people, not only those interested in supposed natural ecosystems.

Table 1: Fidler's (1991) itinerary and observations on burning by the Piikani.

Date	Evidence of Burning	Comments
November 10, 1792	Recently burned ground	Can barely find spot for horses to eat
November 11, 1792	Reach end of burned ground	
November 12, 1792	Grass burned all day	Put up at an old Blood Indian buffalo pound
November 13, 1792	Grass burned all day	See a few Bull Buffalo
November 14, 1792	Grass has been burned lately, still burning in places	See a good number of Bull Buffalo. Come to Battle river
November 15, 1792	Reach end of burned ground	Nearing encampment of Muddy river [Pikani] Indians
December 4, 1792	Grass burnt in several places in the plain	Next day pass by Buffalo Pound
December 18, 1792	Grass all lately burnt towards the mountains. A good distance south of them the grass burns with great fury.	Muddy river Indians driving buffalo over jump. Hunting continues for several days.
December 25, 1792		Camp near a fine low flat level meadow land where the <i>Stommix e pis can</i> (Bull Pond) river falls into the <i>Spitcheyee</i> river. Good poplars grow here. Muddy river Indians begin hunting buffalo.
December 27, 1792	Grass on fire north and northwest	Muddy river Indians driving herds into their pound. Great numbers of Buffalo near this place.
December 28, 1792	Grass on fire, burning briskly about 5 miles off	Men continue driving buffalo into their pound.
December 29, 1792	Grass on fire more to west	Set by Blood who returned from stealing horses. More buffalo brought into the Pound.
January 6, 1793	Grass all on fire about <i>Spitcheyee</i>	Return to place on the <i>Stommix e pis can</i> river where they camped on Dec. 25. Good large Poplars here. Remain at this encampment until January 22
January 10, 1793	Grass on fire about the Bad (Bow) river which burns with great fury	Eventually 220 tents are pitched here having among them upwards of 2000 horses grazing at this fine level spot
January 13, 1793	Grass burning to the east	Group left their fire which spread rapidly and with great fury thanks to the long dry grass. Fortunately the wind drove it away from the larger group.
January 14, 1793	Grass fire still burning but now a long way off	Men hunting buffalo on horseback towards the Mountain for next several days, as they are plentiful there.
January 15, 1793	Grass still burning	These fires burning off the old grass, in the ensuing Spring & Summer makes excellent fine sweet feed for the Horses & Buffalo, &c.
January 19, 1793	Grass still burning furiously	
January 22, 1793	Grass still on fire all around	Move camp some 2 ½ miles further on same river. Group is about 6 miles from eastern edge of the mountains. Remain at this encampment until January 30.

Table 1 (cont'd): Fidler's (1991) itinerary and observations on burning by the Piikani.

January 31, 1793	Grass all burnt throughout the day's journey	A few days into return trip to Buckingham House. Pitch tents again at the spot of previous encampments at the fork of the <i>Stommix e pis can</i> and <i>Spitcheyee</i> rivers No woods but the one hammock where they camp,.
February 1, 1793	Grass all burnt here	Camp near encampment of December 14. They are now 7 miles up the <i>Spitcheyee</i> which fortunately is a good place for firewood. Muddy river Indians running buffalo; kill 4.
February 3, 1793	Most of grass along the day's route burnt	Camp close to encampment of December 13 on the <i>Ee too ki</i> up river, near where it joins the <i>Spitcheyee</i> . When they passed here then there was very fine grass
February 4, 1793	Grass all burnt	Arrive at Bad river and camp about 1 ½ miles below where the <i>Spitcheyee</i> joins it. Good firewood so they stay two days.
February 26, 1793	Grass all burnt from the Red Deers river to the creek where they are presently	Muddy river Indians running buffalo and wolves.
March 8, 1793	Plain lately burnt	They are now a few miles from Battle river. Put up at some small hammocks of aspen where 17 tents of Blood Indians have been residing for some time. Men killed a few buffalo. Next day put up at a Pound where 25 Tents of Blood Indians have been for a long while.
March 11, 1793	Grass all burnt	Traveling along banks of Battle river. Men killed a few bull buffalo but no cows anywhere, as the Blood Indians have lived here most of the winter and driven them away.
March 12, 1793	Grass all burnt as before	
March 13, 1793	Grass all burnt as before...Grass on fire to the Southwards	Men killed a few cows. The Muddy river Indians think the fire burns where they left their Tents & families some days before.
March 14, 1793	Grass all burnt as before	
March 15, 1793	Grass all burnt as before	Men killed a few buffalo.
March 16, 1793	Grass all burnt between Battle river and the small creek they have passed by	Some 3 miles further, camp where there is plenty of good grass which the horses need.
March 19, 1793	Grass burnt in several places	Cross Painted (Vermilion) river near Buckingham House. The burnt ground is interspersed with small hammocks of small aspen and willow.

