ETHNOBOTANY OF TWO CREE COMMUNITIES IN THE SOUTHERN BOREAL FOREST OF SASKATCHEWAN

A Thesis Submitted to the College of Graduate Studies
and Research in Partial Fulfillment of the Requirements
for the Degree of Master of Arts
in the Department of Anthropology and Archaeology
University of Saskatchewan
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June, 1997

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Abstract

Studies were conducted at two Cree communities in the southern boreal forest of Saskatchewan, to determine the nature of the interactions between the people and their plant environment. Investigations took the form of informal interviews and observation. As much as possible, plants were collected in order to identify them.

Some 46 species, members of 28 families, were identified by respondents as having, or having had in the past, some utility to the people. For the most part, the uses were for healing (36 species). However, 13 species were reportedly used for food or "condiments," two for non-medicinal beverages, and six for miscellaneous uses such as for diapering material, smoking mixtures, hide preparation, or food preservation. Emphasis on plants as healing agents was marked; however, it was not unusual. Such emphasis has also been noted in other ethnobotanical work conducted throughout the boreal forest.

Historic references to plant use in the boreal forest were found to be somewhat sparse, though in relatively recent times several ethnobotanies have been compiled in this area. Information from other boreal forest ethnobotanical studies was included for comparative purposes and showed some similarities, but also considerable variation, especially in medicinal applications.

Applications of this research include contributions to the preservation of traditional knowledge, an expansion of the ethnobotanical database, and the application of ethnobotanical information to interpreting the boreal forest archaeological record.

Acknowledgements

I wish to thank everyone who helped in the completion of this thesis. To Donna Burns of the James Smith Cree Nation for helping and teaching me throughout two summers of fieldwork, and to Beulah Flett, from the Shoal Lake Cree Nation, for her help and for sharing some of her knowledge of tradition with me, I am indebted. They helped me immensely, not least of all by sharing their kindness and humour.

I gratefully acknowledge the elders who chose to participate in this project. They are truly wonderful, generous people, caretakers of a very large body of knowledge, not only regarding traditional plant use, but also encompassing many other aspects of traditional culture. I feel very honored to have had the chance to meet and talk with them, and I am grateful for the trust they showed in sharing some of their knowledge with me.

I would also like to thank the Chiefs and Councils of the James Smith and Shoal Lake Cree Nations, for allowing me into their communities to do this project, as well as the band office staff and other community members for all their help (especially Sharon Burns and Michael Marion at James Smith and Gerald Bear at Shoal Lake). I owe a great debt of gratitude to the George Burns family, who welcomed me into their home and made me feel like part of their family. Their kindness, generosity and humour were much appreciated.

My supervisors, Dr. David Meyer of the University of Saskatchewan and Dr. Robin Marles of Brandon University, and the other member of my committee, Dr. Vernon Harms of the University of Saskatchewan, provided much needed advice and support, for which I thank them. I would also like to thank Dr. Taylor Steeves for his insightful comments on the final draft of this thesis. For generously sharing ideas and resources in the later stages of my work, I thank

Dr. Alwynne Beaudoin and Dr. Jack Ives, both of the Provincial Museum of Alberta. I am grateful also to Anna Leighton for her inspiration and advice, to Peggy Ann Ryan of the Fraser Herbarium at the University of Saskatchewan, for all her assistance, and to Shelley McConnell for creating the wonderful maps.

Thank you to all my friends, who listened to me, advised me, and above all encouraged me in this endeavour, especially D'Arcy Green, Shelley McConnell, and Denise Clavelle. A big thank you also goes to my family, especially my parents, Evelyn and Roger Clavelle, for their unfailing support and encouragement over the years.

Finally, I must acknowledge the financial support of the Canadian Forest Service, who provided the bulk of the funding to make this important project possible. Thanks also to the Saskatchewan Heritage Foundation for their generous financial assistance.

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Chapter One: Introduction

1.1 Statement of Objectives

The boreal forest of Canada is a challenging environment in which to live. Traditional life in the boreal forest relied upon the utilization of a wide variety of resources, dispersed in microenvironmental patches over a large area. Yet a complex set of cultural adaptations, as reflected by material culture, was developed by indigenous inhabitants of this region who were able to live and indeed thrive in it. Those adaptations that involved the harvesting of faunal resources such as mammals and fish are relatively well understood (e.g. Rogers 1962 for the Round Lake Ojibwa, Skinner 1911 for the Eastern Cree and Northern Ojibwa). Use of the regional flora has not, in general, been given the same attention. Commonly, researchers have tended to describe applications related to technology such as hunting gear, shelter, and even household items and toys, while mentioning such primary uses as for food and medicines only in passing if at all, or discounting their importance outright. For example, after taking over five pages to describe the hunting and fishing techniques of the Eastern Cree, Skinner devoted a scant few lines to a vague treatment of plant foods (Skinner 1911), while Helm and Leacock (1971) made this statement: "Plant foods were inconsequential in the diet, though blueberries, cranberries, and edible shoots and bulbs were collected in the summer." There seem to be inconsistencies inherent in this comment. The word "inconsequential" may be accurate if only the caloric element is taken into consideration; however, attention to cultural preferences may reveal a different situation. In this thesis, my intent is to explore the interactions between people and plants in the southern part of the boreal forest and adjacent parklands of east-central Saskatchewan.

Ethnobotany, as defined by Ford (1978), among others, is much more than a catalogue of plant uses. Rather, it should recognize "the reciprocal and dynamic aspect of the human interactions with plants" (Ford 1978:31), including such aspects as cultural significance, naming systems (taxonomy), and the role of plants in mythology. Ethnobotanical studies are important for many reasons. They can help to fill in the gaps left by earlier research, thus contributing to a more complete understanding of the culture, both past and present, of the research area. Ethnobotany can bring to attention plants which were useful in the past, but whose importance has perhaps declined due to acculturative pressures. Such plants may then be investigated for potential modern use, to enrich not only the culture of origin, but peoples worldwide (e.g., Turner 1981). In addition, ethnobotanical studies may help preserve some aspects of culture which might otherwise be lost due to factors such as the passing away of knowledgeable elders.

This author's background in archaeology has resulted in an interest in the potential archaeological applications of this research. Certainly, archaeologists should be aware of the importance of plants in the daily lives of the people that lived in the boreal forest, and that are now represented in the archaeological record. In that sense, this project will be of value to archaeologists, for while it will deal primarily with the contemporary situation and the recent past (i.e., as understood from ethnohistoric sources), there is some validity in the cautious use of analogy to extrapolate back to earlier times. Admittedly, and as archaeologists know, the use of analogy has been contentious, an important criticism being that analogies can limit what we can learn about the past to what we already know about the present (Gould 1980:29). As well, some researchers contend that not only is the ethnographic record ethnocentric, but it also has a definite androcentric bias (Conkey 1993:41-50). Despite these objections, the author feels that as long as analogy is not used simplistically to illustrate the past, but rather as a tool for comparison, it can be an effective aid. Indeed, ethnobotanical studies may help to correct the existing research bias in favour of men and men's activities (e.g., hunting), since plant-related activities were often in the domain of women's work.

Recognition of the role of plants in boreal forest peoples' culture is essential if one is to identify the artifacts that may indicate plant-related activities. Peacock's (1991) ethnobotanical work with the Piikàni in Alberta was important in this regard because she included information on the material culture involved in the collection, processing and storage of specific plant foods in the plains and foothills areas of southern Alberta. She indicated which of these items might survive in the archaeological record, and in what form. The author hopes this work will be of similar utility to boreal forest archaeologists, and contribute to a better understanding of the archaeological record.

1.2 Societal Groupings and Territories

Field research was concentrated in the communities of James Smith Reserve and Shoal Lake Reserve (see Figure 1.1). The people of these communities are Crees, whose ancestors were hunting and gathering peoples. Prior to Euro-Canadian contact, most notably that of the fur trade, they are believed to have lived as transhumant hunter-gatherers with a well-defined seasonal round that allowed them to effectively utilize the wide variety of

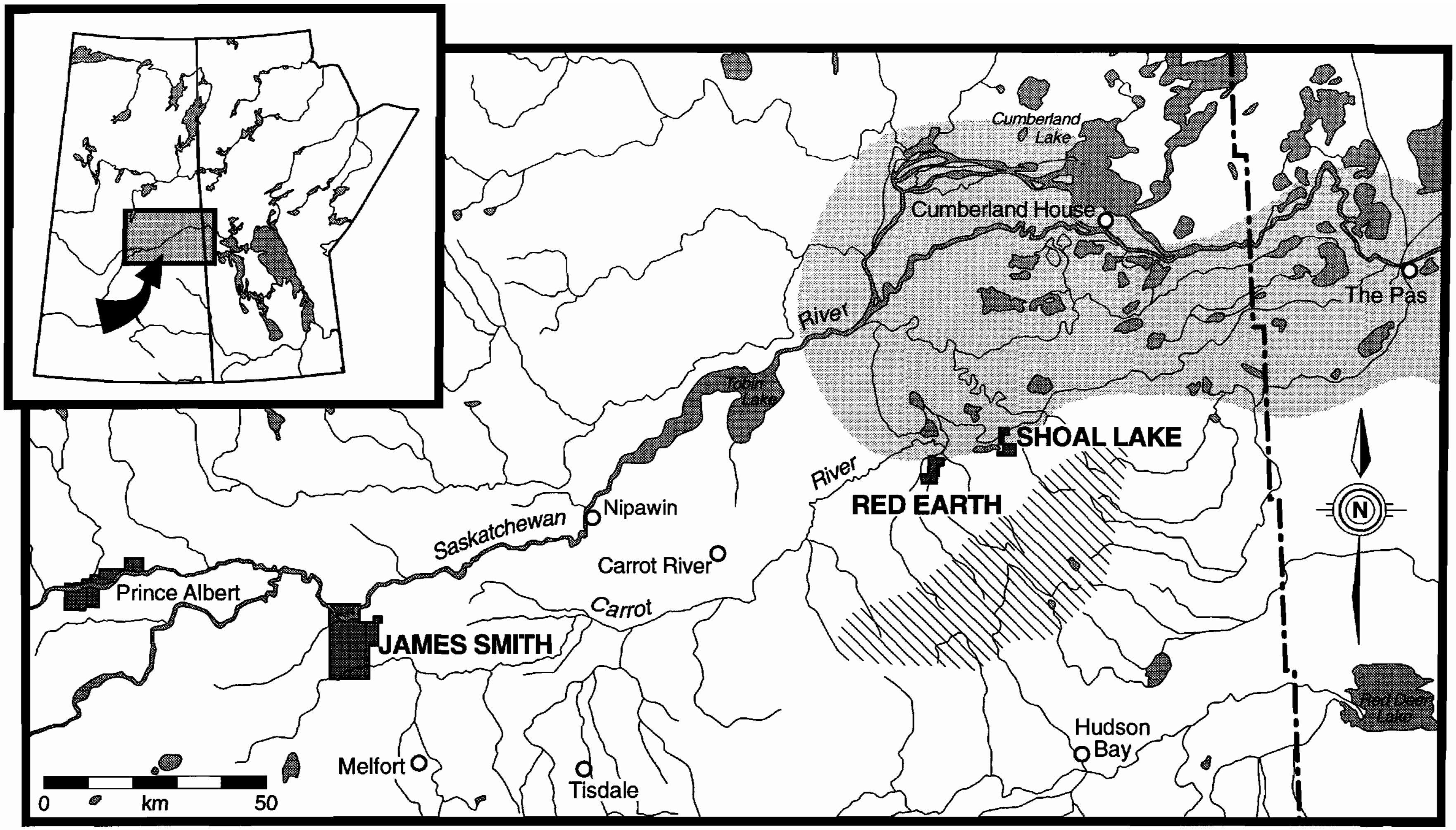

Figure 1.1 Locations of the Study Communities.

Saskatchewan River Delta   Pasquia Hills resources provided by the boreal forest and parklands environments. Even with the advent of fur trade goods and influence in the area in the early 1700s (Helm and Leacock 1971, Thistle 1986), there is evidence that most Crees were able to integrate their participation in the market economy into the larger fabric of their lives, and did not immediately become dependent upon European goods (Thistle 1986, Russell 1991:11-12) as has been assumed by many scholars (e.g., Mandelbaum 1979 [1940]:29-31). Indeed, throughout the world, hunting and gathering groups almost certainly had long exposure (most likely through trade) to cultures with more complex social systems. Nevertheless, many of these groups managed to maintain their own cultural systems, as proven by the fact that they survived into the historic period (Wobst 1974). This initial contact period, during which the Crees largely maintained traditional lifeways (albeit with tool kits augmented by European items), has been termed the "era of early contacts" (Helm and Leacock 1971). Following this period, Helm and Damas have distinguished the "contact-traditional horizon," whose defining characteristic "is the establishment of all-native communities made up of permanent dwellings" (Helm and Damas 1963:10). This locale, the permanent base community, became the temporally and socially dominant type of grouping, while the people would continue to resort to seasonal camps for certain subsistence activities. In 1971, Helm and Leacock modified the concept so that the two main markers of the transition from the era of early contacts were: 1) that contact between native people and Euro-Canadian society was channeled through two major institutions: the church and the fur trade; and 2) that contact with these agents was infrequent. They referred to the ensuing period as the "stabilized fur and mission stage" (Helm and Leacock 1971:353). This definition is not as rigid as that for the contact-traditional, and it makes the dates of the transition from the era of early contacts somewhat earlier, since the dates no longer depend on narrow definitions of community and dwelling type. The stabilized fur and mission stage would have commenced around 1774 in the study area, with the Hudson's Bay Company's establishment of Cumberland House.

Hunting and gathering peoples worldwide share similarities of social organization (Lee and Devore 1968), and this kind of sociopolitical integration is known as "band society." A lot of research interest has been focused on band societies, especially in the 1950s and 1960s, (e.g. in Canada, Helm 1965, Leacock 1969, Rogers 1969, and more globally, Lee and Devore 1968), which can be somewhat confusing to review because of inconsistencies in (or lack of) definition of terms such as "band." However, an understanding of band societies has emerged which works well in the northern Canadian context (cf. Rogers and Smith 1981, whose work is based on Helm 1965). This definition of band society is considered to have been applicable through the era of early contacts, and certain aspects of it remained into the contact traditional or stabilized fur and mission stage. Using this system, the most inclusive grouping would have been the linguistically-based tribe, or nation (the Cree people as a whole), which was divided into numerous named regional bands. These regional bands comprised many local bands, which in turn were subdivided into task groups, and finally households. For the purposes of the present research, the regional and local bands are the most useful units to consider.

Commonly a local band would include the father and mother and a set of adult siblings and their families (Helm 1965:375-376), with one dominant personage or family being the focal point of the group. In general, the size of a local band remained between twenty-five and fifty persons; rarely would it ever exceed one hundred. Too large a group could tax local resources, with the result that the group would split; if numbers fell too low, the continued success of the group as an economic unit would be questionable. (Of course, exceptions would have existed on either end of the continuum.) The temporal element of the local band was variable: such groups may have disbanded after only a few seasons, or persisted for generations. The continuity of the group would be contingent on the presence of a respected leader; upon the death of such a person, the group would disband if no suitable replacement emerged from the membership (Helm 1965:375).

Regional bands generally numbered around two hundred persons (Helm 1965:375). These larger groups were made up of all the local bands in an area (which often seemed to correspond to a drainage basin) and whose size would depend, among other things, upon resource density (Rogers 1969:44-46). Whereas membership in a local band was more or less fluid, that is, couples had choice and flexibility in residence (Helm 1965:371), membership in a regional band was by birth and usually remained constant throughout the individual's lifetime. Regional bands were temporally more stable than local bands (Helm 1965:375), and were often recognized and named by outsiders (Rogers 1969:38, Meyer and Thistle 1995).

One important characteristic of band societies that has been noted throughout the world is their seasonal cycle of aggregation and dispersal. During most seasons, the population would live in the small local band groupings; however, the entire regional band would aggregate at a mutually-agreed-upon site at least once each year (e.g. Lee and Devore 1968:12). In the boreal forest of Canada, these gatherings generally occurred in the spring. Researchers have used historic as well as archaeological evidence to locate six named aggregation centres along the Saskatchewan River (Meyer 1982b, Meyer and Thistle 1995). The evidence indicates that use of these areas spanned considerable time depth and persisted through to the 1700s, when fur trade posts were built at many of the sites. The fact that fur trade posts were commonly positioned at or near the aggregating centres indicates that the importance and stability of these centres as gathering places was recognized by the European traders (Meyer and Thistle 1995). A less common strategy was to build the post between aggregating centres, on the border between two regional bands, thus trying to encourage trade with members of both (Meyer and Thistle 1995).

The communities of interest in this thesis comprise descendants of members of two of these named regional bands. The area encompassed by present-day James Smith Reserve includes the site of the aggregating centre known as *pehonan* "the waiting place" (Meyer and Thistle 1995). Prior to the smallpox epidemic of 1780-81, the people of the area were part of the Pigogomew Cree group (Russell 1991). After Fort à La Corne was built there in 1846, the people who traded there were referred to as the Fort à La Corne Cree, and included both Plains and Woods Crees (Meyer 1985:37). The ancestors of the Shoal Lake people were a local band that would have congregated downstream at *opaskweyaw*, "narrows between woods" (Meyer 1985:37), and were part of the regional band known historically as the "Basquia Indians." The latter, Basquia, or some variant spelling, is a rendering of the Cree word which in contemporary orthography is "Opaskweyaw." Meyer (e.g., Meyer and Thistle 1995) has employed this latter form and it is used herein. After the epidemic, both Pehonan and Opaskweyaw (present-day The Pas) continued to be important locales, despite drastic depopulation and a subsequent influx of Swampy Crees and Saulteaux people from the east and southeast.

The territorial extent of the people historically known as Fort à La Corne Crees is not known for certain; however, it must have extended south into the aspen parklands (Meyer 1985:37). The western and northern boundaries are unknown, but Meyer (1985:37-38) has found evidence that the eastern boundary coincided with the western edge of the Saskatchewan River Delta, which therefore marked the informal border between the Fort à La Corne and Opaskweyaw Crees.

The Opaskweyaw Crees as a regional band occupied the Saskatchewan River Delta and the uplands to the south. Five main areas were occupied by local bands of the Opaskweyaw Crees by the mid-1800s; Shoal Lake, 100 km southwest of Opaskweyaw, was the farthest from the rendezvous centre, and the closest to the territory of the Fort à La Corne Crees (Meyer 1985:34-37). The significance of this will become apparent in Chapter Three.

1.3 Methods

1.3.1 Location and Season of Field Research

Field research was mostly conducted on the James Smith and Shoal Lake Reserves, within the southern part of the boreal forest of east-central Saskatchewan (see Figure 1.2). The phrase "the people of" James Smith, Shoal Lake, etc., as used in this thesis, is meant to indicate those who grew up and/or currently live on the reserve, generally in a fairly cohesive community referable by the same name. James Smith Reserve was visited on several occasions and for extended periods over the course of the summers (May through August) of 1994 and 1995, while Shoal Lake Reserve was visited in August of 1995.

These communities, though not far apart geographically, are quite different in terms of the environmental zones they occupy as well as certain aspects of their culture. James Smith is situated in the uppermost part of the

Saskatchewan River valley, very close to the Boreal Forest-Plains transition zone. Cree culture in this area is characteristically a mixture of plains and boreal culture traits (David Meyer 1996, personal communication); this transitional area appears to include Cree communities in the southern boreal forest from Red Earth west across Saskatchewan. As examples of this mix of culture traits, these people traditionally have placed great value on horses (Meyer 1985:50, 196-197), which was typical of the Plains Cree and other plains peoples, and they speak the "y" or "Plains" dialect of Cree. Yet, they consider themselves to belong to the Woods Cree cultural group (Donna Burns 1994, personal communication), and indeed, the James Smith reserve lies within the area identified as Western Woods Cree territory as of AD 1700 (Smith 1981). In addition, many of the subsistence strategies (involving hunting as well as gathering) at James Smith have been forest-oriented.

In contrast, the community of Shoal Lake lies on the southern margin of the Saskatchewan River delta, and is thus well positioned to utilize the rich floral and faunal resources of that unique environmental area as well as those of the Boreal Forest proper. The people of this community are Swampy Cree ("n" dialect), representing the westernmost extension of this cultural group. The people of Shoal Lake, like the Swampy Cree to the east, are very much boreal forest adapted in terms of traditional subsistence strategies. In addition, canoe travel, a definitively boreal mode of transportation, was relied upon during open-water seasons.

Therefore, these two communities, in their different environments, represent two distinct Cree subcultures. This statement is supported by the perceptions of the people themselves, as well as by historic and even pre-contact evidence, including the aforementioned data on aggregating centres as indications of Cree social geography in the Saskatchewan River valley.

1.3.2 Data Collection and Plant Identification

Data collection was primarily through informal interviews with sixteen respondents in their homes. A person from each reserve collaborated in the research as a facilitator and occasional interpreter. These people were trained by this author in techniques of recording information and collecting ethnobotanical specimens. The elders received traditional compensations in the form of tobacco, blankets, household items, food, gas, and/or small gifts of money. For the most part, the interviews took place on the reserves themselves, though one was conducted at the Nipawin home of a woman originally from Shoal Lake. The majority of the respondents (10 of 16) were women (6 of 8 at Shoal Lake, 4 of 8 at James Smith). Most of the respondents were comfortable speaking English, although an interpreter was occasionally needed to translate some more specialized terms into English.

Because the interviews did not follow a specific set of questions about each plant mentioned, they were most useful as a survey of plants known to the respondents; as well, they provided some indication of the types of applications of the plants, and the extent to which particular plants were known and used. For reasons of confidentiality, names of respondents are not used. Instead, a system is employed, in which a code indicates the community and gender of each respondent. A list of these codes, with a brief statement of age, and spousal or sibling relationship with other respondents where applicable, is presented in Appendix B.

Plants mentioned in interviews were verified whenever possible by collecting samples of the plant in the field with the respondent (see Plates 1.1 and 1.2). Unfortunately, some respondents (especially at Shoal Lake) were unable to accompany the researcher to the field. There were various reasons

Plate 1.1 Two elders removing strips of balsam fir *(Abies balsamea)* bark for use in healing.

Plate 1.2 Freshly dug ratroot *(Acorus americanus)* rhizomes.

for this, most notably the physical restrictions of some of the elders. Alternate means of determining the correct plant were therefore employed. The first was to research the Cree name of the plant in published literature to determine the scientific name, then collect a sample of the plant and show it to the original respondent for verification (Leighton 1982 was used extensively for this). The second method was to have the plants mentioned by the respondent identified in the field by a local assistant (who was quite knowledgeable in her own right). However, some plants remain unidentified for several reasons: the Cree name could not be found in the literature; the area where the plant could be found was inaccessible due to flooding and bad roads; the respondents (and the researcher) were reluctant to enter certain areas because of a particularly bad bear problem. The list of these unidentified plants appears as Appendix D.

Pressed samples of the plants were determined through the fall and winter of 1994 and 1995, using the keys in *Budd's Flora* (Looman and Best 1987) and *Flora of Alberta* (Moss and Packer 1983). Scientific names used in the text are according to Kartesz (1994). Authorities and synonymies for the mosses were checked using the *Checklist of the Mosses of Canada* (Ireland et al. 1980). The scientific names are listed, with authorities and family affiliations (and common synonyms, where applicable), in Appendix C. Appendix C also includes the Cree names and the common English names of each plant. Species identifications were checked against herbarium specimens housed in the W. P. Fraser Herbarium at the University of Saskatchewan.

Voucher specimens have been placed in the W. P. Fraser Herbarium and the Brandon University Herbarium. In addition, teaching-style mounts of dried, pressed specimens, and an accompanying informational booklet (Clavelle 1996) have been prepared and placed with the Saskatchewan Indian Cultural

Center (SICC) in Saskatoon, as well as at the schools on the James Smith and Shoal Lake Reserves.

1.3.3 Orthography

The system of recording Cree words in this thesis follows Wolfart 1973 (a modification of Bloomfield's 1934 work). Due to software limitations, however, the circumflex has been substituted for the macron (e.g., î for i) to indicate long vowels. A guide to the system as it is used herein appears in Appendix A. Since my ability to transcribe Cree is unproven, the reader should consider any Cree words appearing herein (i.e., those not quoted from some other source) to be approximations only.