References cited

- Alberta Research Council
2003 *Cypress Hills Biological Research in Support of Ecosystem Management*. Cypress Hills Interprovincial Park, Alberta.
- Anderson, N. Kat, and G.P. Nabhan
1991 Gardeners of Eden. *Wilderness* 55(194):27-30.
- Baker, William L.
2002 Indians and Fire in the Rocky Mountains: The Wilderness Hypothesis Renewed. In *Fire, Native Peoples, and the Natural Landscape*, edited by Thomas Vale, pp. 41-76. Island Press, Washington.
- Barnosky, C.W.
1989 Postglacial Vegetation and Climate in the Northwestern Great Plains of Montana. *Quaternary Research* 31:57-73.
- Barnosky, C.W., E.C. Grimm, and H.E. Wright, Jr
1987 Towards a Postglacial History of the Northern Great Plains: A Review of the Paleoecologic Problems. *Annals of the Carnegie Museum* 56:259-273.
- Barrett, S.W.
1981 Relationship of Indian-Caused Fires to the Ecology of Western Montana Forests. MSc Thesis, Resource Conservation, University of Montana, Missoula.
- Barrett, S.W., and S.F. Arno
1982 Indian Fires as an Ecological Influence in the Northern Rockies. *Journal of Forestry* 78:647-651.
- 1999 Indian Fires in the Northern Rockies: Ethnohistory and Ecology. In *Indians, Fire and the Land in the Pacific Northwest*, edited by R. Boyd, pp. 50-64. Oregon State University Press, Corvallis.
- Bastien, Betty
2004 *Blackfoot Ways of Knowing: The Worldview of the Siksikaitsitapi*. University of Calgary Press, Calgary.
- Bella, Leslie
1987 *Parks for Profit*. Harvest House, Montreal.
- Blackfoot Gallery Committee (editor)
2001 *Nitsitapiisinni: The Story of the Blackfoot People*. The Glenbow Museum, Calgary.
- Botkin, D.B.

1990 *Discordant Harmonies: A New Ecology for the Twenty-First Century*. Oxford University Press, New York.

Boyd, R. (editor)

1999 *Indians, Fire and the Land in the Pacific Northwest*. Oregon State University Press, Corvallis.

Bradley, C.E., and D.G. Smith

1986 Plains Cottonwood Recruitment and Survival on a Prairie Meandering River Floodplain, Milk River, Southern Alberta and Northern Montana. *Canadian Journal of Botany* 64:1433–1442.

Breitung, A.J.

1954 A Botanical Survey of the Cypress Hills. *Canadian Field-Naturalist* 68:55–92.

Brink, J., and M. Rollans

1990 Thoughts on the Structure and Function of Drive Lane Systems at Communal Buffalo Jumps. In *Hunters of the Recent Past*, edited by L.B. Davis and B.O.K. Reeves, pp. 152-167. Unwin Hyman, London.

Budiansky, S.

1995 *Nature's Keepers: The New Science of Nature Management*. Free Press, New York.

Burrows, W. R., P. King, P. J. Lewis, B. Kochtubajda, B. Snyder, and V. Turcotte

2002 Lightning Occurrence Patterns over Canada and Adjacent United States from Lightning Detection Network Observations. *Atmosphere-Ocean* 40(1):59-81.

Coupland, R.T.

1950 Ecology of Mixed Prairie in Canada. *Ecological Monographs* 20(4):271–315.

Dawson, George M.

n.d. *Travels of George M. Dawson in the North-West Territories of Canada in the Year 1881*, Edited by William J. Ross. W.J. Ross, Calgary.

1884 *Report on the Region in the Vicinity of the Bow and Belly Rivers, North-West Territory*. Geological and Natural History Survey of Canada. Dawson Brothers, Montreal.

Denevan, W.

1992 The Pristine Myth: The Landscape of the Americas in 1492. *Annals of the Association of American Geographers* 82:369–385.