1.4 Chapter Outline

Chapter Two provides a regional overview of the glacial and vegetation history, climate, and soils of the study region, and briefly mentions some of the characteristic flora and fauna. The culture history of the study area (from late pre-Contact to the present) is outlined in Chapter Three. Chapter Four presents evidence for the importance of plant-human interactions in the boreal forest in the recent past, as well as the contemporary situation as revealed by this author's fieldwork. In Chapter Five, the relationship of ethnobotany to archaeology, through the discipline of palaeoethnobotany, is examined. The nature of the palaeoethnobotanical record is described, and some applications and problems specific to the boreal forest are suggested. Chapter Six consists of a summary of the major points, and some conclusions.

Chapter Two: Regional Environment

The boreal forest is a vast, circumpolar biome that, in North America, spans "...a number of geological and physiographic provinces, north and south across as much as 10° of latitude..." (Larsen 1980:134). Over this vast area, the physiognomy of the forest remains relatively the same, though closer attention reveals a dynamic mosaic of vegetation patches supporting a varied suite of wildlife. Climate is the major limiting factor to the extent of the boreal forest. Both the northern and southern limits are believed to be thermally established, though the exact causal relationships are not known (Elliott-Fisk 1993:35); the southern limit of this forest type is more clearly defined by precipitation in combination with temperature (Scott 1995:83-84). The boreal forest itself can be divided into three structural units: closed forest, lichen woodland, and forest-tundra ecotone (Elliott-Fisk 1993:38). The closed forest dominates the southern boreal forest, and is therefore the only unit considered in this discussion. Both the Fort à La Corne and Opaskweyaw Crees traditionally utilized this area. Also of some interest is the ecotone between the closed forest and the grassland, commonly referred to as the aspen parkland. This area formed part of the traditional territory of the Fort à La Corne Crees, as mentioned in Chapter One.

2.1 Glacial and Vegetation History

The region presently occupied by James Smith Reserve was covered by Glacial Lake Saskatchewan during the most recent glacial retreat; however, by 10 000 B. P. this area would have been dry land (Christiansen 1979, Christiansen et al. 1995), and by 9 000 B. P. a preboreal forest could have been developed (Ritchie 1976, Wendland and Bryson 1974). This forest would have been dominated by spruce (*Picea* sp.), possibly associated either sequentially or contemporaneously with various hardwood species, but with an absence of *Pinus* (Ritchie 1976, 1987:101).

Present-day Shoal Lake Reserve is located in the Saskatchewan River Delta area, and was inundated by Glacial Lake Agassiz. It did not dry out until sometime between 8700 and 8400 B. P. (Schreiner 1983), so that the spruce forest could have been developed here by around 8000 B. P. However, at about this time the gradual warming that followed the glacial retreat culminated in an extended period of continuous drought, known as the climatic optimum. As a result, this early version of the boreal forest expanded rapidly northward, and was replaced in the south by deciduous forests and grassland as these vegetation types also expanded. During the climatic optimum, then, the James Smith area would have been part of the grassland, while Shoal Lake to the northeast would have been covered by a deciduous forest or parkland-type vegetation (Wendland 1978).

The preboreal spruce forest disappeared as a distinct type by about 6500 B. P., altered mainly by the arrival of jack pine (*Pinus banksiana* Lamb., Pinaceae) from the west, and an increase in the population of birch (*Betula* spp., Betulaceae) (Ritchie 1976:1807). The current vegetation in the interior boreal forest would have developed from the primeval spruce version, while vegetation in areas near the contemporary southern margin of the boreal forest could have developed from stages of grassland or deciduous forest. The boreal forest as seen in the present achieved its current composition approximately 5000 to 6000 B. P., and although the boundaries have shifted in response to climate change, the structure has remained constant since that time (Ritchie

1976). By 4000 B. P., the climate had become cooler and wetter, allowing vegetation boundaries to shift southward to their present-day location (Vance 1991, Wendland 1978).

2.2 Regional Climate

The present climate of the study area is characterized as subhumid-cool; that is, it has relatively cold winters and warm summers (Harris et al. 1989:21, 30). According to the Koeppen classification, which draws climatic boundaries in relation to major vegetation types, it is referred to as a "Dfb or Cold 'Forest' Climate," which corresponds to the areas of aspen grove and mixedwood forest, and therefore to areas of dark brown and black to dark gray wooded soils (Chakravarti 1969:60). Average annual precipitation is 420 mm, of which 270 mm falls from May to September (Harris et al. 1989:21).

2.3 Physiography and Soils

Both study communities are situated on an extensive, gently undulating to rolling glacial plain known as the Carrot River Lowlands section, within the Manitoba-Saskatchewan Lowlands Region (Ellis and Clayton 1970:33). More specifically, James Smith Reserve overlaps parts of the Nipawin Plain and Saskatchewan River Valley subsections of the Carrot River Lowlands section, while Shoal Lake Reserve occupies part of the Delta Beaches subsection, a subdivision of the Agassiz beaches (Ellis and Clayton 1970:30), also within the Carrot River Lowlands section. The Carrot River itself is an important feature, since it is the main physical connection between the two communities. In the study region, bedrock generally consists of sedimentary material from the Upper and Lower Cretaceous periods (Harris et al. 1989:21). Elevations in the general area are on average 305 to 455 m above sea level (Kabzems et al.

1986:4), with the highest elevations being found in the southwest, and generally decreasing in a gradual slope towards the north and east.

2.3.1 The James Smith Area

The Nipawin Plain forms an area of mixed medium to coarse-textured sandy alluvial and lacustrine deposits, between the Saskatchewan River Valley and the Melfort Plain to the south. Soils in the James Smith area are quite varied, derived as they are from a variety of parent materials, including lacustrine deposits, loamy till and outwash sands and gravels. In poorly-drained areas, organic soils are common (Harris et al. 1989:21). In general, however, it may be said that soils comprise mainly Podzolic Dark Gray and Gray Wooded types, with associated meadow and peaty meadow soils, most of which are considered fair to good for agricultural production (see Plate 2.1). In addition, small areas of Black and Dark Gray Chernozemic soils, such as are characteristic of the adjacent Melfort Plain, also occur. These are rated as very good for agricultural production. Most of the area, therefore, is currently under cultivation. The Saskatchewan River Valley subsection consists of the floodplains, terraces, and dissected valley sides of the main Saskatchewan and its North branch, extending upstream to just west of Prince Albert. Some agricultural development has taken place on limited areas of alluvial terrace and floodplain soils; however, the regosols and weakly developed podzols of the valley sideslopes, and the steepness of the slopes themselves, make them unsuited for either agriculture or forestry and it has been recommended that these areas be maintained as "protection forests" (Ellis and Clayton 1970) to minimize erosion. To the southeast of the reserve itself, in the aspen parkland area that would have formed part of the traditional territory of the Fort à La

Plate 2.1 Moist meadow area on James Smith reserve.

Plate 2.2 Wetland area south of Shoal Lake reserve. The landform in the background (dark blue) is the Pasquia Hills.

Corne Crees, the soils tend to be Black or Dark Gray Chernozems. Since these soils are very productive from the standpoint of agriculture, the majority of this area is currently under cultivation.

2.3.2 The Shoal Lake Area

The Shoal Lake reserve occupies an area between the Pasquia Hills and the Saskatchewan River delta (see Figure 1.1, also Plate 2.2). The Delta Beaches area occupied by Shoal Lake Reserve is one of two subdivisions of the Agassiz beaches recognized in Saskatchewan. This subdivision is characterized by a series of roughly parallel beach ridges, marginal moraines and swamps, and its gradual northeastward descent of approximately 33 metres marks the transition between the Carrot River Plains and the Manitoba Lowlands. The ridges and moraines support mainly Podzolic Orthic Gray Wooded soils, with some Gray Wooded soils and Podzolized sands, while the intervening swamp areas consist of wooded muskegs with thick peat deposits overlying stony till and lacustrine clays (Ellis and Clayton 1970). The area is not considered arable, and therefore logging activity has been the main recent disturbance.

2.4 Regional Flora

Three main vegetational formations in interior Canada, as defined by Ritchie, are: the boreal forest across the north, grassland in the south, and an intermediate zone comprising aspen parkland and the transitional boreal forest (Ritchie 1976:31, Zoltai 1975). Aspen parkland is composed of isolated groves of aspen (*Populus tremuloides* Michx., Salicaceae), interspersed with communities of low shrubs and herbaceous species (Larsen 1980:31). In contrast, the transitional boreal forest is identified by the presence of coniferous species (specifically, tamarack, jack pine, white spruce and black spruce, with aspen maintaining co-dominance), though it is distinguished from the southern boreal forest proper by its lack of continuous upland stands of spruce-birch-pine-aspen (Zoltai 1975, Ritchie 1976; also see Figure 2.1, and Plates 2.3 and 2.4).

During the time since their establishment, after the retreat of the Wisconsinan glaciers, these formations have tended to move north or south in response to climatic factors while maintaining their composition and their positions relative to each other. The geographical area of interest in this thesis overlaps two of these formations, lying within the southern part of the boreal forest and the adjacent transitional area between the boreal forest and the aspen parkland to the south. In addition, the aspen parkland itself can be briefly considered, since it did form part of the traditional territory of the Fort à La Corne Crees.

The physiognomy of the closed forest is remarkably uniform throughout its geographical range, due mainly to the dominance of coniferous trees in the formation, these representing only four genera: *Abies*, *Larix*, *Picea* and *Pinus* (fir, larch, spruce and pine). However, diversity is relative. Though the boreal forest does not harbour the vast number of species found in vegetation formations such as rainforests, it does comprise a complex mosaic of different plant communities; the fact that almost all of these are dominated by trees, especially conifers, results in the physiognomic similarities. The idea of the "boreal continuum" (Larsen 1980:134) is therefore useful. As the phrase suggests, although there is little perceptible difference between communities adjacent to one another, marked differences can nonetheless be observed between, for example, a community in Alberta and one in Quebec. The

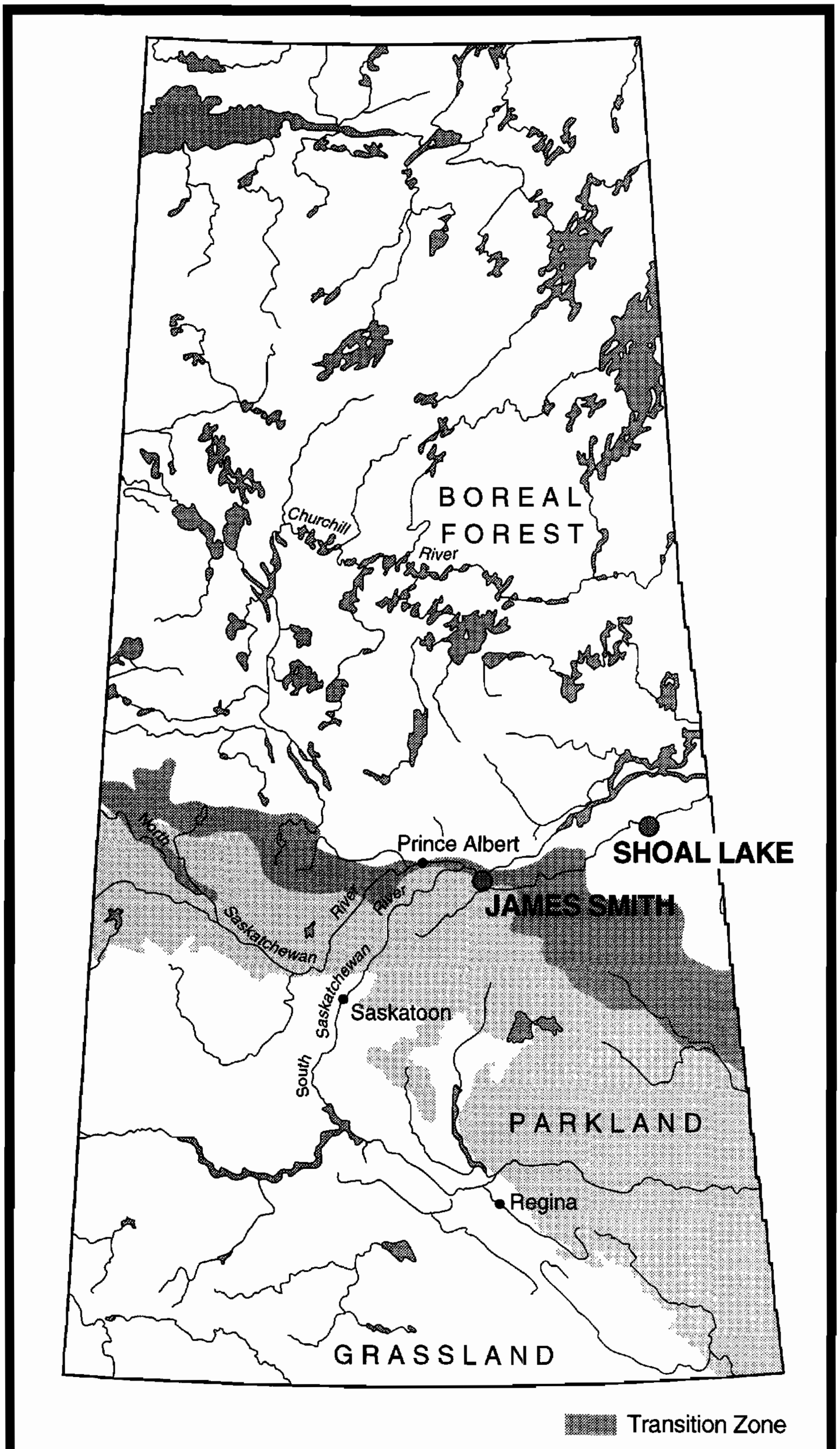

Figure 2.1 Vegetation Zones of Saskatchewan (Southern Edge of the Parkland after Atlas of Saskatchewan, 1969; Boreal Forest Transition Zone after Zoltai, 1975).

Plate 2.3 Typical trembling aspen *(Populus tremuloides)*, balsam fir *(Abies balsamea)* and white spruce *(Picea glauca)* community, approximately 20 km north of Nipawin.

Plate 2.4 Even-aged jack pine *(Pinus banksiana)* stand, James Smith reserve.

dominant tree species do not change appreciably, but the smaller shrubs and herbaceous plants of the forest understory seem to be more sensitive to regional differences, and are therefore more diagnostic (La Roi and Stringer 1976).

Differences in plant communities are due to the complex interplay of many factors, which can be summed up as follows (Elliott-Fisk 1993:37):

> (1) topography, microtopography, climate, microclimate, river flooding, permafrost occurrence and depth, organic matter, and fires, (2) chance, and (3) variations in reproductive abilities, productivity, and distribution patterns of various species.

Thus, not only are there broad regional trends, but also a patchwork of different communities on a local scale. As Winterhalder (1983) notes, vegetation patchiness in the boreal forest is partly a result of landform and soil condition, but it also changes dynamically according to its own seral rhythm of disturbance and succession. The major types of disturbance include snowthrow, windthrow and fire (Winterhalder 1983:32-35), of which fire is by far the most important. All these factors interact to affect the distribution of forest resources, both floral and faunal. Of course, humans' use of the resources is also ultimately affected.

The southern limit of the boreal forest is difficult to accurately pinpoint, giving way as it does to a variety of vegetation types (i.e., grassland, parkland, deciduous forest), depending on the regional climate (Larsen 1980:1, Elliott-Fisk 1993). Larsen's definition of the transitional boreal forest is therefore a useful tool for delineating this southern boundary. As previously mentioned, the transitional boreal forest is distinguished from the aspen parkland by the presence of conifers, and from the southern boreal forest proper by the lack of continuous upland stands of boreal forest tree species.

James Smith is situated in the transitional boreal forest, but lies very near its southern border, so that it is also in proximity to the aspen parkland. (This classification corresponds to the Mixedwood-Parkland Transition ecodistrict of the Southern Boreal ecoregion and Aspen Grove ecodistrict of the Parkland ecoregion, respectively, as defined by Harris et al., 1989.) Parts of the area are quite open, but both "natural" and "cultural" factors are probably responsible for this (Ritchie 1976:1796). For the Fort à La Corne area in particular:

> Some of the openness...historically, was almost certainly also due to the annual seasonal gatherings of the local population on the valley top here. The trees would have been heavily utilized for firewood while campgrounds...may have been cleared by controlled burning. The true parkland...begins a considerable distance (about 65 km) south of Fort à la Corne (Meyer and Klimko 1986:15).

This ecotonal area incorporates most of the species adapted to both the boreal forest and the grassland (Ray 1971:105). Therefore, because of their position in the ecotone, in proximity to two different ecoregions, inhabitants of the area have historically had access to a wide range of both floral and faunal diversity. This is confirmed with regard to botanical resources by Schwab-Moë (1987:2), who found that the vegetation of the area represents an intermixing of "Prairie, Parkland, Boreal Forest and Eastern Riverine associations". She has classified the vegetation based on its landscape position, i.e., on the alluvial terrace, the uplands, or in the river valleys, identifying diverse communites including aspen woods, shrub wetland, and aspen/balsam poplar/white spruce. She found that though upon casual examination the area seems to be typical parkland, some boreal forest species such as white spruce (*Picea glauca* [Moench] Voss, Pinaceae) and dry-ground cranberry (*Vaccinium vitis-idaea* L., Ericaceae) occur as well. (The presence of occasional conifers confirms classification of the area as part of the transitional boreal forest, as defined by Ritchie 1976 and Zoltai 1975.) The diversity of habitats and vegetation found by

Schwab-Moë indicates a wealth of resources that would have been available to people living in the area.

The present-day community of Shoal Lake is situated at the southern edge of the Saskatchewan River Delta, an area of many meandering streams with leveed banks, large shallow lakes, and numerous small water bodies forming a complex mosaic of physical habitats. The Delta is botanically richer than the boreal uplands, comprising a wide variety of plant communities "ranging from species-rich moist forest to submerged aquatics, and from acid sphagnum bogs to communities of salt-tolerant plants" (Dirschl and Dabbs 1969:215).

Distribution of the plant communities is dependent on the substrate. Dirschl and Dabbs (1969) use this criterion, and have classified the vegetation as follows: levee communities, lake margin communities, aquatic communities, and bog communities (see Table 2.1). Mixed spruce-hardwood forests occupy the levees of the rivers, which are the highest, best-drained sites in the area. This is the richest forest vegetation in the province, including such species as *Acer negundo* L. (Manitoba maple, Aceraceae), *Fraxinus pennsylvanica* Marsh. (green ash, Oleaceae) and *Ulmus americana* L. (American elm, Ulmaceae), for all of which the Delta area is the northern limit of distribution. Alder-willow shrub communities occupy slightly lower topographic positions. The area between the levees and the lakeshores is usually covered by up to two metres of peat, which forms buoyant floating mats and supports various lake margin communities. In order of descending topographical position, these are willow fens, sedge fens, and finally reed grass swamps. The designation "fen" implies that there is some water movement, and consequently a fairly nutrient-rich environment as compared to that of bogs. Aquatic communities made up of floating plants occur in shallow lakes and shallow areas of deep lakes, while

Table 2.1: Species characteristic of plant communities in the Saskatchewan River Delta (after Dirschl and Dabbs 1969; species names are as cited by the authors).

Levee Communities

1. *Picea glauca* - Hardwoods Forest:

Trees:

- *Picea glauca* (Moench) Voss [Pinaceae]; white spruce
- *Prunus pensylvanica* L. [Rosaceae]; pin cherry
- *Ulmus americana* L. [Ulmaceae]; American elm
- *Betula papyrifera* Marsh. [Betulaceae]; paper birch
- *Acer negundo* L. [Aceraceae]; Manitoba maple
- *Populus balsamifera* L. [Salicaceae]; balsam poplar
- *Fraxinus pennsylvanica* Marsh. [Oleaceae]; green ash

Shrubs:

- *Salix discolor* Muhl. [Salicaceae]; pussy or diamond willow
- *Cornus stolonifera* Michx. [Cornaceae]; red-osier dogwood
- *Viburnum trilobum* Marsh. [Caprifoliaceae]; high bush-cranberry
- *Ribes* spp. [Saxifragaceae]; currant, gooseberry
- *Rosa acicularis* Lindl. [Rosaceae]; prickly rose

Herbs:

- *Aralia nudicaulis* L. [Araliaceae]; wild sarsaparilla
- *Matteuccia struthiopteris* (L.) Tod. [Polypodiaceae]; ostrich fern
- *Equisetum pratense* Ehrh. [Equisetaceae]; meadow horsetail

2. *Alnus-Salix* Shrub:

Shrubs:

- *Alnus rugosa* (Du Roi) Spreng. [Betulaceae]; speckled alder
- *Viburnum trilobum*; high bush-cranberry
- *Salix discolor* Muhl.; pussy or diamond willow
- *S. bebbiana* Sarg.; beaked willow
- *Cornus stolonifera*; red-osier dogwood

Herbs:

- *Equisetum pratense*; meadow horsetail
- *Calamagrostis* spp. [Poaceae]; reed grass
- *Mentha arvensis* L. [Lamiaceae]; wild mint

Lake Margin Communities

1. *Salix* Fen:

Shrubs:

- *Salix petiolaris* Sm.; basket willow
- *S. candida* Fluegge; hoary willow
- *S. pedicellaris* Pursh.; bog willow

Herbs:

- *Carex* spp. [Cyperaceae]; sedge
- *Potentilla palustris* (L.) Scop. [Rosaceae]; marsh cinquefoil
- *Naumbergia thyrsiflora* (L.) Duby. [Primulaceae]; tufted loosestrife

2. *Carex* Fen:

Herbs (drier areas):

- *Carex atherodes* Spreng.; awned sedge
- *C. rostrata* Stokes; beaked sedge
- *Calamagrostis* spp. [Poaceae]; reed grass

Herbs (wetter areas):

- *Carex lanuginosa* Michx.; wooly sedge
- *C. aquatilis* Wahl.; water sedge
- *Equisetum fluviatile* L.; swamp horsetail

3. *Phragmites* Swamp:

- *Phragmites communis* Trin. [Poaceae]; common reed grass

Table 2.1 continued

Aquatic Communities

Herbs (floating):
- *Potamogeton natans* [Zosteraceae]
- *P. richardsonii* (Benn.) Rydb.; Richardson's pondweed
- *P. pectinatus* L. (sago pondweed)
- *Nuphar variegatum* Engelm. [Nymphaceae]; yellow pond lily
- *Ceratophyllum demersum* L.[Ceratophyllaceae]; hornwort
- *Myriophyllum exalbescens* Fern. [Haloragaceae]; spiked water-milfoil

Herbs (water's edge):
- *Scirpus validus* Vahl. [Cyperaceae]; great bulrush
- *S. acutus* Muhl.; viscid great bulrush
- *Sparganium eurycarpum* Engelm. [Sparganiaceae]; broad-fruited bur-reed
- *Acorus calamus* L. [Araceae]; sweet flag

Bog Communities

1. *Picea mariana* - *Larix* Bog:

Trees:
- *Picea mariana* (Mill.) BSP.; black spruce
- *Larix laricina* (DuRoi) K. Koch [Pinaceae]; larch, tamarack

Shrubs:
- *Ledum groenlandicum* Oeder [Ericaceae]; labrador tea
- *Chamaedaphne calyculata* (L.) Moench. [Ericaceae]; leatherleaf
- *Kalmia polofolia* Wang. [Ericaceae];pale laurel

Herbs:
- *Rubus chamaemorus* L. [Rosaceae]; cloudberry
- *Oxycoccus quadripetalus* Gilib. [Ericaceae]; swamp cranberry

2. *Betula glandulifera* Shrub:

Shrubs:
- *Betula glandulifera* (Regel.) Butler; swamp birch
- *Myrica gale* L. [Myricaceae]; sweet gale
- *Salix candida* Fluegge; hoary willow
- *S. pedicellaris* Pursh.; bog willow

stands of bulrushes, bur-reed and sweet flag grow in shallow lakes and along stream banks. Bog communities develop in poorly drained (and therefore nutrient-poor) areas, and are typically underlain by two to four metres of peat. Black spruce-tamarack bogs and swamp birch bogs are the two major types. It is clear from the above discussion that inhabitants of the Delta have access to a very wide range of resources within a relatively small area. The varied vegetation furnishes an array of botanical resources useful to humans, as well as providing food and varied habitats for many different kinds of fauna.

2.5. Regional Fauna

It has been widely accepted that bison (*Bison bison* L. *bison;* Bovidae) would have sought shelter in the aspen parklands and the Saskatchewan River valley during the winters (Moodie and Ray 1976, Morgan 1980, Epp 1988). They would therefore have been available as an important seasonal resource to the people of that area. However, this idea has recently been disputed by others who point to accounts of bison remaining on the northern grasslands in all but the most severe winters (Malainey and Sherriff 1996). Malainey and Sherriff, though, also point to accounts of "winter camps of plains-, parkland-, and forest-adapted peoples on the northern plains, close to reliable bison populations" (1996:333), so that in either case it remains likely that bison were a seasonal resource for the people of the James Smith area. Other large mammals of economic importance in this area included elk (*Cervus canadensis* Erxleben; Cervidae), mule deer (*Odocoileus hemionus* Raf.; Cervidae), and small numbers of moose (*Alces alces* Clinton; Cervidae).

Bison would not normally have been present as far north as Shoal Lake; although there is an historical account of bison in the delta to the south of Cumberland House in 1798 (Klimko 1987:2), this was anomalous. Numbers of moose would have been much larger in the Shoal Lake area than in the parkland. They constituted an important food resource in the Saskatchewan River delta, especially in the last months of winter, when they would migrate down off the Pasquia Hills, either seeking to avoid the heavy snow cover characteristic of the uplands, or in search of more plentiful browse on the lower slopes (Meyer 1985:180). In addition, elk and mule deer would have been present.

Currently, white-tailed deer (*Odocoileus virginianus* Raf.; Cervidae) are abundant in the parklands; however, they appear to have been rare to absent in the area historically (see Richardson 1829:253-261). Important small game would have included beaver (*Castor canadensis* Kuhl; Castoridae), muskrats (*Ondatra zibethica* L.; Cricetidae), jack rabbits (*Lepus townsendii* Bachman; Leporidae) and porcupines (*Erethizon dorsatum* Cuvier; Erethizontidae).

Birds such as the sharp-tailed and ruffed grouse (*Tympanuchus phasianellus* L. and *Bonasa umbellus* L. [Phasianidae], respectively) could have been hunted, as well as migrating waterfowl (ducks, geese and swans) in season (Meyer 1982a). Fish would have been another important seasonal resource along the many waterways of the area - including the Saskatchewan, Carrot, Birch and Pasquia Rivers, and the Sipanok Channel - especially those species that could be taken during their annual spawning runs. It is known historically that weirs made of poles or stone were built in smaller rivers (Mandelbaum 1979 [1940]), and they could have been set up in broad, shallow sections of the Saskatchewan as well. Most important for this area, however, were the weirs positioned at the mouths of the creeks and smaller rivers, where such structures could be easily built and harvested (Meyer 1985, Meyer and Thistle 1995:428). Important spring spawners included pickerel/walleye (*Stizostedion vitreum* Mitchill; Percidae), sauger (*S. canadense* Smith; Percidae), and suckers (*Catostomus* spp.; Catostmidae). Sturgeon (*Acipenser fulvescens* Raf.; Acipenseridae), goldeye (*Hiodon alosoides* Raf.; Hiodontidae) and yellow perch (*Perca flavescens* Mitchill; Percidae) would have been available in smaller numbers. Jackfish (*Esox lucius* L.; Esocidae), which spawn before the ice is off the rivers, would not have been available in large numbers (Meyer 1982a). Whitefish (*Coregonus clupeaformis* Mitchill; Salmonidae) spawn in the fall, but the fall fishery in the delta area depended at least as much on taking the runs of fish as they moved out of the shallow waters of the delta into the deeper lakes and rivers as it did upon the spawning run of this species (Meyer 1985:213).

There are interesting historical accounts regarding the preferential harvest of migrating waterfowl over fish. Both are important resources, available in the greatest quantities at around the same time of year. The Reverend Henry Budd's journals (Pettipas 1974) from Devon mission (The Pas) in the years 1870-1875 bemoan the fact that the Crees would abandon the fall fishery when the waterfowl migrations commenced, even though the fishery was more productive. These same people would later have to depend on the mission's winter supply of fish when their own food ran out, but Budd could not induce them to abandon this pattern. Clearly a strong cultural preference was in evidence, with waterfowl (especially geese) occupying a much more highly favoured position than fish in subsistence decisions. Favouring of waterfowl over fish may also have been due in part to the higher fat content of the waterfowl, a factor whose importance is discussed in Chapter Four, yet preference for waterfowl seems to represent eastern Cree influence, since it doesn't appear among the Woods Crees (personal communication, Meyer 1997). This predilection for waterfowl was reflected not only in the diet, but also in the religious life of the Swampy Crees in particular, as illustrated by the importance of the Goose Dance, the major religious celebration of this group. The Goose Dance is discussed in Chapter Three.

Chapter Three: Pre-Contact and Contact History of the Saskatchewan River Valley

3.1 The Late Pre-Contact Period

Archaeologists seldom attempt to assign ethnicity to pre-contact material culture, except in cases where cultural continuity with groups at contact can be demonstrated. In the boreal forest, fortunately, such continuity has been fairly well established. Selkirk ware ceramics were being made across the boreal forest right up until the late 1600s and early 1700s (the time of contact with Europeans in this area). The people who lived there at the time were northern Algonquians; most were groups whose descendants later became known as Crees, so this cultural group has been identified with Selkirk composite materials. MacNeish (1958:47-49) was the first to suggest such an ethnic affiliation, and later work has supported his conclusions (e.g., Wright 1971:23-24, Meyer and Russell 1987:25-26). According to inferences drawn from archaeological evidence, then, ancestral Crees have inhabited the Saskatchewan River in the study area at least since A.D. 1500, and even back to A.D. 1250 in The Pas region (Meyer and Hamilton 1994:118, 122-126).

3.2 The Historic Record

Detailed written records from which we can interpret the nature of aboriginal occupation of the Saskatchewan River delta area date back to 1774, when the Hudson's Bay Company (HBC) established the Cumberland House post. Prior to this event, the earliest known European records dealing with the

Saskatchewan River delta are the papers of Henry Kelsey, who passed through this area in 1690 and 1691 (Kelsey 1994 [1929]). His journey commenced on June 12, 1690, at York Factory on Hudson Bay. On July 10, 1690, he reached Deering's Point,[1] and stated that this was the edge of "ye stone Indian Country" (Kelsey 1994 [1929]:2). The epithet "Stone Indians" refers to the group now known as Assiniboin; the territory through which he passed prior to this point was occupied by the Crees. Subsequent to Kelsey's journey, the delta saw the establishment of a succession of French posts, as well as visits by several HBC traders, but this activity did not result in many written observations of the region. The year 1774, then, marked the beginning of really useful, detailed documentation of the area.

According to these early HBC records (e.g., Tyrrell 1934, Rich 1951), two named groups of Crees occupied the Saskatchewan River valley in the 1770s: the Basquia Indians in the delta region, and the Pigogomew Indians upstream around the Forks area (Meyer 1985:34) and westward. At this time, the group known as the Basquia Indians may have been "th" dialect speakers (Meyer 1985:36). They took their name from their customary rendezvous centre, *opaskweyaw* ("narrows between woods"). The Basquia Indians played important roles in the fur trade in the 1700s, not only as providers of fur, but also as tripmen for the HBC fur brigades journeying to the Bay (Thistle 1986). The Pigogomew Indians lived further west (Russell 1991). Their territory encompassed the parkland-forest boundary and also included the northern edge of the grassland. The focus of their seasonal aggregation was *pehonan* ("the waiting place"). They also participated in the trade (Russell 1991:143).

In addition to trapping, provisioning and transporting furs to the Bay, the Crees also acted as middlemen in the fur trade (e.g., Ray 1974:59, Thistle

1986). Thus, the Crees were increasingly in control of the workings of the inland trade during the early to mid 1700s.

3.2.1 Smallpox Epidemic, 1780-1781

In 1780-1781, a devastating smallpox epidemic struck the aboriginal populations of the plains area, sweeping west from the Ojibwa and Dakota Sioux (carried very quickly by the mobile plains groups), and then north and east into the parklands and forest (Ray 1974:105-107). The effects of this epidemic on the Cree of the Saskatchewan River valley were disastrous. Thompson reported that the native people of the Saskatchewan River system (along which he was travelling) were decimated:

> The Countries were in a manner depopulated, the Natives allowed that far more than one half had died, and from the number of tents which remained, it appeared that about three fifths had perished... (Thompson 1962:236)

William Tomison, the postmaster at Cumberland House, also noted the ravages of the disease in that region. The first victim to arrive there was a woman from the south, in December of 1781 (Rich 1952:224). Soon he was to realize the extent of the crisis, leading him to write the following on Christmas Eve of that year:

> ...these also brings the Melancholy News I have had of the small pox rageing amongst them & but few escape Death that take that Disorder...Indeed it is now spreading over the Whole Country, which will be a shocking Affair as ever was known (Rich 1952:227).

3.2.2 Demographic Changes

By the early 1800s, populations had consolidated and shifted to fill the void left by the 1780-81 epidemic. Most of the immigrants to the Saskatchewan River delta were Swampy Crees (n-dialect speakers) from the Nelson River system to the east, so that the dominant dialect of the area was changed from Woods Cree (th-dialect) or Plains Cree (y-dialect) to Swampy.[3] Some of the newcomers were Saulteaux (Ojibwa) from the southeast (Ray 1974, Meyer 1985:35-36). The Ojibwa, like newcomers to other cultures the world over, introduced some elements of their own culture into that of the dominant population. For instance, the *Midewiwin*, the principal ceremony of Ojibwa religion, was introduced to some Cree groups by Ojibwas, and continued to be practiced by them in the study area up until the 1850s (for Nepowewin Mission [Fort à La Corne area], see the Journals of Henry Budd,[4] as cited by Hallowell 1936:33; for Devon Mission [The Pas], see Pettipas 1974:xxviii). Also known as the Grand Medicine Society, the Midewiwin was a complex system of healing and spirituality. It had a hierarchy of practitioners, initiated to various levels of proficiency. Each level required much study and sacrifice to attain, and initiations were marked by elaborate ceremonies in specialized lodges (Hoffman 1891). It is likely, then, that other elements of Saulteaux culture, for example, knowledge of plants, and specialized uses for them, were also adopted by the Crees. This possibility will be explored in Chapter Four.

3.2.3 Ojibwa Assimilation and Continued Influence

Within a relatively short time, the Ojibwas who had moved into the Saskatchewan River system had largely been assimilated into the dominant Swampy Cree culture. Nonetheless, a continued Saulteaux influence persisted in certain aspects of Swampy Cree life. An important example of Ojibwa influence can be seen in the *niskisimowin* (Goose Dance), a major religious ceremony of the Swampy Crees in historic times.[5]

A detailed description of the Goose Dance, complete with historical accounts, has been presented by Meyer (1991). Briefly, this ceremony was celebrated during the aggregation periods of the spring or fall, or both, when the migration of the waterfowl made them available in great abundance. It was characterized by feasting, singing, and dancing, and an important feature was the respect behaviour shown towards the carcasses of the fowl. The ceremony, and the respect behaviour, were intended to maintain good relations with the spirit beings (*atayohkanak*) of the waterfowl, to ensure that they would continue to make their physical manifestations (the fowl themselves) available to the Cree hunters.

Elements of the Midewiwin which were apparent in the Goose Dance included the setting up of poles consisting of green logs in the *niskisimowikamik*, or dance lodge, the "planting" of saplings (spruce and poplar in the celebration of the niskisimowin, cedar or pine in the case of the Midewiwin) around the lodge, and the setting up of stuffed birds in lifelike positions inside the lodge (cf. Hoffman 1891:167, 170-171, 178, 182, 187-189, Budd's 18 August 1858 diary entry in Meyer 1991:109, Meyer 1991:114-117).[6] The Goose Dance is no longer held by any Cree group; the last one to take place in the study area was held in the late 1940s at Red Earth (Meyer 1991:114), with the Shoal Lake people in attendance as well (see below).

3.2.4 The Period 1800 to 1870

By the early to mid 1800s, the cultural landscape of the Saskatchewan River valley had changed considerably from the earlier situation. The area had been gradually repopulated so that by the 1840s a substantial number of people again inhabited the area. There is evidence that some degree of cultural continuity was maintained; however, even though Cumberland House was well established as the major fur trading centre, the aboriginal inhabitants of the area continued to patronize the old aggregating centres, among them *opaskweyaw* and *pehonan*, to conduct their yearly cycle of social and ceremonial rounds (Meyer 1985:36). The Europeans recognized this continued importance: Opaskweyaw became the site of a major Anglican mission in 1840, and the HBC re-established a trading post at Pehonan (Fort à La Corne) in 1846 (Meyer and Thistle 1995).

Surviving HBC records from the Fort à La Corne post date to 1851. This was also the year in which Henry Budd established the Nepowewin Mission (across the river from the Fort); his various letters and journals give an added dimension to the HBC records (Meyer 1985:36-37). At this time, the people who traded at Fort à La Corne were predominantly Plains Cree, though some Woods Crees did journey south to trade there as well (Meyer 1985:37). As previously mentioned, the people now occupying the Opaskweyaw area were predominantly Swampy Crees.

3.2.5 Development of The Pas Mountain Deme, and the Taking of Treaty, 1850-1880

As noted in Chapter One, the boundary between the Fort à La Corne and Opaskweyaw Crees, though not rigidly adhered to, was generally recognized as lying at the western edge of the Saskatchewan River Delta. Each of these entities constituted a marriage isolate (or "deme"; cf. Burch and Correll 1972:24) unto itself (Meyer 1985). In other words, the great majority of marriage alliances in each deme were contracted within the population of that group.

Meyer (1985) has done detailed genealogical work with the people of what are now the Red Earth and Shoal Lake reserves, as well as extensive archival research. This work serves as the primary reference in the following discussion. In the 1850s, three small groups of Opaskweyaw Crees, each led by a head man[7] had established base camps and were living in the southwestern corner of the Saskatchewan River delta, in the area centred around Shoal Lake. This area was chosen by the leading men of the groups because of its plentiful game as well as the fact that it was remote from European establishments on the Saskatchewan River (Meyer 1985:40). By 1860, several groups of Fort à La Corne Crees had found the southwestern edge of the delta attractive and decided to move into the region. No doubt their reasons for choosing the area were similar to those of the Opaskweyaw Crees: its abundant natural resources and its isolation. Again, the people lived in relatively small, extended family bands, each focussed on a leading man.[8] The localities they chose in the Red Earth area, especially Kiseyinis', were not far from the camps of the Opaskweyaw Crees (Meyer 1985:43). These groups of people, each centred around a head man, fit the description of local bands as presented in Chapter One.

Over time, these groups became known collectively to traders and missionaries as The Pas Mountain Indians, taking their name from a corruption of the Cree name for the Pasquia Hills (*[o]pâskweyaw waciy*; Meyer 1985:11). This designation therefore encompassed both "n" dialect (Opaskweyaw) and "y" dialect (Fort à La Corne) Cree speakers. In choosing to occupy these areas, these men ultimately influenced the locations of the reserves that were established when these people took treaty.

Within a few years of living in relative proximity to each other, then, the Pas Mountain Indians began to lose their affiliations to their parent groups. For example, this group took treaty in 1876, in an adhesion to Treaty 5. Note that the Red Earth people were not included in Treaty 6 with the Fort à La Corne Crees. Further, the Shoal Lake people requested in 1882 that their annuities be paid to them on their own reserve, rather than at The Pas as before (MacKay 1883:47). Thus, by 1900, the Red Earth group could no longer be properly called Fort à La Corne Indians, and the Shoal Lake group were not considered Opaskweyaw Crees (Meyer 1985:82). Instead, the two groups showed evidence of becoming a marriage universe unto themselves. While this transition was not yet complete by 1900, and the marriage universe was relatively open, the Pas Mountain Indians did in fact fit the description (Helm 1965) of a regional band. As noted in Chapter One, an important characteristic of a regional band is the fact that its members tend to aggregate once or perhaps twice per year. The focus of the Pas Mountain regional band's aggregation was the spring or fall celebration of the Goose Dance, which was customarily held at Red Earth, but attended by practically all members of both the Red Earth and Shoal Lake groups (Meyer 1985: 82-83).

By 1930, it could be said that The Pas Mountain Indians had completed their transition, and had coalesced into a recognizable marriage isolate, increasingly disassociated from outside groups. Though the relatively small size (approximately 250 people) of this group would have necessitated that some out-marriages continue to occur, the group nonetheless fit the criteria of a deme (Meyer 1985:108), since about 85% of all marriages were contracted within the group.

The economy of the area was still focused on fur trading, with hunting, fishing and gathering still providing for the majority of the community's needs. At this time, though, the missionaries (notably Henry Budd, himself a Swampy Cree) were attempting to introduce limited agriculture, such as potato and vegetable gardens, around the missions (Pettipas 1974). A. MacKay, the Indian agent for The Pas, reported that the Shoal Lake people's potato gardens were looking quite good by 1882 (MacKay 1883:47). The importance assumed by potatoes in the subsistence economy of boreal forest peoples is discussed in Chapter Four.

3.2.6 Fort à La Corne, 1850 Through the Early 1900s

The Fort à La Corne Crees maintained relatively independent lifestyles through the 1870s. They continued to trade furs and provisions, and they kept up their traditional practice of aggregating annually, as suggested by Henry Youle Hind's observation of remains of ceremonial structures in 1858 (Hind 1971), and by Budd's journal entry of June 1, 1873 (Pettipas 1974:132). In 1876, the people of this area took treaty (Treaty 6) and were assigned reserves. Treaty 6 guaranteed that the people could continue their traditional way of life, in addition to promising them instruction in farming as a safeguard in case the resources should someday fail. In 1877, Chief James Smith informed the government that he wanted his reserve established at Fort à La Corne, and the James Smith 100 Reserve was confirmed by an Order in Council in 1889. Even then, the reserve was simply a home base, from which the James Smith band continued to travel about in their customary manner. Importantly, too, they continued to subsist mainly on hunting, fishing (Pyrch 1973a:4), and plant gathering.

Another reserve, Cumberland 100A, was surveyed in 1887 and confirmed in 1889, immediately south and east of the James Smith reserve. This land was intended for some of the Treaty 5 Cree from the Cumberland House district, and even some from The Pas, who, led by John Constant (still a common surname in the James Smith area) had wanted a reserve around Fort à La Corne, and the same benefits as had been granted to the Treaty 6 Indians (Pyrch 1973b:2). The government eventually agreed to this request because the Cumberland House reserve land was unsuited to agriculture (an indication of the government's hopes of transforming the First Nations of this area into a sedentary, farming people). However, there were fewer immigrants to the new reserve than the government had anticipated (Pyrch 1973b:3). Therefore, in 1888, when Chacastapasin's band was looking for a place to settle after abandoning their own reserve south of Prince Albert,[9] they were encouraged to settle in the Cumberland reserve, which was thought to be too big for its population at the time (Pyrch 1973a:4). Thus it was that, when the James Smith and Cumberland reserves amalgamated in 1902, the new entity (which I will continue to refer to as the James Smith reserve) was comprised of plains/parkland-oriented y-dialect Cree speakers (James Smith's and part of Chacastapasin's band) as well as some n-dialect (Swampy) Crees from the Cumberland House area. This situation has been the cause of some conflict in the past, which is ongoing even at the present time.

3.3 The Present Situation

3.3.1 James Smith Reserve

The people of James Smith reserve have experienced considerable cultural change since the early years of this century. A few of the older people still go "across the river" to cabins or camps to spend the summers berry-picking and hunting on Crown land. However, the people are mostly sedentary, though day or weekend trips for berry picking or hunting are not uncommon, and visiting is still of primary importance. For the most part, the economy is focused on farming, wage labour or social assistance. The reserve itself has several facilities which provide jobs to the local inhabitants, for instance the health clinic, rehabilitation centre, school and band office.

The community is very "outward-oriented," with members making frequent trips to Melfort, Kinistino, Prince Albert, Saskatoon and elsewhere to shop, seek medical attention, or visit. At the same time, though, a strong respect for tradition is evident. Wild foods such as berries and wild meat (e.g., deer, elk, ducks) are highly prized. As well, while the people regularly seek medical aid from Western doctors, a strong respect for and belief in traditional medicines persists (this aspect will be discussed further in Chapter Four). As for other aspects of traditional culture, James Smith has joined the powwow trail, as of 1995, when they held their first annual (and very successful) powwow. The band obviously considers respect for tradition a priority to be imparted to the children: the reserve school teaches traditional dancing, as well as the Cree language, and has elders in to talk to and counsel the young people.

3.3.2 Shoal Lake Reserve

The community of Shoal Lake has also changed considerably over the last sixty years. Though it is more remote than James Smith, there is fairly good road access and band members often travel to other communities. Close contact with the people of Red Earth has been maintained. Social ties to The Pas are still evident, with a lot of visiting back and forth, but for everyday needs most people go to Nipawin. Though the community of Carrot River is closer, it is not often patronized because of a serious falling out between people from this community and those from Shoal Lake/Red Earth some years ago (Beulah Flett, personal communication). There appear to be fewer opportunities for wage labour on the reserve itself than at James Smith.

As at James Smith, traditional ways are respected. There is perhaps more emphasis on wild plant and animal foods and medicines, since there is more good game habitat remaining in this area than there is around James Smith. The community does not hold its own powwows, however, many members regularly attend the powwows and sports days of other reserves, especially The Pas. The author also noted the much greater retention of Cree as a first language, even among the young children, as compared to the situation at James Smith.

Notes

1. Dr. C. N. Bell speculated that Deering's Point was on Cedar Lake, and put forth this view in a presentation to the May 24, 1928 joint meeting of the Canadian Historical Association and the Manitoba Historical Society (Bell 1928). However, more recent research suggests this location might actually be on the portage trail between Clearwater Lake and Watchi Bay of Reader Lake (Ronaghan 1993:93).

2. "Pigogomew" is a rendering of the Cree word *pîkahkamiw,* meaning muddy water/liquid. This reflects the fact that the group by that name was centred on the lower South Saskatchewan River, or *pîkahkamiw sipiy* (Meyer 1997, personal communication).

3. It is difficult to determine which dialect was present in the area in early Contact times. Historic records certainly seem to be written predominantly (though not exclusively) in the th-dialect; however, Bakker (1996:15) has concluded that this dialect was very likely a *lingua franca* among speakers of other dialects and European traders alike.

4. The pertinent entry is from the spring of 1853, at the Nepowiwin mission across the Saskatchewan River from Fort à La Corne. According to Budd, this was the first spring in a long time that the Midewiwin was not to be held at this location.

5. Other Cree groups also celebrated the *niskisimowin:* one account is from Fort à La Corne, another is from Fort Carlton. These were Plains Cree, but, as people of the Saskatchewan River system, they presumably were influenced from the Delta area to some degree (Meyer 1991:107-108).

6. The lodges themselves were similar for the two ceremonies, being oblong-rectangular, built of poles with interlacing branches forming the walls, but with the roofs open. The author has also observed this same type of ceremonial lodge being used for a recent Cree celebration of the Sun Dance.

7. These men were *ôsâwask* ("brown [yellow] bear"), his brother *kisê-môswakâpaw* ("old standing moose"), and another man, Okakeek. Osawask and Okakeek were prominent and influential medicine men. Kise-moswakapaw, while also influential, does not seem to have produced any progeny, as no one currently in the area traces ancestry to him (Meyer 1985:40-44).

8. The Red Earth founders were Pootikat ("big legs"), *kiseyenîs* ("little old man") and his children, and *cecim* (Meyer 1985:44-60).

9. Chacastapasin's band had maintained their non-sedentary hunting way of life, and therefore were not resident on their allotted reserve, in spite of a proclamation, declared in May 6, 1885 (during the Riel Rebellion), which stated that any Indian found off his reserve would be punished as a rebel (Pyrch 1973a:2). Though there was no documented evidence of any member of this band participating in the rebellion, the government nevertheless declared them rebels (Pyrch 1973a:2). However, since the government did not withhold annuity payments (as it did with bands such as Little Pine and Poundmaker), it would appear that they did not seriously consider Chacastapasin's band rebels once calm was restored. Nonetheless, this designation provided the government with a convenient excuse to break up the band and amalgamate it with others, and to sell their reserve lands (Pyrch 1973a:3).