Dickinson, William R.

1995 The Times are Always Changing: The Holocene Saga. *Geological Society of America Bulletin* 107(1):1-7.

Dormaar, J.F.

1997 Sweetgrass Hills, Montana, USA. *Alberta Archaeological Review Supplement* pp. 4–27.

2003 *Sweetgrass Hills: A Natural and Cultural History*. Lethbridge Historical Society, Lethbridge.

Fidler, Peter.

1991 *Journal of a Journey over Land from Buckingham House to the Rocky Mountains in 1792* &3. Ed. Bruce Haig. 2nd edition. Historical Research Centre, Lethbridge, Alberta.

Godfrey, W.E.

1950 *Birds of the Cypress Hills and Flotten Lake Regions, Saskatchewan*. Biological Series 40, Bulletin 120, National Museum of Canada, Ottawa.

Gruell, G.E.

1985 Fire on the Early Western Landscape: An Annotated Record of Wildland Fires 1776–1900. *Northwest Science* 59(2):97–107.

Halladay, I.R.

1965 Recent Biota of the Cypress Hills Plateau: A General Survey of the Natural History. In *Cypress Hills Plateau: Alberta and Saskatchewan*, edited by R.L. Zell, pp. 37–54. Guidebook, Part I, Technical Papers, 15th Annual Field Conference, September, 1965. The Alberta Society of Petroleum Geologists.

Henderson, Norman

1994 Replicating Dog Travois Travel on the Northern Plains. *Plains Anthropologist* 39:145-159.

Higgins, K.F.

1986 *Interpretation and Compendium of Historical Fire Accounts in the Northern Great Plains*. United States Department of the Interior Fish and Wildlife Service, Resource Publication 161, Washington, D.C.

Johnson, Edward A., and Kiyoko Miyanishi (editors)

2001 *Forest Fires: Behavior and Ecological Effects*. Academic Press, San Diego.

2007 *Plant Disturbance Ecology: The Process and the Response*. Elsevier, Amsterdam.

Johnston, A.

1987 *Plants and the Blackfoot*. Occasional Paper No. 15. Lethbridge Historical Society, Historical Society of Alberta, Lethbridge, Alberta.

Latham, Don, and Earle Williams

2001 Lightning and Forest Fires. In *Forest Fires: Behavior and Ecological Effects*, edited by Edward A. Johnson and Kiyoko Miyanishi, pp. 376-418. Academic Press, San Diego.

Lewis, H.T.

1982a *A Time For Burning*. Boreal Institute for Northern Studies Occasional Publication No. 17. Boreal Institute for Northern Studies, University of Alberta, Edmonton.

1982b Fire Technology and Resource Management in Aboriginal North America and Australia. In *Resource Managers: North American and Australian Hunter-Gatherers*, edited by N.M. Williams and E.S. Nunn, pp. 45–67. Australian Institute for Aboriginal Studies, Canberra.

1985 Why Indians Burned: Specific Versus General Reasons. In *Proceedings, Symposium and Workshop on Wilderness Fire*, edited by J.E. Lotan, B.M. Kilgore, W.C. Fisher, and R.W. Mutch, pp. 75–86. Intermountain Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Missoula, Montana.

1989a A Parable of Fire: Hunter-Gatherers in Canada and Australia. In *Traditional Ecological Knowledge: A Collection of Essays*, edited by R.E. Johannes, pp. 11–19. IUCN, The World Conservation Union.

1989b Ecological and Technological Knowledge of Fire: Aborigines Versus Park Rangers in Northern Australia. *American Anthropologist* 91:940–961.

Lewis, Henry T., and T.A. Ferguson

1999 Yards, Corridors, and Mosaics: How to Burn a Boreal Forest. In *Indians, Fire and the Land in the Pacific Northwest*, edited by R. Boyd, pp. 164–184. Oregon State University Press, Corvallis.

Mahoney, J.M., and S.B. Rood

1998 Streamflow Requirements for Cottonwood Seedling Recruitment – An Integrative Model. *Wetlands* 18(4):634–645.

McClintock, Walter

1948 *Blackfoot Medicine-Pipe Ceremony*. Southwest Museum Leaflets, No. 21. Southwest Museum, Los Angeles.

1968 *The Old North Trail: Life, Legends and Religion of the Blackfeet Indians*. University of Nebraska Press, Lincoln. Originally published by Macmillan, London, 1910.