Note, though, that even if the rebellion had not occurred, the government would likely have had to deal with the relocation of this band: even before the unrest happened, it had become evident that the band preferred to base itself elsewhere (Pyrch 1973a:3). Eventually, they asked that the government take back their reserve in exchange for one in the Fort à La Corne area (Pyrch 1973a:4). It is quite probable, therefore, that this band had been part of the Fort à la Corne regional band, and had customarily aggregated at Pehonan.

Chapter Four: The Importance of Plants in Northern Algonquian Culture

4.1 Historic and Ethnographic Evidence

The importance of plants in the culture of the northern Algonquian peoples is somewhat difficult to determine from the historic and ethnographic literature. These accounts most often detail aspects of subsistence and lifestyle that are related to animal resources, such as hunting, fishing and trapping, while ignoring the role played by plants. This statement refers primarily to uses of plants for food and medicine, since early ethnographic accounts are often better at reporting plant materials (e.g., wood, fibres, bark) used in construction of shelters, tools, and other items of material culture (cf. Skinner 1911, Honigmann 1956, Rogers 1967).

Several authors have speculated on reasons for this under-representation of plant resources. First of all, many have recognized an androcentric bias in early reporting (e.g., Tooker 1973:28), resulting in heavy emphasis on activities such as trapping and large game hunting. Some may argue that this bias is zoocentric, rather than androcentric, but it is difficult to say whether a focus on animals is cause or effect. The net result, in any case, is the same: most plant-gathering and processing activities were the domain of women, and they tended to be overlooked by, or inaccessible (for reasons of cultural appropriateness) to the male observers. Further, this author would suggest that those few plant-related activities that men engaged in would have involved collection and preparation of species for medicinal/spiritual uses, and might not have been revealed to the non-native observer. The author does not mean to suggest that only men would be collecting medicinal plants. There were (and are) many women healers as well, but their gathering activities, whether geared towards food plants or plants for spiritual or medicinal uses, would have gone equally unnoticed.

Another reason for the under-reporting of plants in the literature is that most early observers lacked sufficient botanical knowledge to fully record the observations they did make (e.g., Honigmann 1956:76). In many areas, later work by researchers having some familiarity with the flora resulted in a much more complete record of subsistence and other use patterns (Shay 1980:234). Finally, much contemporary research suggests that many plants which were previously used are no longer part of the diet and/or pharmacopeia (e.g., Rogers and Black 1976). While a good number of such species might be remembered and reported as having been used in the past, it is likely that as many would be forgotten.

Reason tells us, however, that plants must have played an important role in the diets of the original inhabitants of the boreal forest, providing vitamins, minerals, and other key nutrients. While keeping in mind that vegetable material was not the only source of vitamins (raw meat, and meat smoked without being cooked, are good sources of vitamin C, for instance; Marles 1997, personal communication), plants nonetheless represent important resources that are unlikely to have been overlooked. "Certain key species are seasonally abundant, easily harvested and prepared, nutritious, and readily stored for later use" (Shay 1980:234), an ideal combination of characteristics in in any food from the wild. Few plant foods in the study area fulfill all these characteristics, but berries perhaps come the closest. "Roots" (including tubers, rhizomes, etc.) are also close to the ideal where they grow in abundance. Other plant foods, while perhaps lacking in one or another of these categories (e.g., greens, which are seasonally abundant and nutritious but too perishable for storage) would have provided important nutrients as well as welcome diversity at certain times of the year. For instance, fresh green shoots, especially those of certain wetland plants, were important spring foods, providing sources of vitamins and a welcome change from the preserved foods of winter. Plant foods not only provided variety, but certain species, such as "rock tripe" lichens (*Umbilicaria* spp., Umbilicariaceae), also played a key part in famine survival strategies (e.g., Leighton 1982) when other resources failed.

Research on subsistence strategies and protein metabolism have shown that diets comprised largely or entirely of lean meat (characteristic of hunter-gatherers in this part of the world in late winter and early spring) result in nutritional problems such as elevated metabolism (and therefore increased caloric requirements) and deficiencies in essential fatty acids. The ultimate result of this situation is death by starvation, even though large amounts of food might be being consumed (Speth and Spielmann 1983). Speth and Spielmann (1983:21) have noted that the addition of carbohydrates, and, to a lesser degree, fat, ameliorates this condition markedly. It is commonly known that fat was a highly prized part of the diet of hunter-gatherers (e.g., Honigmann 1956:39, Helm 1993); however, the work of Speth and Spielmann suggests that sources of carbohydrate should have been at least as highly valued where these were available. In support of this, Leighton notes that *Typha latifolia* L. (Typhaceae), or cattail rhizomes were stored for winter use by the Woods Crees (1982:163-164). Further, potato gardening, introduced by Europeans, was readily adopted by boreal forest peoples, as it provided a relatively reliable, storable source of carbohydrates (e.g, Thistle 1986:82-83). Native sources of carbohydrate are not referred to in the early historic literature, and the few that appear in ethnobotanical works are often reported as having been used in the past, but no longer at the time of the research (e.g, Black 1980). No doubt the introduction of flour and oatmeal as trade items early on in European-First Nations contact history, and the emphasis placed on potato gardening by fur traders, early missionaries (as mentioned in Chapter Three), and later the Department of Indian Affairs (Meyer 1985:194), were contributing factors that led to the reduction of traditional carbohydrate sources in the diet (cf. Rogers and Black 1976:43).

Though the early historic literature is poor in its accounts of plant use, certain foods are occasionally referred to. The types of plant foods most commonly noted by early "explorers" and traders in the study region were nuts (e.g., Henday 1907:327, Cocking 1908:102) and berries (e.g., Henday 1907:327). These accounts would lead one to believe that plant foods other than fruits were insignificant in the diet of the hunter-gatherers of the boreal forest; even many early ethnographies limit their observations of food plants to this resource (e.g., Skinner 1911). However, studies such as that by Speth and Spielmann (1983, noted above) have demonstrated the importance of dietary elements obtainable from plants. It seems clear that there are some serious gaps in our knowledge of past foodways.

Early historic references to uses of plants as medicines likewise are very few, generally incomplete, and therefore not particularly useful. Fur traders sometimes noted local plants, and even occasionally recorded Cree names or observed uses for them; however, they rarely identified either the specific group of people they were observing or the particular plant being used (e.g., see Rich 1949, Williams 1969, Glover 1958). In the late 1800s and early 1900s, however, somewhat more attention was paid to these applications in some of the ethnographies that were being done, mainly in the eastern portion of the boreal forest (e.g., Strath 1903 for the Cree; Densmore 1974 [1928] and Smith 1932 for the Ojibwa).

The historic record has occasionally noted trade of medicines or medicinal knowledge between cultural groups, as well as the existence of travelling "medicine men." In western Canada, the Crees were noted for their skills with medicines. For example, Fidler wrote in 1793 that the Peigan, with whom he was camped, believed that the Crees were great healers. They would trade pelts for the Crees' herbal medicines, at what Fidler deemed to be a very dear price for "...leaves, roots, &c., of their [the Crees'] own gathering" (MacGregor 1966:79). Elsewhere, McClintock recorded that the Piikàni obtained love medicine from the Crees, who were considered to be experts at making it (McClintock 1968 [1910]). Mandelbaum's major work on the Plains Cree affirms that "Cree medicines" were widely respected among other peoples; however, he also reported that the Crees themselves obtained love medicines and other "charms" from the Saulteaux (Plains Ojibwa). Further, informants told him that Saulteaux medicine men were called in whenever possible to treat the sick, and indeed that most "Plains Cree" medicines had originally been received from the Saulteaux (Mandelbaum 1979 [1940]:164-165). Mandelbaum also reported that the Plains Cree feared the Ojibwa and the Woods Cree as "bad medicine men" who could do harm by magical means (1979 [1940]:165). It is interesting that these attitudes of respect seem to be directed always farther east and north; the Blackfoot respected the Plains Cree as doctors, while the Plains Cree in turn considered the Woods Cree and Saulteaux to be powerful healers and adepts in the use of bad medicine.

4.2 Plants in Contemporary Culture

The data collected during recent fieldwork in the James Smith and Shoal Lake communities show that there remains a broad knowledge base concerning plants and their uses. The author was assisted in each community by a local person. These women, Ms. Donna Burns (in her mid-thirties) from James Smith, and Mrs. Beulah Flett (in her mid-fifties) from Shoal Lake, were instrumental in the work, and their enthusiasm and interest were invaluable.

Appendix C presents a list (alphabetical by genus) of the plants reported in this fieldwork, with family affiliation, scientific names and authorities, and common names. Detailed information concerning the use of the plants identified in the fieldwork is also presented in Appendix C and will not be repeated in its entirety here. As mentioned in Chapter One, there were some plants for which only Cree names were obtained, and which were neither observed nor collected in the field. A list of these plants, along with descriptions (where available) and usage information, is presented in Appendix D. Their precise identities remain unknown, and therefore they are not included in the analysis in this chapter.

Table 4.1, below, is a list of the plant families represented in the research, showing the number of species from each family, and the use categories for which these species are valued. As shown in the table, the 46 species (members of 44 genera) belong to 28 families, and are fairly equitably spread among them. There is, then, a large number of families represented by the data, as compared to the total number of species and genera. This fact could indicate the need for more research, for it is quite certain that the present study did not result in a complete record of all the plants that were used. However, Shay's very thorough inventory of the food plants of Manitoba

Table 4.1 Families Represented by Ethnobotanical Data from the Study Communities, Numbers of Species Reported from each, and Breakdown of Usage Types

Family	N	F/C	M	B	0
Aceraceae (Maple Family)	1	1			
Alismaceae (Water-plantain Family)	1		1		
Apiaceae (Parsley Family)	3	1	2		
Araceae (Arum Family)	1		1		
Araliaceae (Ginseng Family)	1		1		
Asteraceae (Aster Family)	3		3		
Betulaceae (Birch Family)	2	1			1
Caprifoliaceae (Honeysuckle Family)	3	1	2		
Chenopodiaceae (Goosefoot Family)	1	1			
Cornaceae (Dogwood Family)	1		1		1
Cupressaceae (Cypress Family)	1		1		
Elaeagnaceae (Oleaster Family)	1		1		
Equisetaceae (Horsetail Family)	1		1		
Ericaceae (Heath Family)	3	2	1	1	
Fabaceae (Pea Family)	2		2		
Lamiaceae (Mint Family)	3		3	1	
Liliaceae (Lily Family)	1	1			
Nymphaeceae (Water-lily Family)	1	1	1		
Pinaceae (Pine Family)	2		2		1
Plantaginaceae (Plantain Family)	1		1		
Polygalaceae (Milkwort Family)	1		1		
Rosaceae (Rose Family)	5	3	5		
Salicaceae (Willow Family)	2		2		1
Sarraceniaceae (Pitcherplant Family)	1		1		
Sphagnaceae (Peat Moss Family)	1(?)				1(?)
Typhaceae (Cattail Family)	1	1	1		1
Urticaceae (Nettle Family)	1		1		
Valerianaceae (Valerian Family)	1		1		
Total	46	13	36	2	6

N = number of species reported; **F/C** = species for food or condiment use; **M** = species used as medicine; **B** = species for beverage use; **O** = species put to other uses.

Note: the "?" beside the Sphagnaceae entry reflects the fact that it is unclear how many species were used, but that at least one was.

resulted in a list of 81 genera representing 45 families (Shay 1980:203), a genus-to-family proportion similar to that produced by this author's research. Additional investigation, therefore, might add more representatives to some of the families, but would very likely result in the addition of more families as well.

A fairly large number of species of known utility as foods or medicines were not mentioned by respondents in this study, though they are known from other ethnographic sources (e.g, Leighton 1982). This, too, suggests the need for further research in the study area, to determine whether this is due only to the incompleteness of the present study, or whether it might represent actual attrition of knowledge. The author believes that a combination of these hypotheses is probably correct. An investigation of such short duration could not hope to produce a complete inventory of contemporary and remembered plant use. However, it is also true that the knowledge transmission system, the oral tradition, has suffered somewhat due to the pressures of acculturation that have been affecting First Nations people for generations, so that some knowledge has doubtless been lost. By the same token, however, the data also show the dynamic nature of culture in the use of three introduced species (i.e., species not native to the area) as medicines. Details will be provided in section 4.2.3.

There was some reluctance in the study communities to talk about spiritual aspects of plant use. The researcher therefore made a point of emphasizing that spiritual knowledge was not being sought, though it could be shared if the respondent so desired. As a result, an exploration of the uses of plants in ritual and spirituality is lacking in this research. Of course, the spiritual and secular domains cannot in reality be compartmentalized so neatly; spiritual aspects involving the use of plant medicines are often evident in the data.

There are two likely reasons for reluctance to discuss spiritual matters pertaining to plants. First, the researcher, though assisted by members of the communities, was an outsider. This reaction is not uncommon or unusual. It is likely, however, that the problem may have been exacerbated by the short period of acquaintance of the researcher with the participants, caused by the necessarily limited duration of the fieldwork. Second, the researcher and her assistants were women, and as such, were perhaps not privy to some aspects of sacred knowledge that might properly be known only to males.

That having been said, however, knowledge of plant uses as gathered by the researcher seems to be heavily biased in favour of medicinal plants as opposed to plants for food and other uses, as shown in Table 4.1. This indicates a certain degree of trust in view of the comparatively sacred nature of the role of plants as medicines as opposed to their use in other spheres. It also demonstrates trust in view of the perception, often expressed by the elders, of the danger that white people could "steal" the knowledge and use it for their own profit at the expense of First Nations people.

A number of possible explanations can be forwarded to account for the bias against reporting of nutritional uses for plants. In their comprehensive review of reported plant uses for food and medicines in Eastern Canada, Arnason *et al.* (1981) noted that numbers of species consumed as food decreased from south to north, with the fewest species being used by the Crees (northern Algonquians). They suggested that:

> Low species diversity, less extensive ethnobotanical collecting, *and possibly a limited interest in plant foods by a meat-based society* may explain the sparse record of Cree use of plants for food (Arnason *et al.* 1981:2196).

This author would suggest some other possible reasons for the infrequency of references to plants as foods. First of all, as noted in Chapter One, interviews and field trips were unstructured, so that the elders talked about whatever they felt was important. In this context, food uses could have been taken for granted, or considered too mundane to mention. In her ethnographic research with Algonquin and Cree groups in southwestern Quebec, Mary Black also noted that her data, like that in the ethnographic literature, exhibited a bias in favour of medicinal plant uses. She attributed this, to some degree, to a greater interest on the part of both the researchers and the respondents in this domain of plant use. It is possible, then, that this author's respondents tended to report aspects of plant use which they felt would be of most interest. It is also possible that the use of wild plants for food or other non-medicinal applications (aside from a few species) is no longer part of the cultural tradition, due to the comparative ease with which food and items of technology could be obtained after Contact. In contrast, some medicines remained in common use because of inaccessibility of Western medical services throughout much of Contact history (Siegfried 1994 reported a similar situation in her research with the Wabasca/Desmarais Cree of northern Alberta). This possibility will be discussed further in section 4.2.1, below.

4.2.1 Plants for Food, Condiments, and Beverages

4.2.1.1 Plant Foods

There is a common perception, noted in both study communities, that the present diet is inferior in quality to that of people in the past. The present diet is blamed, no doubt with justification, for conditions ranging from obesity to diabetes. According to the data gathered in this research, wild plant foods do not currently comprise a large part of the diet in the study communities. Table 4.2 is a list of these food plants by species, noting the part of the plant that is utilized. As shown in the table, fleshy fruits, commonly referred to as "berries," comprise the majority of the types of plant foods used. To the best of the

Table 4.2 Plants Used as Food in the Study Area

Species	Part Used
Allium textile (?)*	leaves
Amelanchier alnifolia	fruit
Corylus cornuta	nut
Nuphar lutea ssp. *variegata*	rhizome
Prunus virginiana var. *melanocarpa*	fruit
Rubus idaeus ssp. *strigosus*	fruit
Typha latifolia	rhizome
Vaccinium myrtylloides	fruit
Vaccinium vitis-idaea ssp. *minus*	fruit
Viburnum opulus var. *americanum*	fruit

*Because this respondent was from James Smith, and described the plant as having a white flower and growing on the open prairie, this species is inferred. However, another possibility is *A. stellatum* Fraser, the pink-flowered onion (Harms 1997, personal communication), which can be found in the study area.

researcher's knowledge, these are the only wild plant foods currently used with any regularity. Hazelnuts (*Corylus cornuta* Marsh., Betulaceae) are a prized treat when in season, but are generally not picked in large enough quantities to last much beyond this time. Cattail (*Typha latifolia*) and yellow pond-lily (*Nuphar lutea* (L.) Sm. ssp. *variegata* (Dur.) E. O. Beal, Nymphaeceae) rhizomes are the only two wild plant foods mentioned in the study that could provide a source of carbohydrate.[1] These traditional foods are no longer consumed; rather, they were mentioned as foods that were gathered and eaten in times past. No other uses were noted for cattail rhizome, but yellow pond-lily rhizome is a very important medicinal herb, as discussed in section 4.2.3. Other "root" crops are known from the ethnographic literature (e.g., Leighton 1982, Black 1980) and present in the area, but were not reported by respondents in this study. They include *Sium suave* Walt. (Apiaceae; water parsnip), *Lilium philadelphicum* L. var. *andinum* (Nutt.) Ker.(Liliaceae; western red lily) bulbs, and *Sagittaria* spp. (Alismaceae; arrowhead, Indian potato).

Conspicuous by its near absence is the category of edible greens. Wild onion (likely*Allium textile* A. Nels. & J. F. Macbr.; Liliaceae) was mentioned in passing by one respondent, but none was observed or collected. Several species mentioned in the literature are present in the area, but none were reported in this study as having been used for food. These include *Heracleum maximum* Bartr. (Apiaceae) stems, *Typha latifolia* shoots, and stem and leaf bases of the bulrushes *Scirpus acutus* Muhl. and *S. validus* Vahl. [Cyperaceae] (Leighton 1982, Reagan 1928).

Similarly, the cambium, or inner bark, layers of *Betula papyrifera* Marsh. (Betulaceae), *Pinus banksiana* (jack pine) and *Populus tremuloides* are spring foods commonly reported in the literature (Leighton 1982, Speck 1917, Holmes 1884, Densmore 1974 [1928]), but not in the present study. "Cambium" in this thesis refers to "a layer of sweet, pulpy strands found between the bark and trunk in early summer" (Leighton 1982:153). Again, one must consider the role of acculturation in this phenomenon. Gardening is common in both communities, and produce is readily available from stores.

Some wild plant foods remain important, however. Berries, though not contributing significantly in terms of calories, enjoy continued cultural value as foods, esteemed by people of all ages.[2] Most meals include a dessert of canned berries, often with cream, and berry-picking remains an important social activity for women, children and even a few men. Berry patches on the reserves and in the immediate area are utilized, but berry-picking expeditions also commonly involve travel for great distances to productive sites known from years of experience and observation. The researcher was part of an expedition that traveled almost 300 km and spent the weekend camped out in the bush to pick blueberries, and, secondarily, dry-ground cranberries. Blueberries (*Vaccinium myrtilloides* Michx.; Ericaceae) seem to be the most highly

Plate 4.1 Picking blueberries. This area had burned approximately ten years previously.

Plate 4.2 Crushing chokecherries, James Smith reserve.

like saskatoon berry pie in flavour. Another popular way to eat them is cold, with cream.

Saskatoons or (*Amelanchier alnifolia* (Nutt.) Nutt. ex. M. Roemer; Rosaceae), while highly prized at James Smith, and frequently mentioned in the literature, are not as reliable as chokecherries in terms of producing a large crop. During the author's first season of fieldwork there were no saskatoons anywhere in the area, because a late frost had occurred during flowering. Saskatoons are also susceptible to certain insects (e.g., sawflies), which periodically destroy the crop. However, when these fruits are available, they are picked in quantity.

The method of choice for preserving wild fruit in the communities today is by canning, rather than by the traditional method of drying them. Some jams and jellies are made, but for the most part the fruit is simply cooked and canned whole. Crushed chokecherries were also canned. At James Smith, domestic fruit such as peaches and plums is bought and canned as well. Freezing does not seem to be a popular method of preservation for plant foods among this author's respondents.

4.2.1.2 Condiments Derived from Plants

The term "condiments" is used herein to refer to the miscellaneous edibles, salt and maple sugar or syrup, as well as the flavouring provided by caraway. Salt was obtained by members of the community of Shoal Lake by boiling the succulent stems of *Salicornia rubra* A. Nels. (Chenopodiaceae), a highly salt-tolerant plant that grows around the edges of strongly saline sloughs, or on dried up saline flats. Such an area occurs just to the east of the main townsite of the Shoal Lake reserve, and the plant is abundant there.

Respondents reported that large quantities of the stems were boiled. The liquid was then strained to remove the solid pieces, and then boiled again, until a residue of salt remained. The Cree name of the plant is *sîwîtâkan*, the same as that for salt. It is difficult to say whether this practice is one which predates European contact, considering the long history of contact and influence in the region. Certainly, other species were used in this manner by Europeans, particularly in eastern Canada. This source of salt would have been important at least in the recent past, but is not utilized at the present time.

Maple syrup was made by boiling the sap of the Manitoba maple, *Acer negundo* var. *interius*. Again, this information was obtained at Shoal Lake. As noted in Chapter Two, Shoal Lake is on the edge of the Saskatchewan River delta and within the range of this species, so this report is not unusual. The people of Red Earth, also within the edge of the delta, also tapped maple trees and made syrup and sugar (Meyer 1985:221-222). The trees were tapped in the spring, and the sap collected in buckets, or, traditionally, in birchbark containers. It was then boiled down into a syrup, or further processed into maple sugar. Meyer (1985:222) noted that all the syrup eventually had to be boiled down into sugar, as it would not otherwise keep over the summer. This sugar was used for special occasions, or traded with the HBC.) Again, this activity is no longer in common practice at Shoal Lake reserve, since refined sugars and syrups are so readily available. Mason (1990) has examined the question of whether sugar making was an aboriginal technology, or whether it was learned from Europeans. She concluded that this was an activity that was very quickly learned by First Nations in New England and New France, and that its rapid westward spread and establishment among native people (more rapid than actual European exploration or colonization) was responsible for the appearance of its antiquity in aboriginal culture (Mason 1990:41). However, sugar-making is a natural extension of the process of boiling down the sap into syrup; it simply represents a further concentration of the sugars, and, as mentioned, is the only means of preserving this food resource for any length of time. Mason does not dispute the aboriginal use of sap and syrup, and this author feels that sugar-making is likely also a practice with considerable antiquity in First Nations culture.

Another species that can be used to make syrup is *Betula papyrifera*, the paper birch (Siegfried 1994, Leighton 1982, Black 1980). While the people of Shoal Lake would not likely have made use of this species because of their access to maple trees, people from James Smith could well have used birch sap in times past. However, no such use was reported to the researcher.

Caraway (*Carum carvi* L.; Apiaceae) mericarp (referred to as "seed") is an ingredient, with wild mint, in a remedy for cough which was reported at Shoal Lake. This species is an escaped cultivar (i.e., it is not native to the area). However, several women from this community stated that this plant could formerly be picked on the reserve, and only since some relatively recent development (involving the consolidation of the homes into a more formal townsite) has it been eradicated from the area. Caraway must now be purchased from the store. The researcher, knowing this to be an introduced species, at first thought there might be a native plant locally called "caraway." However, Leighton's (1982) work also reports use of caraway, in this case gathered wild from an area in which it had been accidentally introduced in the past and had become naturalized. It is likely that a similar situation had occurred at Shoal Lake.

On the surface, there appears to be a difference between the accounts of Leighton and this author; in Leighton's work, caraway seeds were being used to flavour bannock, whereas at Shoal Lake they were ingredients in a medicinal tea. This might indicate a greater willingness on the part of the Shoal Lake people to accept introduced species into their pharmacopeia. However, this researcher suggests that the two uses might not in fact be so different. It is quite likely, rather, that the caraway was being used to give a pleasant flavour to the tea, which was intended for consumption by children, and might not have had a medicinal application after all. Therefore, caraway is included here, rather than in the list of medicinal species presented in Table 4.4.

4.2.1.3 Beverage Teas

Two species, *Mentha canadensis* L. [Lamiaceae] (wild mint) and *Ledum groenlandicum* Oeder [Ericaceae] (Labrador tea) were noted as sources of beverage (i.e., non-medicinal) teas (see Plates 4.3 and 4.4). This is an example of the blurry line between different types of uses, as these two species also have medicinal applications. Commercial teas are by far the most common beverage in the communities today, and there have been suggestions that the consumption of teas in a non-medicinal context is a relatively modern phenomenon, introduced by fur traders (e.g. Morice 1909:604). Additional evidence for this can be found in the Cree names for Labrador tea: *maskêkôpakwatî* (recorded at Shoal Lake reserve), and for store-bought tea: *nihtî* (Bellegarde and Ratt 1992). The morpheme *"-tî"* is an obvious borrowing from the English word "tea." This borrowed morpheme is also noted in Kuhnlein and Turner (1991:171), who state that it can be found in many aboriginal languages. Another recorded name for labrador tea, however, is *maskîkowâpoy* (recorded at James Smith reserve). The morpheme *"-âpoy"* denotes a liquid of some kind (Bellegarde and Ratt 1992), and is in common use in the language (e.g. *tohtôsâpoy*, "breast liquid," is the word for milk). *Maskîkowâpoy* ("medicine liquid") may therefore be an "older" name, and

Plate 4.3 Wild mint *(Mentha canadensis)*.

Plate 4.4 Black spruce bog south of Shoal Lake reserve. The woman is holding some muskeg tea *(Ledum groenlandicum)*.

tea. This might indicate a greater willingness on the part of the Shoal Lake people to accept introduced species into their pharmacopeia. However, this researcher suggests that the two uses might not in fact be so different. It is quite likely, rather, that the caraway was being used to give a pleasant flavour to the tea, which was intended for consumption by children, and might not have had a medicinal application after all. Therefore, caraway is included here, rather than in the list of medicinal species presented in Table 4.4.

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If it is true that consumption of non-medicinal beverage teas is a recent development, it is probable that, in the past, meat broths and water were the most common beverages (Honigmann 1956:40). However, an alternate view is put forward by Black (1980:35), who states that, prior to the advent of commercial teas, traditional beverage teas would have had *greater* importance in the diet, and indeed, plants such as Labrador tea could have been an important source of vitamins, especially in winter (cf. McClendon 1921). This plant is not only easy to store (it simply requires drying), but is also evergreen and can be harvested through the winter. One elder from Shoal Lake Reserve recalled drinking Labrador tea with her grandparents, however it is difficult to assign this as evidence for either the antiquity or the recentness of this practice, given the duration of Euro-Canadian influence in this area.

4.2.2 Plants for Miscellaneous Uses

The "Other" category is not well-represented in this research, as is evident in Table 4.1. Only six species were noted in the study as having uses other than for food/beverages or medicine. These species are listed in Table 4.3.

Table 4.3 Species Used For Miscellaneous Purposes

Species	**Part Used; Purpose**
Betula papyrifera	rotten wood; hide preparation
Cornus stolonifera	outer bark; smoking material
Picea glauca	rotten wood; hide preparation
Populus tremuloides	rotten wood; food preservation
Sphagnum spp.	whole plant; child care
Typha latifolia	seed head (fluff); child care

Use of the rotted wood of birch and white spruce to smoke hides was reported by an elder at James Smith Reserve. Smoking is the final step in hidepreparation, once the hide has been cleaned of flesh and hair, and brain-tanned. The procedure for smoking hides involved constructing a tipi-like frame, over which the hide is draped, hair-side in. A smoky fire of rotted spruce is built inside this structure. It must be watched constantly to make sure it doesn't flame up and burn the hide. The smoke will seep through the hide, smoking the whole thing without the necessity of turning it. The elder stated that different types of hides were smoked with different woods; he used spruce for elk and birch for deer. While on the subject of using rotted wood for smoke-curing, the elder noted that he used rotted aspen for making smoking and drying meat.

Also at James Smith Reserve, the researcher was informed that, in the past, the bark of the "red willow," or dogwood (*Cornus sericea* L. ssp. *sericea*; Cornaceae) was added to tobacco. It gave a pleasant flavour, and also helped to extend the supply. It had to be shaved very thin, and in very fine pieces. No mention was made of another well-known smoking material, *Arctostaphylos uva-ursi* (L.) Spreng.; Ericaceae (kinnikinnick or bearberry), in either community, although it is abundantly available on or near both reserves.

The last item on the list of miscellaneous uses is *Sphagnum* spp., or peat moss. The use of this extremely absorbent material for babies' diapers is very well-known in the literature (e.g., Marles 1984, Leighton 1982). According to a respondent from Shoal Lake, it was gathered in great quantities in August, and placed on trees to dry. In October or so, when the moss was thoroughly dry, it was collected and bundled up in sheets to be stored indoors for the winter, for use as absorbent material inside babies' moss bags. It would be cleaned of twigs, spruce needles, etc. as needed; the respondent said that insects were not a problem if the material was collected in the fall. Leslie Johnson Gottesfeld's work with Wet'suwet'en and Gitksan elders in northwestern British Columbia corroborated this: insects would leave the moss while it was drying on the trees, leaving a nice, clean material (Johnson Gottesfeld and Vitt 1996:104).

This author's respondent said that babies would be changed about four times per day: in the morning, at midday, at supper time, and again before bed. Up to seven bundles of dried moss would be required for one baby for one winter. In addition to its tremendous absorbency (it can hold between 15 and 22 times its dry weight in water; Johnson Gottesfeld and Vitt 1996:103), *Sphagnum* has been found to have antiseptic properties; use of moss as diapering material prevented diaper rash (Marles 1984). The respondent said that some people would mix cattail fluff with the moss; presumably for added warmth, since cattail fibers are not absorbent (Leighton 1995, personal communication).

Although the moss was not observed or collected, the author believes the species is probably *S. fuscum* (Scrimp.) Klinggr., or *S. capillifolium* (Ehrh.) Hedw. (most likely the former). This determination is based on the description of habitat and appearance of the moss as given by the elder from Shoal Lake Reserve. She said that only very dense, soft moss with "pinkish tops" was used. Leighton reported that *S. fuscum* was the type of moss preferred by her Woods Cree respondents for diapering. Her work with that group led her to state that "gross morphological differences such as growth habit" were more important than "microscopic species distinctions" in deciding which mosses to use (Leighton 1985).

4.2.3 Plants as Medicine

4.2.3.1 Attitudes Towards Traditional Medicine

In almost every culture having an extant system of traditional medicine, there are levels or degrees of medicinal knowledge.

> ...[I]t is necessary to distinguish between ailments like colds, headaches, disturbances of digestion and so forth, which are considered relatively inconsequential, and more serious cases of sickness. The latter are those which prove resistive to treatment and thus arouse anxiety. (Hallowell 1963:276)

Hallowell was speaking of the Ojibwa in the above passage. Brown and Brightman (1988) treated the boreal forest Crees and Ojibwas as similar entities, and made this comment:

> Serious or protracted illness was often attributed to the presence of an alien [i.e., supernaturally inserted] object in the patient's body...[but]...not all illness or injury was ascribed to spiritual or magico-religious causes. Concomitantly, many of the botanical and other medicines used in the treatment of common, predictable, or minor disorders were probaly understood to be effective independently... (Brown and Brightman 1988:172-173).

The same situation has been reported for the Blackfoot. Peacock (1992:68) notes that common herbal remedies, used to treat minor diseases and afflictions, were known to most Blackfoot people, and neither the diseases themselves nor the remedies were considered to be supernatural in origin. These attitudes towards different types of illness were also evident during the author's own fieldwork with the southern boreal forest Cree of the Saskatchewan River valley system. Serious diseases have traditionally been believed to be the result of "supernatural" causes, and required the attention of a medicine person (Hallowell 1963). (This author dislikes the term "supernatural," since, in these cultural groups, other-than-human forces and beings are very much a part of the natural realm. However, this inaccurate usage is retained for lack of a better word.) Even today, when many accept the organic nature of illness as explained by western-style medicine, there exists the belief that some diseases (particularly those which do not respond to conventional western-style treatment) are the result of "bad medicine." Diseases with this perceived cause are believed to be best treated by medicine people.

It is also a common belief, often encountered by this researcher, that traditional medicines and methods are sometimes superior to "doctor's medicine," or what the Western tradition considers to be mainstream medicine. This is related to the concept, discussed above, of the differences between "types" of ailments, and the appropriate ways to treat them. Waldram, who has studied urban native people in Saskatoon, Saskatchewan, and their attitudes toward both traditional and western medicine (Waldram 1990), has found evidence that these attitudes persist even in the city, with its accelerated acculturative pressures. His research revealed that, though most people (about 85%) believe that western medicine is more effective for certain illnesses (largely because of advanced drugs and technology), many (over 60%) also feel that there are some situations in which a traditional healer would be more helpful (Waldram 1990:334). Problems which Waldram's respondents felt would be best handled by a traditional healer (or through self-treatment using traditional medicines) ranged from minor ailments such as colds and flu, to more serious, chronic diseases such as diabetes and cancer. Spiritual or emotional problems, and those related to "bad medicine" were overwhelmingly felt to be within the purview of the traditional healer (Waldram 1990:334). These results suggest the possible utility of having the two health care systems working together to provide more holistic care to traditional peoples. O'Neil (1988) has explored the idea, in practice in some urban hospitals in Manitoba, of using the services of "medical interpreters" to facilitate communication between western doctors, traditional healers, patients, and their families. His research has suggested that such a person is a necessary part of the equation, essential for the proper functioning of the system. Integration of health systems is certainly a topic worthy of further research, but is beyond the scope of this thesis.

4.2.3.2 Bad Medicine

The concept of bad medicine seems to be very much alive in the contemporary culture of the study area, and perhaps because of this, it is not a topic which can be discussed openly or comfortably by First Nations elders. Bad medicine as a category includes those powers which can cause harm, including death, illness and misfortune, and may or may not involve the use of physical instruments of power such as mixtures of plants. Indeed, many accounts state that the wielder of the bad medicine need not even be present to effect his or her power (e.g. Black 1977, Hallowell 1963). These accounts refer to the Ojibwa, but evidence gathered during the author's fieldwork seems to corroborate them. It is easy to accept the classification of power that can cause bodily harm or bad luck as bad medicine, but the fact that this concept also includes love medicine, which presumably brings success to the user, is perhaps less comprehensible to non-natives. Black (1977) explains this apparent paradox quite well:

> These "charms," each in its own way, can cause others to perform acts or enter a state that they wouldn't have if left to their own autonomy...If being in control is good and being out of control is bad, then "bad medicine" is in essence the power to render another helpless or out of control... (Black 1977:150)

This author's respondents corroborated much of this information. No specifics were given, but the topic was discussed by three elders at James

Smith, in a general way, on one occasion. They spoke of love medicine, in this case, in the form of a mixture of plants that had to be ingested by the desired person. They stated that it was very bad; that it would indeed have the intended effect of making that person fall in love with the one who administered the potion, but that it would eventually cause the recipient to "go crazy." They also mentioned a form of bad medicine, again made from a mixture of plants, that could be given to horses before a race to ensure that they would win. People who would use such methods were described as "greedy," since the horse would eventually die as a result of the medicine, but they would not care because they would have gotten their winnings.

In some cases, treatment of illness might depend on whether that illness was perceived to have been caused by organic or supernatural factors (i.e., bad medicine). The disease known as "twisted face" is an example encountered by the author during fieldwork. This malady, which is essentially a unilateral facial paralysis, was described to the author at Shoal Lake. It was explained that, if the tongue was also affected, it was the result of a stroke; however, if only the facial muscles were involved, then it was the work of bad medicine, and western medicine would be unable to effect a cure. The remedy described, which consisted of a mixture of herbs to be made into a poultice and applied to the opposite (unaffected) side of the face, to draw it back to normal, seemed to be more applicable in situations where bad medicine was suspected. Interestingly, a remedy for "twisted face" was also recorded at James Smith; however, in this case the emphasis was on stroke as a cause; there was no mention of bad medicine.

4.2.3.3 Metaphysical Elements of Medicines

Although all the medicines recorded by this researcher were plant-based, many of them involved aspects that were not strictly related to the physical properties of the plants themselves. These aspects ranged from respect behaviour in gathering and disposal, to rules for gathering or preparing the plant material, to a form of divining used to determine whether the remedy would work for a particular patient. These spiritual elements were integral parts of the remedies, and this again illustrates the artificiality of imposed categories: in this case, differentiation between sacred and non-sacred is clearly inappropriate.

Elders at both communities observed traditions of respect when collecting plants for use as medicine, even if that medicine was of a "secular" or ordinary nature. Gifts of tobacco were placed in the earth beside the plant if only a part of the plant was taken, or in the hole if the entire plant was collected. The significance of this action, as explained to this researcher, is thanksgiving to the Creator, involving as well some notion of "repayment" for the gift of the medicine. This form of respect behaviour did not apply when plants were being gathered for other purposes, such as when berries were being picked for food. Conceivably, then, different types of behaviour could apply to the same species of plant in different situations, depending what it was to be used for.

Respect behaviour also obtained in the disposal of plant medicines after use, such as parts that have been boiled or steeped to make tea. The researcher was informed that such material had to be discarded in a "clean" place, not just thrown away anywhere (cf. Siegfried 1994:194). For example, it could be buried in the bush, or placed in the fork or on the branches of a tree.

Metaphysical aspects of preparation of plant medicines were recorded at James Smith reserve. For example, one elder's remedies for constipation and diarrhea involved the same plant; only details in the preparation differentiated the two uses. When preparing the remedy for constipation, the inner bark of willow was peeled *towards* one; for diarrhea, it was peeled *away* from one. In both cases, the strips of bark were tied in four knots before being made into a medicinal tea. Sometimes, the specialized behaviour involved the collection of the medicinal ingredients. Again, the example was recorded at James Smith reserve. For a remedy for heart troubles, the inner bark of aspen poplar was chewed and the juice swallowed. The bark for this remedy was to be collected from the south side of the tree, at about heart-height, and the piece of bark was to be about the length of the heart. This demonstrates the special relationships perceived to exist between people and elements of their environment, in this case, plants.

An elder at James Smith reserve also employed a form of divining to determine whether a certain remedy would be efficacious for a particular patient. After selecting the herbs, she would boil some water, and sprinkle a pinch of the powdered herbs on top. Depending how the powdered herbs "behaved," this elder would know whether the remedy would be helpful to the patient, or whether it would be ineffectual. Interestingly, Strath (1903:746) reports a very similar procedure in use among healers of Norway House, in what is now northern Manitoba. By the location, these people can be assumed to be Swampy Crees.

Clearly, spiritual aspects of traditional medicines played a very important role in the curing process. These spiritual elements of medicine were highly personal, and unique to each elder. They are repeated here with permission, and in simplified form, out of respect for the elders who contributed the information. The spiritual aspects were part of what made the medicines work, and as such, they were as important as the herbal constituents themselves.

4.2.3.4 Medicinal Plants in the Study Area

Some 36 identified species, representing 23 families, were reported in this study as having medicinal applications. A breakdown of the types of ailments, as well as numbers of different species used to treat them, is presented in Table 4.4. Note that addition of the numbers of species for each category in Table 4.4 results in a number greater than 36, indicating that many of the plants were used to treat a variety of ailments in different categories. This

Table 4.4 Medicinal Plants Used by the Crees of the Saskatchewan River Valley

For skin disorders, cuts, burns, bee stings, infections (11 species)	
Abies balsamea	bark/sap; poultice
Achillea millefolium	flowers or leaves; poultice
Acorus americanus	rhizome; poultice
Aralia nudicaulis	rhizome; poultice
Nuphar lutea ssp. *variegata*	rhizome; poultice
Picea glauca	gum; poultice
Polygala senega	root; poultice
Sagittaria cuneata	leaf; poultice
Sarracenia purpurea	root; poultice
Typha latifolia	seed head (fluff); poultice
Urtica dioica ssp. *gracilis*	root; wash
For stomach/gastrointestinal problems, digestion (11 species)	
Achillea millefolium	whole plant; medicinal tea
Agastache foeniculum	aboveground parts; medicinal tea
Amelanchier alnifolia	roots or buds; medicinal tea
Cornus sericea	roots; medicinal tea
Medicago sativa	aboveground parts; medicinal tea
Mentha canadensis	whole plant; medicinal tea
Monarda fistulosa	aboveground parts; medicinal tea
Populus tremuloides	green bark;medicinal tea
Prunus virginiana var. *melanocarpa*	roots; medicinal tea
Rubus idaeus ssp. *strigosus*	roots; medicinal tea
Salix sp.	inner bark; medicinal tea
For arthritis, muscular aches and pains (8 species)	
Abies balsamea	bark/sap; poultice

Table 4.4 continued

For arthritis, muscular aches and pains (continued)	
Achillea millefolium	aboveground parts; poultice
Acorus americanus	rhizome; poultice
Medicago sativa	aboveground parts; medicinal tea
Mentha canadensis	aboveground parts; medicinal tea
Nuphar lutea ssp. *variegata*	rhizome; poultice
Sorbus americana	bark; medicinal tea
Thuja occidentalis	leaves; poultice?
For sore throats, colds, coughs, "chest problems" (7 species)	
Achillea millefolium	aboveground parts; medicinal tea
Achillea sibirica	aboveground parts; medicinal tea
Acorus americanus	rhizome; sucked, juices swallowed; also as medicinal tea
Mentha canadensis	aboveground parts; medicinal tea, steam inhaled
Polygala senega	root; sucked, juices swallowed
Sium suave	root; eaten raw or medicinal tea
Sorbus americana	root; medicinal tea
For "heart problems" (6 species)	
Acorus americanus	rhizome; medicinal tea
Nuphar lutea ssp. *variegata*	rhizome; medicinal tea
Plantago major	leaves; medicinal tea
Populus tremuloides	inner bark; chewed, juices swallowed
Sium suave	roots; medicinal tea
Valeriana dioica var. *sylvatica*	roots; chewed or medicinal tea
Headache medicines (5 species)	
Achillea millefolium	aboveground parts; poultice
Acorus americanus	rhizome; poultice
Helenium autumnale var. *montanum*	florets; inhaled through the nose
Monarda fistulosa	whole plant; medicinal tea
Sium suave	root; medicinal tea
Miscellaneous (5 species)	
Acorus americanus	rhizome; sucked to relieve dry mouth
Ledum groenlandicum	whole plant; medicinal tea
Mentha canadensis	whole plant; medicinal tea to promote sleep and as a diaphoretic (causes sweating)
Sorbus americana	bark; medicinal tea good for the bones
Valeriana dioica var. *sylvatica*	roots; combined with other medicines to increase efficacy, chewed to prevent aging, wrinkles; to keep you feeling young
Women's medicines (4 species)	
Abies balsamea	bark; medicinal tea
Mentha canadensis	aboveground parts; medicinal tea
Monarda fistulosa	whole plant; medicinal tea
Nuphar lutea ssp. *variegata*	rhizome; medicinal tea

Table 4.4 continued

For facial paralysis; "twisted face" (4 species)	
Abies balsamea	bark; poultice
Acorus americanus	rhizome; medicinal tea, wash
Nuphar lutea ssp. *variegata*	rhizome; poultice
Thuja occidentalis	leaves; brewed as a wash
For fever, chills (4 species)	
Acorus americanus	rhizomes; medicinal tea
Mentha canadensis	whole plant; medicinal tea
Monarda fistulosa	whole plant; medicinal tea
Sium suave	root; medicinal tea
For "kidney problems," diuretics (3 species)	
Equisetum hyemale	aboveground parts; medicinal tea
Lonicera dioica var. *glaucescens*	stems; medicinal tea
Symphoricarpos occidentalis	leafy stems/berries; medicinal tea
General tonics, blood cleansers (3 species)	
Melilotus albus	whole plant; medicinal tea
Sium suave	root; eaten raw
Valeriana dioica var. *sylvatica*	roots; medicinal tea
For diabetes (2 species)	
Acorus americanus	rhizome; medicinal tea
Populus tremuloides	outer bark; medicinal tea
For toothache (2 species)	
Heracleum maximum	root; sucked, juices swallowed
Polygala senega	root; sucked, juices swallowed
Purgatives, emetics (2 species)	
Prunus virginiana	bark; medicinal tea
Shepherdia canadensis	leafy stems; medicinal tea
Eye medicine (1 species)	
Rosa acicularis	roots; brewed as a wash

situation is not unusual, and has been noted in similar studies, for a range of groups (e.g., Peacock 1992, Leighton 1982, Marles 1984).

As in the case of the diet, elders as well as younger people often express the perception that health in general was better in the "old days." This is an understandable impression when one considers that serious contagious diseases such as cholera, tuberculosis and smallpox were not present in the pre-contact era (Mohling 1992:9). The wide range of conditions and diseases for which herbal treatments are reported in the data from the study communities, however, is probably a good indication of the types of ailments typically experienced, at least over the past 200 years. Prior to that time, the pharmacopeia may have been somewhat simpler; the introduction of various diseases since European contact very likely led to a corresponding fluorescence in medicinal knowledge.

As Table 4.4 indicates, problems relating to the skin, such as cuts, burns, and infections, are emphasized in terms of the number of different species employed in their treatment. Gastrointestinal problems (such as poor digestion, stomach complaints, ulcers, or diarrhea) also rank high in terms of numbers of plants used to heal them. Though the sample size in this study is small, the results nonetheless reflect those of other research worldwide, which has demonstrated a general emphasis on gastrointestinal, dermatological and inflammatory conditions (Balick and Cox 1996:56).

Most remedies reported in this study consist of combinations, not just single plants. Elders in both communities used store-bought spices such as black pepper and ground ginger in certain remedies, demonstrating the dynamic nature of traditional medicinal knowledge. The adoption of spices as medicines was a natural step for the northern Algonquians: they did not traditionally use many seasonings, so these pungent, non-food preparations would have seemed logical choices for use in healing (Marles 1997, personal communication).

Most of the combinations are herbal only; however, some have non-plant ingredients as well. The majority of the medicines containing non-plant ingredients were recorded in the community of Shoal Lake. For example, beaver musk glands were added to one mixture for use as a poultice. Innovation was seen in the additions of Sunlight bar soap, Vicks rub, and camphorated oil to different poultices. At James Smith, an antiseptic salve was made by combining animal grease (preferably bear, but pork grease could be substituted) with the dried and ground bark of *Abies balsamea* (L.) P. Mill., and one remedy, to be taken internally, also contained animal grease.

Not including caraway, there were three introduced species reported as medicinal plants in the study. Two, plantain (*Plantago major* L.; Plantaginaceae), and alfalfa (*Medicago sativa* L.; Fabaceae), were reported at Shoal Lake. Information on the last, white sweet-clover (*Melilotus albus* Medik.; Fabaceae), was recorded at James Smith. Alfalfa and sweet-clover are common hay plants. These plants had no Cree names, and uses of them were reportedly learned from Canadians of European descent. Sweet-clover is known to respondents as a blood cleanser and general tonic, while alfalfa is reportedly good for arthritis and ulcers. These herbs are commonly-known parts of the European folk medicinal repertoire (see, for example, Bunney 1985:190, Griggs, 1993:92). It is not known how the third species, common plantain, entered the pharmacopeia of the elder at Shoal Lake. In contrast to the other two species, this plant had a Cree name, *paswêpak*. Also, its reported use was as a medicine for "heart troubles," presumably a fairly serious condition in comparison to those for which alfalfa and sweet-clover were used. (Note, however, that "heart troubles" is a rather vague diagnosis. The actual nature of this condition is problematic: it could refer to anything from arrhythmia to "heartburn.") Plantain, too, is well-known to European herbalists, who use the leaves in tea form to treat various ailments, for example, respiratory problems caused by allergies (Griggs 1993:119), and fever (Weiner 1990:155). This plant is more commonly used in external preparations, though, as a poultice to remedy skin troubles, insect bites and wounds (e.g., Griggs 1993:121, 151-152; Weiner 1990:155-156).

The Doctrine of Signatures refers to the belief, found in a great many cultures, that certain properties of a plant are indications of what that plant is useful for. For example, a plant with milky sap might be believed to be effective in aiding a new mother to produce more milk, or a plant with kidney-shaped leaves might be used to treat kidney troubles. One instance of the Doctrine of Signatures was recorded in this author's research: an elder at James Smith reserve said that a wash to relieve sore eyes could be made from the roots of the wild rose. However, only the roots from those plants with elongated, or "eye-shaped," hips should be used.