McDougall, John

1911 *On Western Trails in the Early Seventies: Frontier Pioneer Life in the Canadian North-West*. William Briggs, Toronto.

McCorquedale, B.

1965 Some Particular Aspects of the Biota of the Cypress Hills. In *Cypress Hills Plateau, Alberta and Saskatchewan*, edited by R.L. Zell, pp. 55–65. Guidebook, Part I, Technical Papers, 15th Annual Field Conference, September, 1965. The Alberta Society of Petroleum Geologists.

Michael, Hope Hargrave.

1972 *90 Years at Elkwater Lake, Cypress Hills, Alberta: An Interesting Account of the Early Days in the Elkwater Area*. Medicine Hat Historical and Museum Foundation, Medicine Hat.

Morrow, J. W.

1974 *Early History of the Medicine Hat Country*. 1923. Revised, Medicine Hat and District Historical Society, Medicine Hat.

Moss, E.H.

1932 The Vegetation of Alberta: IV. The Poplar Association and Related Vegetation of Central Alberta. *The Journal of Ecology* 20(2):380–415.

Nelson, J.G., and R.E. England

1971 Some Comments on the Causes and Effects of Fire in the Northern Grasslands Area of Canada and the Nearby United States, ca. 1750-1900. *Canadian Geographer* 15(4):295-306.

Newsome, R.D., and R.L. Dix

1968 The Forests of the Cypress Hills, Alberta and Saskatchewan, Canada. *American Midland Naturalist* 80:118–185.

Oetelaar, Gerald A.

2004 Stone Circles, Social Organization and Special Places: Forbis's Skepticism Revisited. In *Archaeology on the Edge: New Perspectives from the Northern Plains*, edited by Brian Kooyman and Jane H. Kelley, Occasional Paper 4, Canadian Archaeological Association.

Oetelaar, Gerald A., and David Meyer

2006 Movement and Aboriginal Landscapes: A Comparative Approach. *Plains Anthropologist* 51(199):355-374

Oetelaar, Gerald A., and D. Joy Oetelaar

2007 The New Ecology and Landscape Archaeology: Incorporating the Anthropogenic Factor in Models of Settlement Systems in the Canadian Prairie Ecozone. *Canadian Journal of Archaeology* 31(3):65-92.

2006 People, Places and Paths: The Cypress Hills and the *Niitsitapi* Landscape of Southern Alberta. *Plains Anthropologist* Memoir Number 38: Changing Opportunities and Challenges: Human-Environmental Interaction in the Canadian Prairie Ecozone. . *Plains Anthropologist* 51(199):375-398.

Oetelaar, D.Joy, and Gerald A. Oetelaar

2003 *Springs and Sacred Groves: The Location and Management of Critical Resources on the Nitsitapii Landscape*. Paper presented at the 36th Annual Chacmool Conference, November 13–16, 2003, University of Calgary, Calgary.

Peacock, S.L.

1992 Piikáni Ethnobotany: Traditional Plant Knowledge of the Piikáni Peoples of the Northwestern Plains. Unpublished MA Thesis, Department of Archaeology, University of Calgary, Calgary, AB

Pickard, Rodney J.

1981 *Land Use and Forest Cover Change in the Crowsnest Pass to 1945*. MSc Thesis, Committee on Resources and the Environment. University of Calgary, Calgary.

Pielou, E.C.

1991 *After the Ice Age: The Return of Life to Glaciated North America*. The University of Chicago Press, Chicago.

Pyne, S.

1982 *Fire in America*. Princeton University Press, Princeton.

2006 The Fire of Life: Thinking about the Biological Basis of Fire. In *Wildfire: A Century of Failed Forest Policy*, edited by George Wuerthner, pp. 5-7. Island Press, Washington.

Reeves, Brian O. K.

1990 Communal Bison Hunters of the Northern Plains. In *Hunters of the Recent Past*, edited by L.B. Davis and B.O.K. Reeves, pp. 168-194. Unwin Hyman, London.

Russell, L.S.

1951 Land Snails of the Cypress Hills and Their Significance. *Canadian Field-Naturalist* 65:174–175.

Sanderson, James F

1965 Indian Tales of the Canadian Prairies. *Alberta Historical Review* 13(3):7-21.

Sauchyn, M.A., and D.J. Sauchyn

1991 A Continuous Record of Holocene Pollen from Harris Lake, Southwestern Saskatchewan, Canada. *Palaeogeography, Palaeoclimatology, Palaeoecology* 88:13–23.