Finally, one remedy intended for non-human use was recorded - a remedy for horses elicited at James Smith reserve. This occurrence is not surprising, given the importance accorded to horses by the Plains Cree. The remedy involved making a decoction of the leafy branches of western snowberry, or wolf willow as it is called in this community (this is an imperfect translation of the Cree name, *mâhikaniminanâ[h]tik*, literally, "wolf-berry-plant"). This medicinal brew was intended to act as a diuretic for the horse, and indeed, this same plant was an ingredient in remedies for humans' "kidney troubles," also recorded at James Smith.

4.3 Cultural Significance, Folk Taxonomy and Mythology

4.3.1 Determining Cultural Significance

Any plant reported in an ethnobotanical inventory is presumed to be culturally relevant to some degree. Relevance, however, can range from extremely important to merely recognized by name (Turner 1988). Turner identified three main groups of factors that influence the cultural relevance of a particular plant: ecological salience (frequency and distribution), perceptual salience (obviousness of the plant), and potential utility of the species. She also listed three factors that would be influenced *by* the cultural relevance of the plant: recognition, reputation, and lexical marking (Turner 1988:276-277). In an ideal situation, of course, cultural relevance would be evaluated by the First Nations people themselves; however, as Turner points out,

> ...[I]n North America where today ethnobotanical data are derived mainly from the memories of a very few individuals and not from day-to-day living experiences of native people, it would be neither practical nor meaningful to attempt such a detailed evaluation by native consultants (1988:274).

While this author's study was unfortunately not exhaustive enough to allow quantitative determination of cultural significance according to the indices developed by Turner, some qualitative observations can be made. For example, Turner found a correlation between the antiquity and complexity of plant names and their cultural significance (Turner 1988:274). Specifically, plants with high significance values tended to have relatively short, simple names that could not be analyzed (i.e., broken down into meaningful constituent parts). Ratroot or *wîkês* (*Acorus americanus* (Raf.) Raf.; Araceae: see Plate 4.5) fits this criterion; the antiquity of the name is also indicated by the fact that it has a cognate in Ojibwa (cf. Smith 1932:355). Yellow pond-lily or *waskâtamow* is another important plant (see Plate 4.6) whose name is unanalyzable (cf. Leighton 1982:177).

This author also regards the sheer number of reports of a certain plant to be a significant (though subjective) indication of that plant's importance. Ratroot was the most commonly reported medicinal plant at both reserves, and it was used in the greatest variety of medicinal applications, as demonstrated by its appearance in nine of the sixteen categories in Table 4.4 above. Wild mint occurs in six of the categories in Table 4.4, and was also used as a beverage tea. Yellow pond-lily rhizome appears in five categories and was also mentioned as a food source of the past. It was more commonly cited at Shoal Lake reserve; this likely reflects the fact that Shoal Lake falls within its distributional range, whereas the people of James Smith have to travel a considerable distance to find it. Not enough data were collected to determine the relative significance of the food plants, though subjective analysis shows that berries/fruit top the list of plant foods still used at present. A simple index of importance value (IV) might be useful in terms of highlighting plants that are of widespread importance. Table 4.5 is a list of the plants reported in this thesis, with importance values determined according to the following guidelines (after Marles 1997, personal communication):

IV=1: one person source

IV=2: two or more sources within the same community

IV=3: two or more reports in different communities of the same cultural group (in this case, "Cree," regardless of dialect, is considered one cultural group in contrast to "Algonquin," another cultural group in the Algonquian language family)

IV=4: two or more reports from different communities of different cultural groups

IV=5: widespread knowledge and extensive literature support.

Plate 4.5 Ratroot (*Acorus americanus*) plants

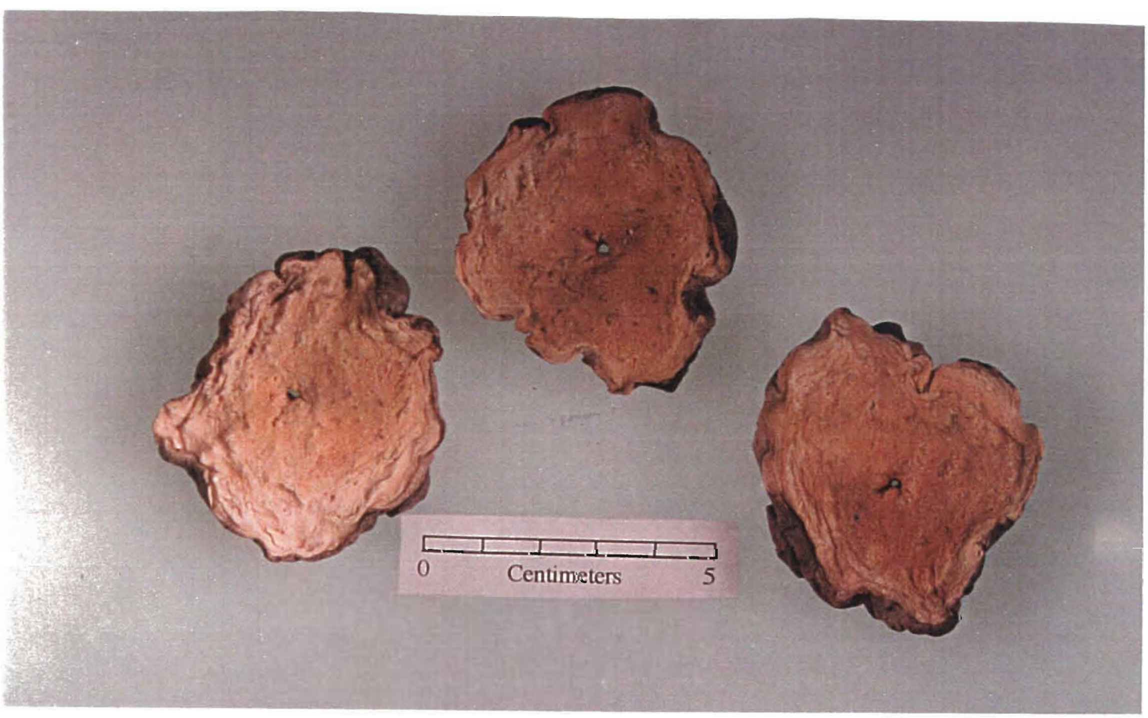

Plate 4.6 Dried yellow pond-lily (*Nuphar lutea* ssp. *variegata*) rhizomes.

The other sources of data used to derive the importance values (i.e., besides this author's fieldwork) were Leighton 1982 (for the Woods Crees, including her comparative notes [Welsh 1960s] from other Saskatchewan communities), Siegfried 1994 (for the Strongwoods Crees of Wabasca/Desmarais), Strath 1903 (for Norway House, Manitoba, and the area within a 300 mile radius of it: Swampy Cree territory), and Black 1980 (for Cree and Algonquin groups in southwestern Quebec).

Table 4.5 Importance Values of Plants Reported in the Study, Based on Fieldwork and Published Ethnobotanies.

This study	L82	S94	S03	B80C	B80A	IV
Abies balsamea	√			√	√	4
Acer negundo var. *interius*						2
Achillea millefolium	√	√	√	√	√	5
Achillea sibirica	√					3
Acorus americanus	√	√	√	√	√	5
Agastache foeniculum	√					3
Allium sp.	√					3
Amelanchier alnifolia	√	√		√	√	4
Aralia nudicaulis	√	√			√	4
Betula papyrifera	√	√	√	√	√	5
Cornus stolonifera	√	√		√	√	4
Corylus cornuta	√	√		√	√	4
Equisetum sp.		√				3
Helenium autumnale var. *montanum*						3
Heracleum maximum	√	√				3
Ledum groenlandicum	√	√		√	√	5
Lonicera dioica var. *glaucescens*	√	√			√	4
Medicago sativa						1
Melilotus albus						1
Mentha canadensis	√	√	√			4
Monarda fistulosa						3
Nuphar lutea ssp. *variegata*	√				√	4
Picea glauca	√	√		√	√	5

L82= Leighton 1982, **S94**= Siegfried 1994, **S03**= Strath 1903, **B80C**=reports from Black's Cree participants (Black 1980), and **B80A**= reports from Black's Algonquin participants (Black 1980) **IV**= the importance value as described in the text above.

Table 4.5 continued

This study	**L82**	**S94**	**S03**	**B80C**	**B80A**	**IV**
Plantago major		√	√		√	4
Polygala senega	√					3
Populus tremuloides	√	√	√	√	√	5
Prunus virginiana	√	√		√	√	5
Rosa acicularis	√	√				3
Rubus idaeus ssp. *strigosus*	√	√	√	√	√	5
Sagittaria cuneata					√	4
Salicomia rubra						2
Salix sp.	√	√	√	√	√	5
Sarracenia purpurea	√	√			√	4
Shepherdia canadensis	√	√			√	4
Sium suave	√	√			√	4
Sorbus americana	√	√				3
Sphagnum spp.	√	√		√	√	5
Symphoricarpos occidentalis						2
Thuja occidentalis	√				√	4
Typha latifolia	√	√			√	4
Urtica dioica ssp. *gracilis*	√	√				3
Vaccinium myrtilloides	√	√		√	√	5
Vaccinium vitis-idaea ssp. *minus*	√	√				3
Valeriana dioica var. *sylvatica*	√	√				3
Viburnum opulus var. *americanum*	√	√			√	4

L82= Leighton 1982, **S94**= Siegfried 1994, **S03**= Strath 1903, **B80C**=reports from Black's Cree participants (Black 1980), and **B80A**= reports from Black's Algonquin participants (Black 1980) **IV**= the importance value as described in the text above.

4.3.2 Cree Folk Taxonomy

Folk taxonomy refers to the structure of people's classification of their biological universe, and has been a subject of study since approximately 1954 (cf. Berlin et al. 1973). There is quite an extensive body of literature on this topic, and the level of analysis that has been reached is fairly sophisticated, as well as diverse in terms of the theoretical models proposed (e.g., Berlin et al.

1973 as compared to Hunn 1982). However, due to the limited scope of this author's study, only a very simple treatment is possible herein.

Cree names were recorded for 38 of the 46 plants reported (again, not including the plants described in Appendix D unless otherwise noted). Of these, nine had more than one name, so that 48 different Cree names were recorded in all (variants in pronunciation of the same basic word are not included in this number). However, not all of the Cree names were rendered in English, either because they were basic morphemes and therefore not translatable except as the plant itself (e.g., *wîkês* can be translated only as *Acorus americanus*), or because, though they may have had recognizable constituent parts, no translation was elicited from the respondents or found in the literature.

It is interesting to note that there does not seem to be a Cree word that translates directly as "plant." When asked, informants often gave the interpretation relating to medicine, or medicinal plants, *maskîkih*. However, there are two common morphemes that can be glossed as "plant": *-a[h]tik* (can also refer to "tree;" the "h" is in brackets here because it was sometimes heard in this morpheme, but not always: see Table 4.7.) and *-wask*. A similar situation is noted in Leighton (1982:85). These are bound, rather than free, morphemes: they cannot stand alone as words.

Very commonly, the recognizable morphemes contained in the plant names refer to plant structures (e.g., *pakwa* :"leaves", *[ô]cêpihk*: "root"). Often these are compounded, as in *pakwâ-(n)-ahtik*, or "leaves-plant."[3] It is interesting to note that, for most species whose fruit is used, the Cree name given refers to the fruit itself, for example, *nîpi-minân*, or "summer-berry" (high bush-cranberry), whereas the name for the whole plant would be *nîpi-minân-ahtik*. In contrast, the names for species which bear fruit that is not used may incorporate the morpheme meaning "berry," but will generally compound this with a morpheme meaning "plant." An example of this is *Shepherdia canadensis* (L.) Nutt. (Elaeagnaceae), called *kinêpik-(o)-minân-ahtik*, or "snake-berry-tree."

Most modifier morphemes can also be grouped. For example, animal names are often incorporated in Cree names. These morphemes always take the form of modifying prefixes, and are often combined with a plant structure root (e.g., *kinêpik-(o)-minân-ahtik*: "snake-berry-tree"). For the most part, at least in this research, names consisting of (animal name) modifier + (plant part) root refer to the fact that the plant is supposed to be food for the particular animal, though "snake-berry-tree" might be an exception to this. At least one plant name containing an animal name modifier represents a metaphorical relationship: the pitcherplant, *Sarracenia purpurea* L. (Sarraceniaceae), is called *ayîkicâs* ("frog pants", diminutive), apparently referring to the inflated shape of the leaves. Still other modifying morphemes help to illustrate some property of the plant, usually through direct description (e.g., *napaka-*: "flat" or *wasî-*: "bright").

A smaller number of plant names consist of a plant name root to which is added a modifying prefix. For example, *wîkask*: "pleasant-smelling plant," refers to *Mentha canadensis*, wild mint. *Môstôs-wîkask*, "bison pleasant-smelling plant,"[4] is the name for "sweetgrass" at Shoal Lake (see Appendix D), and *Monarda fistulosa* L. (Lamiaceae), or wild bergamot, at James Smith. This suggests a category of "pleasant-tasting plants," of which wild mint is the "type species" (or its folk-biological equivalent).[5] As described by Wyman and Harris (1941:120): "The situation is as if in our binomial system the generic name were used alone for the best known species of a genus, while binomial terms were used for all other members of the genus." Initially this author thought perhaps that the category *wîkask* might correspond to the Mint Family (Lamiaceae), since *Mentha canadensis*, *Monarda fistulosa*, and *Scutellaria galericulata* (see Note 5) are all members of this family. However, with *Artemisia frigida* Willd. [Asteraceae] (cf. Leighton 1982:131) and *Hierochloe odorata* (L.) Beauv. (Poaceae) also belonging to *wîkask*, the connection to Lamiaceae is perhaps spurious.

The other two examples of the use of plant name word roots recorded in this fieldwork belong to a somewhat different category. They involve a situation in which a modifier has been added to the name of the "type" form itself. This modifier serves to intensify or emphasize some defining characteristic of the plant. The function of this may be to make the identity of the type form more clear or obvious in contrast to other members of the category. The two examples noted in this research are outlined in Table 4.6.

Two Cree names consisted of "calques," or copied forms. This term refers to a direct, morpheme-by-morpheme translation (Marino 1997, personal communication), in this case, from English to Cree. One example encountered in this research was the form *sîpîkô-min* (literally, "blue berry"), for the blueberry,

Table 4.6 Two "Type" Forms, With Intensifying Modifiers, as Recorded in the Study Area

"type" form	**"type" form with modifier**	**to contrast with**
ôskatask "carrot"; refers to *Sium suave* (in Leighton 1982:162)	*sîwa-skatask* "sweet carrot"; refers to *Sium suave* (in this author's research, Shoal Lake, cf. Meyer 's *sîskatask* from Red Earth, 1971a)	*maci-skatask* "bad carrot"; refers to poisonous *Cicuta maculata* (in Leighton 1982:136)
mîtos "poplar"; refers to *Populus tremuloides* (in Leighton 1982:153)	*wasî-mîtos* "bright poplar"; refers to *Populus tremuloides* (in this author's research, Shoal Lake Reserve)	*mayi-mîtos* "ugly poplar"; refers to *Populus balsamifera* (in Leighton 1982:152; also recorded by this author at Chitek Lake)

Vaccinium angustifolium. The more "traditional" form is *iyini-min*, berry of the people (literally, "person-berry"), which is a good indication of the importance of this food resource in history. The second example is the name sôkaw-ahtik ("sugar tree") for *Acer negundo* var. *interius*, Manitoba maple. *"Sôkaw"* is an early corruption of the English word "sugar," (Meyer 1997, personal communication) so that this name reflects the important use of this tree for making sugar and syrup. The original Cree name of this tree is not known to the author, nor could it be found in the literature for the study area.

Table 4.7 lists some of the morphemes that can be classified into major groups of roots and modifiers, and provides approximate translations. It is not an exhaustive list of the constituent morphemes recorded in this research, rather it is intended to illustrate the major groups or categories of morphemes noticed by this researcher, as discussed above. It should be noted that these "groups" are utilitarian, and have been imposed for convenience only. A complete record of the Cree plant names collected in this thesis forms part of Appendix C. Literal English translations are provided therein where these are known.

4.3.3 Plants in Cree Mythology

Myth has a very important function in traditional societies. Myths are sacred accounts that can serve as charters, or models of behaviour. They can explain the origins of the world, how certain life forms and relationships came to be, what happens at death, and many other otherwise mysterious experiences of human existence. In short, a society's myths are a record of its world view, a method of socializing its children to tradition, ceremony, religion and norms of

Table 4.7 Some Major Groups of Cree Morphemes, from Plant Names in the Study Area

Cree morphemes: Root Forms	**Approximate translation**
Plant parts	
-a[h]tik*	plant or tree
[ô]cêpihk	root
-min, -minân	berry
nîpisî	bark
-pak, -pakwa (plural)	leaf, leaves
pîkô	gum or sap
-sî[h]t	branch
-wask	plant
watapih	root
Cree morphemes: Root Forms	**Approximate translation**
Plant names	
ôskâtask	carrot (*Sium suave*)
wîkask	pleasant-tasting plant (*Mentha canadensis*)
mîtos	poplar (*Populus tremuloides*)
Cree morphemes: Modifiers	**Approximate translation**
Animal names	
ayîkis	frog
kinêpik	snake
mahîkan	wolf
maskwa	bear
wacâsk	muskrat
wâpos	rabbit
Cree morphemes: Modifiers	**Approximate translation**
Properties of the plant	
apisci	small
maskîk	medicine
mihkwa	red
napaka	flat
sîpîkô	blue
sîw-	sweet
sôkaw	sugar
takwêhi	grind, pound
wasî	clear, bright

* elements in brackets were sometimes, but not always, heard in pronunciation.

behaviour (Stevens 1971). Further, myths in traditional societies are considered to be truthful accounts of the past, comparable to the written records of the "great religions." In Cree culture, sacred stories, called *âtayôhkêwin*, deal with the lives and experiences of the *âtayôhkan*, or supernatural beings. These are clearly differentiated from anecdotal, historical tales, or *âcimôwin*, which describe events of the everyday world (Meyer 1985:44). As previously noted, however, the so-called "natural" and "supernatural" cannot be neatly compartmentalized; the fact that *âcimôwin*, (and especially *kayâs âcimôwin*, or "old time stories") often refer to interactions with supernatural beings does not detract in any way from their status as true stories (Wolfart 1973:12).

When asked where their knowledge of medicinal plants came from, this author's respondents most often replied that the knowledge was passed down from a relative. The question of where this knowledge originated, or how it was discovered, was not addressed. In a 1968 interview with Joseph and Helen Whitehead from James Smith, Norma Jensen (Jensen et. al 1968) recorded references to obtaining medicinal knowledge that belong to the category of *kayâs âcimôwin*. Mrs. Whitehead stated that her grandfather received medicine from the *mêmêkwêsiwak* , the "little people with no noses." The *mêmêkwêsiwak* are supernatural beings which figure commonly in Cree beliefs on the Plains as well as the forest (cf. Mandelbaum 1979 [1940]:178-180). According to Mrs. Whitehead's account, these beings lived in a hill; in dreams, her grandfather would go to this hill, which he entered through a pine tree on the side of it. Inside, he would be given medicines in return for gifts such as beads, brooches and necklaces. At the time of the interview, Mrs. Whitehead knew of no one who was still able to obtain medicines in such a manner. Meyer (1971b:380) recorded similar information, related to him by George Head at Red Earth. Mr. Head said that the *mêmêkwêsiwak* lived in the cliffs by the rapids about 13 kilometres up the Carrot River from Red Earth, and would give medicine to the old people in return for tobacco.

Some of the best and most widely known of the sacred stories, or *âtayôhkan*, are the *wîsakêcahk* stories. Briefly, Wisakecahk is the central character of both Cree and Saulteaux oral tradition, most active in an earlier, more mystical time, when animals spoke and there were few humans on earth. His character embodies the disparate attributes of creativity, maliciousness or stupidity, and benevolence, and is referred to variously as Transformer, Trickster and Culture Hero (Brown and Brightman 1988:125). Many compilations of Wisakecahk stories are available; it is not this author's intent to recount them here (e.g., Bear 1973 or 1974, Cuthand 1988, Clay 1978; Brown and Brightman 1988 give a somewhat more in-depth analysis of Cree and Ojibwa versions of some of the stories). Instead, a few general statements will be made.

Wisakecahk stories are thought to be some of the oldest in the northern Algonquian oral history repertoire; the name itself traces back to the proto-Algonquian parent language (Goddard 1974:107-108), and as such would have been unanalyzable as far back as three thousand years ago (Brown and Brightman 1988:125). It is interesting to note, then, that plants figure in several of the segments of the Wisakecahk series. Wisakecahk stories therefore represent an ancient mechanism for teaching, among other things, certain aspects of plant use and plant characteristics, for example, the association of willow with headache cures in "Wisakecahk and the Killdeer," the various effects of rose hips and rock tripe on the body in "Wisakecahk and the Plants," and the morphology of birch and the tinder fungus *Inonotus obliquus* (Pers. ex Fr.) Pilat. (Hymenochaetaceae) in "Wisakecahk and the Birches" and "Wisakecahk and the Origin of *posâkan*," respectively. More generally, these stories served to place humans in the context of their biological environment as a whole. The proper time to recount Wisakecahk stories is in the winters, with their long evenings indoors; in the past, a storyteller could go on for days. It is unfortunate that, due to the pressures of acculturation, the sacred stories no longer have the same importance in contemporary First Nations culture. The oral tradition is no longer the primary means of transmitting knowledge from one generation to the next. While stories are still enjoyed, there is not the same emphasis on them, and inevitably some will be forgotten unless they are recorded.

4.4 Ojibwa Influences

It is an indisputable fact that there are similarities between many aspects of the Ojibwa and Cree cultures in the boreal forest. Material culture, subsistence strategies, even mythology and spirituality have common elements. It is difficult to determine, however, the causes of these similarities. Some are certainly the product of independent invention. The boreal forest, though it consists of a complex mosaic of habitat types, nonetheless exhibits a certain degree of resemblance, at least in character, across its distribution. It is therefore logical that features such as the material culture, which enable life in this type of environment, would have many common elements. Cultural similarities may also hearken back to the ancestral, "proto-Algonquian" condition, before the various groups became differentiated. Parallel elements of mythology and spirituality (such as the image of the Culture Hero, mentioned above) most likely exist as a result of this. The antiquity of some of these elements, often demonstrable linguistically, serves as evidence for this hypothesis. A third explanation for cultural similarities is borrowing or diffusion. Given the dynamic nature of culture and the ubiquity of human curiosity, there can be little doubt that these are important mechanisms. The difficulty lies, however, in determining from which direction the influence has come, or indeed even the exact nature of the influence itself.

The case of plant use is a difficult one. Certainly, there existed similarities between the traditional boreal forest Cree and Ojibwa diets; in many cases this was probably due to resource availablity, though Ford's arguments about cultural determination of resource use are also valid here (1979:290). As he points out, and as other research has corroborated, not every nutritious species was eaten; rather, culturally-based choices were made. However, as species diversity decreases with latitude, the scope for cultural choice would be proportionately limited and the simple fact of a useful species' existence would become increasingly important.

Some uses for plants as food and medicine no doubt date back to proto-Algonquian times, as indicated not only by their wide geographic area of use (which could, after all, be explained by the availability argument as proposed above), but also by the fact that their names are the same or are cognates in the various dialects of both Cree and Ojibwa. For example, plants such as rose (used for both food and medicine), ratroot (an important medicine wherever it grows, and through trade even beyond its natural distribution) and hazelnut (a potentially important, storable food where it grows in quantity) have cognates in these languages (e.g., Smith 1932:355, 359, 385).

Some plant uses were also no doubt learned through borrowing and diffusion. However, as mentioned, it is sometimes difficult to document this flow of knowledge: who learned what from whom? Well-documented phenomena such as the incorporation of elements of the Ojibwa *midêwiwin* into the Swampy Cree Goose Dance, or *niskisimowin*, are far less problematic. The same level of detail simply does not exist for plant use. Ideally, one could look to early ethnobotanical studies to get accounts of interactions of cultures with their plant environments. Then, with this information in hand, one could make comparisons and contrasts, and eventually come to conclusions about knowledge flow, shared cultural elements, and parallel adaptations. Unfortunately, however, most early works do not contain comparable information; the level of detail varies widely from one to another, depending, among many other factors, on the researcher's interests and level of expertise.