Scace, Robert Chase

1972 The Management and Use of a Canadian Plains Oasis: The Cypress Hills Public Reserves. Unpublished Doctor of Philosophy Dissertation, Department of Geography, University of Calgary, Calgary, AB.

Siegfried, E.V.

1994 Ethnobotany of the Northern Cree of Wabasca/Desmarais. Unpublished Master's Thesis, Department of Archaeology, University of Calgary, Calgary, AB.

Smith, D.G., and C.M. Pearce

2000 River Ice and its Role in Limiting Woodland Development on a Sandy Braid-Plain, Milk River, Montana. *Wetlands* 20(3):232–250.

Stewart, O.C.

1955 Why Were the Prairies Treeless? *Southwestern Lore* 20(4):59–64.

2002 *Forgotten Fires: Native Americans and the Transient Wilderness*. University of Oklahoma Press, Norman.

Strong, W.L., and L.V. Hills

2003 Post-Hypsithermal Plant Disjunctions in Western Alberta, Canada. *Journal of Biogeography* 30:419–430.

2005 Late-Glacial and Holocene Palaeovegetation Zonal Reconstruction for Central and North-Central America. *Journal of Biogeography* 32:1043–1062.

Thompson, L.S., and J. Kuijt

1976 Montane and Subalpine Plants of the Sweetgrass Hills, Montana, and their Relation to Early Postglacial Environments of the Northern Great Plains. *Canadian Field-Naturalist* 90(4):432–448.

Uhlenbeck, C.C.

1912 *A New Series of Blackfoot Texts from the Southern Peigans Blackfoot Reservation Teton County Montana, with the help of Joseph Tatsey*. Johannes Muller, Amsterdam.

Vale, Thomas

2002 *Fire, Native Peoples, and the Natural Landscape*. Island Press, Washington.

2006 Fire and Native Peoples: A Natural or Humanized Landscape? In *Wildfire: A Century of Failed Forest Policy*, edited by George Wuerthner, pp. 13-16. Island Press, Washington.

Vickers, J.R., and T.R. Peck

2004 Islands in a Seas of Grass: The Significance of Wood in Winter Campsite Selection on the Northwestern Plains. In *Archaeology on the Edge: New Perspectives from the Northern Plains*, edited by B. Kooyman and J. Kelley, pp. 95–124. University of Calgary Press, Calgary.

White, Cliff

1985 *Wildland Fires in Banff National Park 1880-1980*. Occasional Paper No. 3, National Parks Branch, Parks Canada.

Wilson, R. N.

1910 The Sacrificial Rite of the Blackfoot. *Transactions of the Royal Society of Canada* 3: 3-21.

Wilson, Michael C., Len V. Hills, Brian O.K. Reeves, and Stephen A. Aaberg

1988 Bitterroot, *Lewisia rediviva*, in Southwestern Alberta: Cultural Versus Natural Dispersal *The Canadian Field-Naturalist* 102(3):515-522.

Wissler, Clark.

1905 The Blackfoot Indians. In *Ethnology of Canada and Newfoundland*, edited by David Boyle, pp. 162-78. Toronto.

Yansa, C.H.

2006 The Timing and Nature of Later Quaternary Vegetation Changes in the Northern Great Plains, USA and Canada: A Re-assessment of the Spruce Phase. *Quaternary Science Reviews* 25:263–281.

2007 Lake Records of Northern Plains Paleoindian and Early Archaic Environments: The Park Oasis Hypothesis. *Plains Anthropologist* 52(201):109-144.

Zimmerer, K.S.

1994 Human Geography and the “New Ecology”: The Prospect and Promise of Integration. *Annals of the Association of American Geographers* 84(1):108–125.

Figure Captions

Figure 1: Photograph of Police Point Park ca 1910 (*courtesy of Medicine Hat Museum and Art Gallery*).

Figure 2: Photograph of Police Point Park today (*courtesy of Jim Marshall*).

ⁱ There are numerous competing stories which claim to explain how Medicine Hat received its name, with sixteen different versions in the city's collection alone (Meyer 2000:13). The story used here is adapted from Sanderson (1965:7-21), Gershaw (1947:22-23), Turner (1950:9), and Little Chief (M4394/12:1-5).