This researcher, therefore, found it impossible, with the information collected in this study, to reach any definite conclusions on this issue. However, some interesting observations are possible. Some Ojibwa cultural influence on the people of Shoal Lake reserve can be surmised from the fact that one of the remedies recorded by this researcher was a cure for "twisted face," primarily that caused by bad medicine as opposed to stroke. Bad medicine in this case was put forward as a not extraordinary cause of affliction; the elders seemed to feel competent to deal with it, or at least, that they could find someone who could. A treatment for "twisted face" was also recorded at James Smith reserve, but the cause of the malady was reported to be stroke only. Indeed, though bad medicine was briefly discussed at James Smith reserve, the attitude towards it was one of distrust, fear, and condemnation. This author tentatively suggests that this difference in attitudes might stem from the fact that the population of Shoal Lake was affected to a greater degree by the influx of Swampy Crees and Ojibwas after the smallpox epidemic of 1780-1781 than the predominantly Plains Cree population of James Smith reserve. The perception that the Crees and Ojibwas of the forest are more involved with bad medicine has some historical precedent: Mandelbaum's Plains Cree informants told him in the 1930s that they "regarded the Saulteaux and the Wood Cree as 'bad medicine' men" (Mandelbaum 1979 [1940]:165). This statement also indicates the degree to which other native groups tended to regard the Ojibwa and the Cree of the forest as similar entities.

Notes

1. 100 g (fresh weight) of cattail contains 79.1 g of carbohydrate, 7.7 g of protein, and 4.9 g of fat (Kuhnlein and Turner 1991:362). (No information was available on the nutritional content of yellow pond-lily.) In contrast, the same amount of raw potato (peeled) contains approximately 17.1 g of carbohydrate, 2.1 g of protein and 0.13 g of fat (United States Department of Agriculture 1975).

2. The esteem in which berries were held seems to have been a very widespread trait in northern cultures. In fact, Nicks (1980:44, citing HBCA:B56/a/12 and HBCA:B56/a/13), in her work on historical demographics in northern Alberta, notes the occurrence of late summer "ingatherings" (the equivalent of what are referred to herein as "aggregations") focussed on the picking and drying of berries.

3. In this discussion, hyphens are used to separate the morphemes for purposes of clarity. Parentheses enclose non-meaningful "linking" sounds.

4. *Môstôs* is now translated as "cow," but it originally referred to bison. Bison are now called *pâskwaw* (prairie) *môstôs*; however, if this plant name has any antiquity, it almost certainly referred to bison rather than cattle.

5. This category may have a fairly broad distribution: the author recorded *amisk-(î)-wîkask* (beaver pleasant-tasting plant, or "beaver sweetgrass," as the name was recorded locally) as the name for marsh skullcap (*Scutellaria galericulata* L. [Lamiaceae]) in the Plains Cree community of Chitek Lake in 1994.

Chapter 5: The Relevance of Ethnobotanical Studies to Archaeology

Insights revealed through the study of plant-human interactions in the present and recent past can elucidate resource use, human adaptations and ecological interactions, even aspects of ideology (Ford 1979:298). Ethnobotanical studies are therefore significant to archaeologists in that they can serve as the basis for an understanding of an important source of data in archaeology: the palaeoethnobotanical record. Palaeoethnobotany simply adds a deeper time dimension to this type of study, being "...the analysis and interpretation of the direct interrelationships between humans and plants for whatever purpose as manifested in the archaeological record" (Ford 1979:286).[1] Palaeoethnobotany uses archaeological and ecological approaches to gather data indicative of humans' use of their plant environment, of the effects of the seasonality of plant availability on site location and settlement patterns, of human-plant interdependency, and of the impact of humans on vegetation (Pearsall 1989:2). All of these aspects must be considered if interpretation of archaeological sites is to reach its full potential.

5.1 The Nature of the Palaeoethnobotanical Record

Three types of plant remains may exist in archaeological sites: macrofossils[2] (plant parts visible to the naked eye and identifiable using low-power magnification), microfossils, (see note 2) including pollen, spores and phytoliths (this type requires high-power magnification for identification), and residues on stone tools or ceramics such as pots or pipes. One or more, or none, of these groups may be found in any given site, depending on preservation conditions and sampling strategies (Hastorf and Popper 1988:5-7). Specialized analytical techniques have been developed for each type, and each has unique strengths and weaknesses. A brief introduction to each category of plant remains follows. A discussion with specific reference to the situation in the boreal forest is presented later in the chapter.

5.1.1 Macroremains

Analysis of macroremains is the most commonly undertaken palaeoethno-botanical approach (Pearsall 1989:15). Seeds, fruits, and nuts are very common types of macrofossils; however, in areas with good preservation, wood, fibres, rinds, stems and roots/tubers and the like may also be preserved. Permanently arid sites and anaerobic waterlogged sites are the least destructive environments in terms of preservation of macrofossils (Ford 1979); it is therefore understandable that the major focus of palaeo-ethnobotanical study occurs in regions having such sites (for example, the fill of Danger and Hogup Caves, in Utah, consisted of seeds, hulls and chaff, almost to the exclusion of earth; Thomas 1991:170). However if plant materials are charred, they become more durable and are more likely to be incorporated into the archaeological record in temperate areas with a more variable moisture regime (e.g., charred conifer needles and grass seeds deposited in pit houses at the Keatley Creek site on the Northwest Plateau in British Columbia, in combination with ethnographic accounts, indicated the locations of sleeping platforms; Hayden 1997). Even for charred remains, however, soil pH plays an important role in preservation. As Ford notes, "In soils with a pH below 5.5, pollen, spores and phytoliths are well preserved, but soil acid [sic] and wetting are detrimental to charred materials" (1979:299).

Plant macroremains can be recovered *in situ* or from bulk samples by sieving or flotation. *In situ* recovery tends to bias the sample in favour of larger, easily-seen remains, or material from obvious features. Sieving or screening can be quite destructive to charred or otherwise fragile remains, as anyone who has ever forced lumps of dirt through a screen can imagine. However, careful fine sieving (wet or dry, according to the situation) is the best technique for waterlogged (non-buoyant) or non-charred, desiccated materials for which flotation is inappropriate. Notwithstanding the exceptions just noted, and questions of the dangers of repeated drying and wetting of samples (Hastorf and Popper 1988), flotation, either manual or by machine, seems in most cases to be the least destructive and most reliable method for recovering representative quantities and ranges of macroremains of all size classes from most archaeological deposits (Pearsall 1989:16-19).

5.1.2 Pollen

Pollen analysis, or palynology, has conventionally been used as an aid to establishing chronological sequences of vegetation (and, by extension, palaeoenvironment), particularly in the post-glacial period (Dimbleby 1985), using pollen evidence from stratified waterlogged deposits (e.g., Kuhry *et al.* 1992 for Manitoba and Saskatchewan, Wilson 1982 for the Nipawin area; Beaudoin 1993 summarizes similar work from Alberta). Pollen studies can also be used in situations where the stratigraphy is unclear, to identify the previous surface layers of buried soils (palaeosols). Because of the effects of decomposition, amounts of pollen generally decrease down the soil profile. Bulges in the amounts of pollen at depth can therefore indicate old surface layers, in which something of the concentration of pollen characteristic of a soil surface has been preserved (Dimbleby 1985:45-46).

Such palaeoclimatic data is important to an understanding of the changing relationship between humans and their environment, but palynology can have even more direct applications to knowledge of past lifeways. Archaeological palynology, or the study of pollen from archaeological sites, recognizes that such pollen could be related directly to human activities, and thus could be a valuable tool for site interpretation. For example, if the pollen suite from within a site indicates a different environment than that found outside the cultural area, it is probable that the pollen was introduced through some activity of the occupants of the site. This could include planting of species not normally found in that environment type, or deposition of pollen from plant material brought onto the site, for bedding or food use (Dimbleby 1985:138-139). Anomalous concentrations of pollen in certain areas of the site could indicate activity areas, or elucidate the purposes of structures (e.g., activity areas, or areas for storage of a particular type of plant material). Perhaps the most widely known example of the application of archaeological palynology studies were the pollen analyses from one Neanderthal burial (Shanidar IV) excavated at Shanidar Cave, Iraq (Leroi-Gourhan 1975). In analysing the pollen samples from this burial, Leroi-Gourhan found that, while the majority of the grains were found singly, as was normal for samples from the rest of the site, those of certain species were found in clusters, suggesting that these marked the locations where whole flowers were deposited (Leroi-Gourhan 1975:562-563). Interestingly, research later indicated that most of the species (seven of eight) believed to have been deposited as whole flowers were known to have medicinal applications in the contemporary culture of the area (Solecki 1975:880). Whether the same was true 60 000 years ago in the culture of the

Neanderthals is not known; however, archaeological palynology has clearly demonstrated its potential to raise some interesting avenues of inquiry.

Archaeological pollen analyses must be interpreted with caution, since, as with any technique, potential problems can complicate the record. The first is preservation. "The pollen recovered from archaeological site sediments represent [sic] the sum total of the originally deposited pollen *minus* the pollen lost to the processes of deterioration" (Bryant and Hall 1993:282). If deterioration is extensive, the sample will be biased in favour of more durable pollen types, with large amounts of indeterminable fragments perhaps representing the more fragile taxa. Very fragmented samples can also introduce bias in favour of taxa with distinctive morphological features that can be identified, over plain taxa which, when fragmented, are unidentifiable. The research of Bryant and Hall suggests that a sample should be considered suspect if it exhibits all three of the following conditions: 1) it has pollen from only a few plant taxa, especially when this is dominated by the most durable types, with easily recognized morphological features; 2) pollen concentrations are below 1000 grains/g or 2500 grains/cc of sediment; and 3) it has a large percentage of indeterminable grains (Bryant and Hall 1993:283).

The second problem is distinguishing pollen of locally-growing species from that which may have been carried into the area from remote locations as part of the normal pollen rain. Dimbleby (1957:17) proposes the rule of thumb that species comprising more than two percent of the pollen count at any one time are present within 400 m of the site, while taxa comprising over five percent are present in the immediate vicinity. However, this "rule" must be applied with caution, since vertical distribution can also complicate the situation in some cases.

5.1.3 Phytoliths

Phytoliths are opaline silica bodies formed within the stem, leaf, and inflorescence tissues of some kinds of plants. Monocots, and particularly the grass family, are known to produce abundant, distinctive phytoliths; however, as more research is done, more taxa are found to produce them (Pearsall 1989:311-312). The useful thing about phytoliths from an archaeological perspective is that they are inorganic, and therefore not susceptible to decay in the same way as other plant remains. Certain types are more prone to dissolution than others, however, so that some representational biases are possible with this technique as well. No rules of thumb can be advanced at this time, because the particular soil environment has a significant effect (either positive or negative) on phytolith preservation. Instead, the question must be resolved for specific sites and regions (Piperno 1988:147). Phytoliths can be transported long distances as components of windblown dust; however, there is no developed concept of "phytolith rain" parallel to that of pollen rain, and researchers generally believe that most phytoliths enter the soil *in situ* when the plants decay or burn (Pearsall 1989:339), making them very useful for determining what vegetation was actually at the site.

This is a relatively new palaeoethnobotanical field in North America,[3] therefore techniques of analysis are still being developed, and few identification keys or published regional studies exist. As a result, it is currently difficult for any but the experts to attempt such analyses. However, specialists in the field have found that phytolith analysis is a valuable complement to pollen studies for reconstructing past environments as well as learning about crop domestication, since many grasses (including maize), as well as the New World squashes (*Cucurbita* spp.), produce recognizable phytoliths (Pearsall 1989:326, 338).

5.1.4 Analysis of Residues on Tools or Ceramics

Residue analysis, such as isotopic analysis, can be useful in situations where the plant macroremains are carbonized and/or fragmented beyond morphological recognition, or where they occur as cooked-on residues on ceramic vessel sherds. Because it analyses the food itself, this method is a more direct approach than trace element and isotope analysis of human bone to infer past diet. For example, $^{13}C/^{12}C$ and $^{15}N/^{14}N$ isotopic analysis of residues adhering to ceramic vessel sherds have been done at sites in Peru (Hastorf and DeNiro 1985, DeNiro and Hastorf 1985). These researchers analysed modern residues of known origin (e.g., beans, corn, potatoes), and used their observations to separate the archaeological residues into three groups: nitrogen-fixing plants (which are mainly legumes), C_3 plants other than legumes, and C_4 or crassulacean acid metabolism (CAM) plants. They then applied this knowledge to archaeological specimens. This type of analysis is most useful in regions where plants of all three groups were utilized, as in the central Peruvian Andes where Hastorf and DeNiro's research was based. In addition, these authors believe that it is possible that residues from the outsides of the vessels could be subjected to the same type of analysis, to determine changing patterns of fuel use (i.e., whether wood - C_3 - or maize cobs - C_4 - were being burned); however, this has not been tested.

5.2 Palaeoethnobotany in the Boreal Forest: Problems and Possibilities

The remainder of the discussion in this chapter will relate primarily to the situation in the boreal forest, since it is a vegetation type common to both study communities, and presents the archaeologist with a unique set of problems not encountered in other western Canadian contexts such as the parklands and prairies. Unfortunately, data that are fine-grained enough to allow discussion of distribution of specific plant populations, or of detailed cultural adaptations, do not exist. Therefore, assumptions inherent in this discussion include: 1) that the vegetation in the study region would have been relatively stable over the past 3000 to 4000 years (see Chapter Two); and 2) that the people resident in the boreal forest throughout history would have used the plant species in the same or similar ways as people living there at the present time or in the recent past.

Existing archaeological work in the boreal forest of Saskatchewan suggests that locations of high site potential include areas of high, well-drained ground adjacent to open water (not muskeg). It has been noted, moreover, that areas known as good camping spots today (often now the locations of park campgrounds, in fact), would have been so recognized and utilized in the past as well. However, this is not a hard and fast rule, and scattered sites can be found in many different micro-niches.[4] Known boreal forest archaeological sites are typically poor in terms of preservation of organic types of artifacts such as wood, bark, antler and bone. This situation is due to the nature of the boreal forest climate and soils. The climate, with its marked seasonal fluctuations in temperature and precipitation, is detrimental to the preservation of any kind of non-lithic, non-ceramic artifact. The soils, formed under a litter of conifer needles, are acidic (Moss 1978, Sposito 1989:209), which causes the chemical weathering of high pH artifacts such as the inorganic portion of bone. As a result of the long periods of low temperatures and the acidic nature of the soils, soil formation and accumulation in boreal forest uplands is very slow (Eliott-Fisk 1988:36). In consequence, materials undergo considerable mechanical weathering due to long periods of exposure on the soil surface. This may be part of the reason for the bias in archaeological interpretation of boreal forest sites in favour of hunting and hunting-related activities, since lithic items such as flakes, scrapers and projectile points tend to be more durable in subaerial situations. Pottery is also commonly found, and interpretation of ceramic styles has contributed to an understanding of population movements and changes over time (e.g., Paquin 1995). On the other hand, as noted above, certain types of plant remains, such as pollen and phytoliths, are actually preserved better in acid (as opposed to alkaline) conditions. This suggests the potential for using a wider range of archaeologically-recovered plant materials to aid in site interpretation in the boreal forest.

Archaeologists realize that their reconnaissance strategies have a significant impact on where sites are found. It is more than a coincidence that the majority of sites that have been reported from early surveys are linearly distributed along rivers, and/or within easy access of roads. Ives' work on the Alsands lease area in northern Alberta revealed another type of boreal forest micro-environment (in addition to areas adjacent to waterways) in which archaeological sites can be found, namely raised knobs or ridges in peatlands (Ives 1982, 1993). Under normal circumstances, contemporary access to these types of micro-environments can be problematic; post-disturbance survey in such a case is certainly the easiest method of assessing these difficult areas.[5] In terms of preservation of botanical remains, sites on these raised terrain features would likely present the same problems as the upland sites discussed above, as they support jack pine (*Pinus banksiana*) and aspen (*Populus tremuloides*) communities (Ives 1982:97) similar to other upland areas. Recovery techniques in the work reported by Ives were focused on lithic items as the best indicators of a site; there was no mention of palaeoethnobotanical sampling.[6]

A concern with plant remains that do survive in the archaeological record in the boreal forest is that species that were utilized were, almost without exception, native to the area. In this presumed absence of cultivars/exotic species, the issue becomes whether one can determine that the deposits relate to cultural activity, rather than to non-cultural, "natural" deposition of the remains of native species. The answer to this problem of course lies in the context of the remains. For example, the macroremains recovered at Saskatoon Mountain in west central Alberta (charred seeds of *Rosa*, *Rubus*, *Prunus*, *Fragaria* and *Arctostaphylos uva-ursi* — all native and common in the area) came out of hearth deposits that were surrounded by sterile matrix (Beaudoin *et al.* 1996:117-118). Unfortunately, known sites with such clear contexts and stratigraphy are rare.

The importance of context and patterning is further emphasized by Lennstrom and Hastorf, who insist that all areas in a site should be sampled for botanical remains, not only the obvious features. Unsystematic collection strategies are not explicitly encouraged in the archaeological community, but these authors feel that the prevalent practice of sampling only features of "known" botanical productivity (such as hearths and pits) creates a self-fulfilling prophecy (1995:702; Toll 1988 also addresses this question). Moreover, Lennstrom and Hastorf advocate systematic stratified sampling (i.e., from the cultural level or living floor, *as well as the layers above and below it*), in order to further elucidate the nature of the record by providing comparisons between the features/living floors and neighbouring loci (Lennstrom and Hastorf 1995:704-705), and demonstrate the use and results of this technique in their work at a site in Peru. This is an excellent recommendation in sites with good stratigraphic profiles, but it may prove to be problematic in some boreal forest sites, where the above-noted slow soil accumulation typically results in greatly compressed stratigraphy (Reid 1988:191), which tends to be particularly susceptible to damage by bioturbation and cryoturbation.

Archaeologists working in the boreal forest are no doubt aware of these concerns, but might be unsure how to address them. They certainly can seem daunting. Hayden (1997) summarized the problems inherent in looking for prehistoric plant remains in his research area (the Middle Fraser River Canyon, on the western edge of the Northwest Plateau of North America) but these obstacles are also encountered in the boreal forest of Saskatchewan:

> [R]emoving and processing sediment samples increases excavation time and effort; the bags become heavy and cumbersome; finding someone to analyze them can be difficult; and devoting scarce excavation funds to search for plant remains may mean sacrificing other kinds of analysis for an enterprise with uncertain payoffs–or at least ones that are not immediately visible (Hayden 1997:77).

Following are some types of data that might indicate humans' interactions with plants in the boreal forest context, as well as some specific concerns for their use in this environment. This discussion, though admittedly very preliminary, goes beyond the remains of the plants themselves to encompass things like features, cultural modifications of the landscape, and even site locations, that might be more visible and/or useful to the archaeologist.

5.2.1 Plant Remains and Associated Artifacts

Plant macroremains, unless charred, are unlikely to be part of a boreal forest archaeological assemblage. However, there is precedent for the identification of plant macroremains in boreal forest sites under certain conditions. As mentioned above, the Saskatoon Mountain site yielded identifiable fruit seeds from a very old hearth, which was deeply buried in clifftop aeolian sand dune deposits (Beaudoin *et al.* 1996). Perhaps a useful area of inquiry would be sites in sandy matrices elsewhere in the boreal forest. Again, it should be stressed that the context of the remains is of paramount importance; since the taxa themselves will almost certainly be native, context is the only way to determine whether they exist in the site as a result of cultural or "natural" processes.

Pollen is preserved well in acidic soils because most microbiological activity is inhibited in this type of environment. "The reaction range commonly tolerated by soil bacteria is that between pH 4 and pH 10. The optimum within this range is slightly on the alkaline side of neutrality" (Clark 1967:31). Indeed, "[s]oils whose pH is above 6 are virtually useless for pollen analysis" (Dimbleby 1957:18, also see Table 2, p. 19 in the same article). Consequently, pollen is one of the types of plant remains one might expect to find in boreal forest soils. In addition, the problem of intrusion of pollen from remote sources has been found to be minimal in forested sites (Dimbleby 1957:16). In other words, pollen found in appreciable amounts within boreal forest sites is most likely to have been produced by the local vegetation, or, if this is determined not to be the case, it is likely to have been introduced through the activities of humans. However, studies have also shown that pollen preservation is poor or nonexistent in areas that have been burned (Dimbleby 1957:18), which suggests serious problems in this fire-adapted ecosystem. To this author's knowledge, the potential of archaeological pollen analysis in boreal forest archaeological sites remains untested.

Phytoliths distinctive at least to the level of family have been identified in many families of monocots, dicots, gymnosperms and pteridophytes. Those pertinent to the study area include: Poaceae, Boraginaceae, Asteraceae, Cucurbitaceae, Loranthaceae, Urticaceae, Pinaceae, Polypodiaceae, Selaginellaceae and Equisetaceae (after Piperno 1988:108). It must be kept in mind, however, that most of the research has been carried out in tropical areas, and the production and distinctiveness of phytoliths by species in the study area is therefore unknown. Research is currently underway by Matthew Boyd, a graduate student at the University of Calgary, who is working on identifying distinctive aspen (*Populus tremuloides*) phytoliths. If successful, Boyd's work will be useful for determining whether particular sites were within the boundaries of the aspen parkland or the grassland when they were occupied (Boyd 1997). Phytolith analysis may also be useful at boreal forest sites, as a complement to pollen studies in the reconstruction of palaeoclimate. Boreal forest soils are some of the more favourable in terms of minimizing phytolith dissolution (dissolution is greatly accelerated at pH 9 and above; Piperno 1988:146), so there is potential for this type of analysis to be productive. However, as in the case of many of the other methods introduced herein, there is a need for regional studies, both to identify useful taxa, and to determine the conditions affecting their preservation.

Residues of cooked foods are occasionally found on the interiors of ceramic sherds from boreal forest sites. These can be analysed to determine whether the material that was cooked was of plant or animal origin. Unfortunately, replicative experiments in Peru have shown that residues were found to occur most reliably and evenly when the plant material was boiled and mashed prior to being charred onto the vessel (Hastorf and DeNiro 1985:490). It is not known whether all foods cooked by boreal forest peoples would undergo this process, however, it has been found that adhered residue is not always present in sufficient quantity for analysis. Mary Malainey, a graduate student at the University of Manitoba, has been working with residue analysis techniques that are somewhat more useful in boreal forest studies. Because adhered residues are not often found in sufficient quantities, she has been using residues absorbed into the walls of pottery vessels. Using gas chromatography, she has been able to analyse the extracted total lipids, identifying and comparing the fatty acid composition of the samples (Malainey 1997a). As a result of extensive replicative work using modern reference materials, she has been able to recognize the following foods and combinations of foods: 1) large herbivore; 2) mainly large herbivore, with plant; 3) mainly plant, with large herbivore; 4) plant; 5) mainly fish or C_4 plant with plant; 6) fish or C_4 plant; and 7) fat or marrow (Malainey 1997a).[7] She has studied residues on potsherds from sites in the grasslands, parklands and boreal forest, and has proposed significant findings with regard to site seasonality and subsistence strategies for these three areas (Malainey 1997b). This is an exciting avenue of research, with great potential for furthering our understanding of boreal forest adaptations.

Chemical analysis of organic residue from stone tools has been used in sites in arid regions, not to try to identify the type of plant, but simply to determine whether the material is of plant or animal origin (Briuer 1976). This type of work could be of use in the boreal forest as well, if it could be determined that such residue had survived in the archaeological record (which can be accomplished easily enough - Briuer identified samples to be analyzed based on observation of intact organic residue using a microscope). Use of this technique would demand a shift in the way archaeologists think about tools: they have importance beyond their metric attributes, and they don't have to be clean!

Another important clue to activities that might have been carried on at a site is the artifact assemblage itself. Though no tool types *specifically* for use in plant-related activities were recorded in this research (as is also the case with others': cf. Leighton 1982, Siegfried 1994), a great variety of artifacts would nonetheless have been used as aids in plant collecting, processing, and storage. These would have included various baskets and other containers, sharp knives (bifaces) for stripping bark and cutting roots and stems, grinding stones for powdering dried plant material, stones for crushing chokecherries, and stones to serve as "anvils" for the previous two activities. As Peacock points out, however, one problem lies in determining whether the particular artifacts were also used for other purposes, or whether they were devoted exclusively to plant-related activities (1992:102). Further, she notes that rounded cobbles are often found in sites, yet are not considered "cultural" because they show no signs of having been used. Her own research revealed, however, that such stones were often employed in preparing plants for food and medicines (1992:102). She suggests that usewear and/or residue analysis might be useful, and cites European work that has identified distinctive microwear polishes on lithic tools used in plant harvest, especially those used to cut "soft plants" or greens and stems (Vaughan 1985).

5.2.2 Features

As mentioned above, features such as hearths and pits[8] may often contain palaeoethnobotanical materials. It was also emphasized, however, that researchers should not concentrate solely on these features when sampling for such materials. One often finds what one looks for, and sampling only these features can lead to skewed ideas about the distribution and preservation of palaeoethnobotanical evidence. For example, intuition would suggest that hearths (in which material would be charred) and pits (in which the material might have been buried faster than that lying on the surface) would be the most likely places to find preserved plant material (as was the case in Beaudoin *et al.*

1996). In the absence of a great deal more research in this region, however, one cannot simply assume this to be the case in all situations. The ideal strategy would be to excavate a single level over a large area (as advocated by Reid 1988), thus exposing features in relation to each other. This would admittedly be very difficult given the usual compressed stratigraphy in boreal forest sites, but it would enable informed, intelligent sampling of features as well as the surrounding living floor, with some understanding of how it all fits together.

5.2.3 Site Locations

The concept of subsistence-settlement patterns has contributed a regional perspective to archaeology, advocating a broad study of the full range of activities in the seasonal round of hunter-gatherers (Pokotylo and Froese 1983:127). Such research can contribute to an understanding of cultural ecology and site seasonality, the latter reflected both by assemblage variability and site location (Pokotylo and Froese 1983:127). This concept allows for a consideration of plant resources in relation to site location, and it is this aspect that is of interest in the present discussion. Some research on the plains and the southern interior plateau of British Columbia has utilized the concept of subsistence-settlement patterns, with particular focus on vegetation as a site location determinant (Pokotylo and Froese 1983, Aaberg 1983).

Concentrated resources such as nuts, berries, tubers, or various types of medicinal plants might have been factors in determining locations of temporary camps in the boreal forest at certain times. As Siegfried (1994:195) points out, "...not every site was necessarily a hunting camp. For example, elders of Wabasca/Desmarais remembered camping at special locations where blueberries grew in great abundance". Unfortunately this forest type is characterized by frequent disturbances, causing shifts in the vegetation resource patches over time. The only constant (on a time scale of concern to archaeologists) is topography. Certain sites (upland or lowland) have the potential to sustain certain types of plants; which types will actually be present at a given time depends on the current successional stage. Though advocating a consideration of palaeoecology, the author does not mean to suggest that extant plant communities be discounted; while they might not necessarily have a long history at the site, they do indicate the types of resources that could have been available at different times in the past. Archaeologists should keep an open mind about the reasons for site locations, and look for clues such as topography and extant vegetation, in addition to direct evidence like plant macro- or microremains and the presence of artifacts possibly related to plant gathering or processing, to help them understand and interpret sites.

5.2.4 Cultural Modification of the Landscape

The recognition of culturally modified trees (CMTs) is gaining in prominence as an indication of traditional resource use in forested areas (e.g., Stryd 1997, discussing the recognition, recording and preservation of different types of CMTs in coastal and interior British Columbia forests). The inner bark, or "cambium" (Leighton 1982) of certain trees was a well known source of food for many indigenous groups (e.g., see Swetnam 1984 for food use of pine inner bark in western North America). Aspen (Leighton 1982, Siegfried 1994), birch, and jack pine cambiums (Leighton 1982) were used as food by boreal forest Crees, and, though not reported in this author's study, it is likely that these foods were widely known and used throughout the boreal forest. Studies of *Pinus* spp. indicate that the harvest of inner bark for food would leave an oval or rectangular scar, sometimes pointed at the top, beginning above ground level and continuing as much as three metres up the trunk (Swetnam 1984:179). Swetnam further suggests that this type of alteration would occur in groups, probably in proximity to campsites with water. While his work involved only pine trees, it is reasonable to assume some similarities between these and birch and aspen trees in terms of the type of scarring that would be produced.

Other types of cultural alteration of trees would include trail blazes, which would be much smaller, and occur on trails or travel routes (Swetnam 1984:179), and removal of bark for use in construction (e.g., canoe-making). According to Siegfried, removal of birch bark for construction material would leave a dark brown scar around the circumference of the tree, but would not kill it, as only the outer layer of bark was taken, and the cambium left unharmed (Siegfried 1994:241). This was in contrast to the harvesting of the cambium for food, since in that case the cambium would be removed around the entire circumference of the tree. The girdled tree would die, but could be used for firewood the following year (Seigfried 1997, personal communication). In areas of the boreal forest in which old trees remain, cultural alteration of these trees should be considered as evidence of human resource use.

Even people in non-agrarian societies were known to modify their plant environment by planting or transplanting species to locations beyond their normal distributional range (e.g., Gilmore 1931). Inhabitants of the boreal forest were evidently no exception (see Black 1978, Leighton 1982). This type of landscape modification, though detectable by persons familiar with normal species ranges, may seem somewhat more subtle to most researchers than tree scarification. Nevertheless, this practice can result in long-term clues, as plant populations may persist in discontinuous patches. After examining and rejecting evidence for other vectors of dispersal (e.g., wind, animals), Black concluded that several species occurred in her study area (the St. Maurice and

Ottawa drainages in Quebec), as a result of a human agent. These included species that were far outside of their normal ranges, e.g., *Acorus americanus* (1978:258), as well as some that were at or near their limits, but only found in the vicinity of former and present human habitation sites, such as the butternut, *Juglans cinerea* L. (Juglanaceae) (1978:259), and two species for which there was direct evidence of intentional planting beyond the normal range: wild strawberry (*Fragaria virginiana* Duchesne; Rosaceae), and chokecherry (1978:260-261). While no instances of planting or transplanting were reported in this author's study, and no anomalous species occurrences were noted, propagation of *Heracleum maximum* and *Alisma plantago-aquatica* L.; Alismaceae (from seed) and *Sorbus decora* (Sarg.) Schneid. (from a transplant) was reported by Leighton from her study area further north (1982:89-90).

5.3 Conclusions

Ceramics in boreal forest sites are widely believed to have been produced by women, and some researchers have done insightful studies into demographics, kinship and marriage systems based on the distribution of pottery styles and modes of decoration (e.g., Paquin 1995 for the ancestral Western Woods Cree makers of Selkirk ware, specifically the Kisis complex). This author feels that a similarly useful body of knowledge, illuminating yet other facets of pre-Contact life in the boreal forest, can be built up through use of the palaeoethnobotanical record. Just as ethnobotany can reveal the presence of women in the historic record, palaeoethnobotany can make women and a wider range of their activities more visible to archaeologists. Regardless of the problems (both real and perceived) inherent in doing palaeoethnobotanical studies in the boreal forest, more attempts must be made. Otherwise, a serious gap in knowledge is perpetuated, and a whole class of information continues to be ignored.

Notes

1. Ford distinguishes palaeoethnobotany from archaeobotany as follows: "Archaeobotany refers to the recovery and identification of plants by specialists regardless of discipline; paleoethnobotany [sic] implies their interpretation by particular specialists" (Ford 1979:299). Therefore, archaeobotanical studies can take a number of approaches; they can include palaeoethnobotany, but they can also be oriented to problems unrelated to human activities, such as palaeoclimatic reconstruction (Ford 1979:299). The difference between archaeobotany and palaeobotany may be debatable, but this author has chosen to retain the former term.

2. Ford prefers the terms "macro*remains*" and "micro*remains*" rather than "macro-" and "micro*fossils*," since such remains in archaeological contexts, at least in North America, are rarely fossilized (Ford 1979:301). However, since the latter terms remain in common usage in the discipline, I will continue to use them interchangeably with the former.

3. In the Old World, however, phytoliths have been used to identify species of cultivated grasses since the early 1900s (Pearsall 1989).

4. Of course, some of these scattered sites may relate to earlier climate regimes, under which the locations of the vegetation zone boundaries were shifted northward (as discussed in Chapter Two). Therefore, the sites could date back to a time when the dominant vegetation of the area was parkland or grassland. There are ways of determining what the vegetation would have been, one of which (phytolith analysis) is discussed in a subsequent section. It is this author's belief, however, that at least some of the sites in "unlikely" places in the boreal forest were indeed formed under forest vegetation, and perhaps represent some hitherto unexplored aspects of boreal forest adaptation.

5. This unique opportunity was afforded in the early 1980s, when a large area of muskeg was drained and cleared in preparation for oil sands development, then remained in that state (slightly disturbed but undeveloped) for several years as the project was delayed due to the political climate and economy at the time. In consequence, archaeologists were able to take advantage of the improved accessibility and visibility to conduct surveys on areas, not well-drained and not particularly close to open water, that might not normally have been looked at (Ives 1982, 1993).

6. It is likely that archaeological sites occur *under* peatlands as well. Palaeoecological work has shown that peatlands in western Canada developed relatively recently (i.e., within the last 3000 to 4000 years), and therefore could have buried habitation sites. The potential for preservation of

botanical remains would likely be much higher in such a situation. The problem is how to find such sites.

7. In her research, "C_4 plant" can be equated with corn (Malainey 1997a). C_4 plants are relatively rare this far north; most that are present are grasses (Krenzer et al. 1975, Teeri and Stowe 1976). While certain (non-grass) plants of saline habitats (e.g., *Salicornia rubra*, Harms 1997, personal communication) have the C_4 pathway, no C_4 species, with the exception of corn, was known to have been consumed in Malainey's study area. Malainey suggests that isotopic analysis or analysis of sterols (i.e., whether plant or animal types) might be useful in differentiating fish and corn (Malainey 1997a).

8. The types of pits likely to occur in boreal forest sites are boiling pits and possibly cache pits (Siegfried 1994:195). No evidence of roasting pits is found in the ethnographic or historic literature for this area, nor is there archaeological evidence to support their existence.

Chapter Six: Summary and Conclusions

6.1 Summary

The boreal forest, with its warm summers and cold winters, supports a physiognomically consistent vegetation type dominated by coniferous trees. However, the apparent uniformity of the boreal forest is belied upon closer inspection. Instead, this biome is well adapted to disturbance, and therefore comprises a dynamic mosaic of microenvironments, each supporting a particular community of floral and faunal resources.

For thousands of years, transhumant hunting and gathering people have inhabited this uniquely varied environment, developing complex cultural adaptations which reflected an intimate knowledge and understanding of their surroundings. The descendants of these people continued to live in their traditional manner until relatively recently; even the institution of the fur trade which followed European contact was not immediately disruptive. However, acculturative pressures have increased exponentially over the last century, so that much of the traditional culture of the boreal forest has fallen out of use. This thesis represents a small sample of the knowledge that remains, specifically in the realm of plant-human interactions.

A total of 46 species (plus ten unknowns, presented in Appendix D) were reported as useful for medicines, foods, or various miscellaneous categories, by people of the James Smith and Shoal Lake reserves. This number seems small when compared to the results of other boreal forest ethnobotanical studies. A number of factors could account for this, including the short duration of the study and the fact that the principal researcher was not a First Nations person. However, the continuing process of acculturation and knowledge attrition may also be partially responsible. Nonetheless, this researcher believes that valuable information was recorded in this study.

Of the 46 plants for which the scientific name has been determined, 36 species were used for medicinal purposes, thirteen for food or "condiments," two for non-medicinal beverages and six for other uses. The marked emphasis on medicinal applications evidenced in this research is a situation noted previously by other ethnobotanists. One possible explanation for this is that medicinal knowledge was retained out of necessity, and remains important, while technological and food uses were supplanted relatively quickly because of the ease of access to, and the convenience of, imported goods. Another possibility relates to a research bias, wherein greater importance is attributed to medicinal applications, whether consciously or unconsciously, by the researcher and/or the respondents. This results in an emphasis on such applications at the expense of others.

The extent to which Ojibwa culture influenced the Crees' interactions with plants in the study area could not be determined in this study. Similarities in material culture, diet, and even pharmacopeia could be due to a number of factors. These include independent invention, as similar resources are available throughout the boreal forest; parallel development from ancestral proto-Algonquian culture; and, of course, borrowing or diffusion. It was impossible, with the information collected in this study, to reach any definite conclusions on this matter.

Many types of palaeoethnobotanical data, potentially valuable to the boreal forest archaeologist, have been discussed in this thesis. Some, such as cooking residues absorbed into the walls of ceramic vessels, show tremendous promise for understanding certain aspects of the human-plant dynamic. Others (for example, archaeological pollen studies), though extremely useful in other parts of the world, might not have the same significance in the boreal forest due to factors such as its problematic stratigraphy and the frequency of fires. The methods that will prove useful in the boreal forest will depend, of course, on a combination of elements including the cultures which created and left the archaeological record (i.e., what kind of a record they left), and the preservation conditions that determined how much or how little of that record would survive for archaeologists to examine. Nevertheless, various methods in use by palaeoethnobotanists worldwide have been presented herein. The potential utility of some of these methods (such as pollen and phytolith studies, residue analysis and macrofossil studies using flotation) in boreal forest research settings has been explored. Some suggestions for use of these methods in future archaeological and palaeoethnobotanical work in the boreal forest will be forwarded in section 6.2.1.2. It is hoped that archaeologists will find this of some use.

6.2 Conclusions

It has been the intent of this thesis to bring attention to the traditional importance of plant-human interrelationships in the boreal forest, in part using fieldwork done in two communities within this biome. Given the climate of this area, and the culture of the peoples who have adapted to it, it is not surprising that plants would have played important roles in subsistence and material culture. Technological uses of plant material have been thoroughly reported elsewhere. Regarding the diet, there is no question that meat and fish would have been the major staples. However, it is also certain that plant foods were an important source of nutrients, provided variety to the fare, and were occasionally vital as emergency foods when other resources failed. In terms of healing, plants represented a major resource (though not the only important resource in that regard).

The reliability of the plant food resource was fairly consistent, though there were limits to its availability, both in time and space. Species that were available in abundance, such as fall-ripening berries, would have been an attractive and important resource when they ripened, and would likely have been crucial factors in determining settlement location in season. Understanding the plant-human dynamic, then, is as important for understanding cultural adaptations as a knowledge of hunting strategies and material technology.

6.2.1 Fulfillment of Research Goals

The goals of this thesis were twofold: 1) to add to the body of general ethnobotanical knowledge, and to investigate the ethnobotany of the Cree people of the Saskatchewan River drainage in particular; and 2) to make suggestions that might lead to a slight shift in the focus of boreal forest archaeology towards a more balanced interpretational view of sites in this biome.

6.2.1.1 Knowledge Preservation and Contributions to Ethnobotanical Knowledge

Very little ethnobotany has been done in Saskatchewan, with the notable exceptions of the work of Anna Leighton and Robin Marles, some years ago. This thesis represents the first such research in the study communities.

Many of the uses of plants reported by the Cree people of the study communities in this thesis are remembered uses, no longer part of the daily lives of the respondents. This situation is understandable; first, participation in the fur trade allowed food and other goods to be bought, thus lightening the burden of food procurement somewhat, and representing a welcome change from the old ways, which were by no means easy. Now, many of the products and conveniences of modern western society have become necessities, much as they are for most of the rest of the Canadian population.

The oral tradition, so effective as a means of information transfer in traditional societies, cannot compete with the pervasiveness of non-native culture. The young people have expectations similar to those of other Canadians their age, and often may not attach great importance to learning their own language or traditions. However, this author believes that the total loss of traditional plant knowledge would be tragic, not only for First Nations, but for humanity as a whole, and therefore projects such as this one are important.

Yet, the issue of documenting traditional plant knowledge raises problems. Some, which were encountered by this researcher during the course of fieldwork, included the following. First of all is the question of the appropriateness of such research being conducted by a non-native researcher. In view of the history of relations between dominant and indigenous cultures the world over, suspicion and resentment are not unusual, nor unjustified. Second, there is the question of the research results: to whom should the benefits of such research accrue? Again, there is unfavourable precedent. Third, the methods of recording the information were questioned by some. This knowledge was traditionally passed on orally; it was never written, and certainly never video- or audio- taped.

This project attempted to address the first two of these concerns in several ways. First, this researcher was to train members of each study community in the techniques of information recording and data collection, so that this type of research could be continued after the project was over. Even so, and even with the approval of the Chiefs and band councils, and the active participation of local people, it is accepted that some knowledge (perhaps a significant portion) would simply not have been shared by the elders. It is hoped that acknowledgment of this fact will not detract from the value of the information that has been presented herein. Second, it was the intent of this project, though funded by federal and provincial agencies, to recognize the rights of First Nations to their intellectual property. Therefore, written provisions were made stating that development of information recorded in this study would not take place except in partnership with the First Nations stewards of that knowledge (Marles 1993). In addition, the educational aspect was believed to be as important as development. To this end, resource materials, suitable for use in schools, for example, were prepared by this researcher and placed in each study community as well as the Saskatchewan Indian Cultural Centre (SICC) in Saskatoon, which was seen as a sort of central, accessible repository. Copies of this thesis and the technical reports will also be returned to the communities and the SICC. This researcher hopes thereby to see that the benefits of this study are enjoyed by the people without whom it could not have been undertaken at all.

The third problem is more difficult to address. Having said that the traditional methods of information transfer appear to have broken down in large part, there seems to be little choice but to employ other means if the information is to be preserved. Certainly, not all First Nations people, nor even all elders (who might understandably be the most conservative), disapprove of recording traditional knowledge in written form. To them, the important thing is that it is preserved at all. Though a written, or even taped, record will be imperfect and incomplete when compared to learning from the elder him or herself, it can nevertheless provide a basis for rediscovery or an aid to memory in years to come. However, there are those who feel that, if the information cannot be passed on in a traditional way, then it ought not be passed on at all. To them, the means of information transfer is integral to the information itself (Siegfried 1994:207 also notes this opinion).

6.2.1.2 Suggestions for Archaeology

Plant-related activities are an important consideration for the boreal forest archaeologist. It has been a common perception that such activities fall below the lower limit of archaeological visibility in boreal forest sites. While trying not to overestimate the potential of plant-related sources of data, the author nevertheless hopes that this thesis has succeeded in pointing out some possibilities to archaeologists working in this fascinating area. Research needs to be done to determine whether plant-related materials, features and sites can be revealed archaeologically if the right questions are asked, and the right combination of methods are used. Therein, perhaps, lies the fundamental problem: the analysis needed to answer some of the questions raised in Chapter Five (such as identification of macrofossils from floated samples, as well as the flotation itself, pollen analysis, phytolith identification, and residue analysis) is relatively expensive, specialized, and/or and labour-intensive. Much of the work being done in the boreal forest is currently done by consultants under contract to various corporations in the extractive industries. They would be justifiably hesitant to try some of this research, which could, after all, prove fruitless.

Two possible avenues suggest themselves. First, independently funded research, likely academically-based, could be conducted in order to try to resolve some of these issues. Work such as that by Boyd (1997), who is studying aspen phytoliths, and Malainey (1997a and 1997b), who has produced impressive results with her residue analysis methods, are good examples. Positive results such as these will provide a precedent for consultants, helping to justify future analyses, which in turn will add to the corpus of boreal forest ethnobotanical knowledge. In developing methods appropriate to the boreal forest research area, independent researchers will also essentially be developing "how-to" guides for other researchers. Negative results will be just as useful, to finally help settle the question of whether a particular method is of use in this study area.

The second possibility is for all archaeologists working in the boreal forest to consider inexpensive sources of data relating to plant-human interactions, such as the existence of plant macrofossils in hearths, the discontinuous distribution of certain useful plant species (admittedly difficult for those lacking botanical knowledge), the cultural alteration of trees, and the positioning of sites themselves. In this way, perhaps, a greater understanding of boreal forest cultural adaptations can be attained, and from that can come improved site interpretation and increased respect for the peoples whose traces these sites represent.

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Appendix A: Guide to Cree Pronunciation and Orthography

The system of writing Cree used by Wolfart (1973) and Bellegarde and Ratt (1992) was developed with reference to the Plains (y) dialect. Systematic differences between the various dialects of Cree consist of replacements of the Proto Algonquian **l* (Wolfart 1973:8). This was shown long ago by Lacombe in the following seminal table, which gives locations where the different dialects are spoken, using the first person singular pronoun ("I") as an example (after Wolfart 1973:8, from Lacombe 1874:xv; comments in parentheses apparently added by Wolfart).

Cris proprement dits (Plains Cree)	*niya*
Cris d'Athabaskaw (northern Saskatchewan)	*nira*
Presque tous les Cris de Bois (Woods Cree of Rupert's Land)	*nitha*
Cris du Labrador (Montagnais? Moose Cree?)	*nila*
Maskégons (Swampy Cree)	*nina*
Algonquins et Sauteux [sic] (Ojibwa)	*nin*

Relevant to this thesis, the Swampy Cree (n) dialect would systematically replace certain occurrences of the *y* of Plains Cree with an *n*. However, the same transcription system can be used for this author's limited purposes, since the sounds /y/ and /n/ both occur in both dialects.

The following is a summary of the transcription system used by the author in transcribing Cree plant names (after Wolfart 1973). Approximate English equivalents are given so as to provide a rough pronunciation guide (after Bellegarde and Ratt 1992, Wolfart and Carroll 1973). It should be kept in mind that the sounds as we know them in English are *not* the exact equivalents of those used in the Cree Language. In particular, the consonants "p", "t", and "k" may sound slightly different, depending on their position in the word. This is due to the fact that voiced and voiceless sounds are not differentiated in the Cree language; that is, meaning is not affected whether, for example, the voiced "b" or voiceless "p" sound is used.

Consonants

p varies from voiceless "p" to voiced "b" depending on its word position and environment

t varies from "t" to "d" depending on its word position and environment

k varies from "g" as in "<u>g</u>ill" to "k" depending on its word position and environment *c* like the "ts" in cats or "ds" in leads; may range from "ch" as in cheese to "j" as in jolt; again, depending on word position and environment

s like English "s"; sometimes more of a palato-alveolar sound, as in shy

h as in English, but is often placed before a stop, as in *akohp* (blanket) or *askihk* (earth). No Cree words begin with "h".

m as in English *n* as in English

Semivowels

w like cow, coward *y* like boy, boyish

Vowels

i like bit *î* like leaf, machine

a like about, but *â* like car

o like book, put *ô* like stone, open

ê like reign

Note that vowel length is distinctive. In the standard Roman orthography, a lengthened vowel is indicated by a bar, or macron, over the vowel (cf. Wolfart 1973, Bellegarde and Ratt 1992). Due to software limitations, however, the author has used a circumflex to indicate a lengthened vowel (i.e., î instead of i).

Appendix B: List of Respondents

The following is a list of the respondents who contributed the information contained in this thesis. This information is provided for the purposes of age and gender comparisons only. Spousal and sibling relationships are indicated, but further biographical notes are omitted, in order to protect confidentiality. David Meyer's (1970s) genealogical information was drawn upon for the Shoal Lake respondents, but note that, for some respondents, ages have been estimated.

People from James Smith Reserve:

JSR1m: a man in his early eighties, father of JSR7f.

JSR2m: a man in his fifties or early sixties (approx.), husband of JSR6f.

JSR3f: a woman in her late sixties or early seventies (approx.).

JSR4m: a man in his late sixties or early seventies (approx.).

JSR5f: a woman in her early eighties.

JSR6f: a woman in her fifties or early sixties (approx.), wife of JSR2m.

JSR7f: a woman in her mid fifties, daughter of JSR1m.

JSR8m: a man in his sixties or early seventies (approx.).

People from Shoal Lake Reserve:

SLR1f: a woman in her mid fifties.

SLR2f: a woman in her early seventies, wife of SLR3m.

SLR3m: a man in his mid seventies, husband of SLR2f.

SLR4m: a man in his early fifties, husband of SLR5f, brother of SLR6f.

SLR5f: a woman in her early fifties, wife of SLR4m.

SLR6f: a woman in her late fifties, sister of SLR4m.

SLR7f: a woman in her early sixties.

SLR8f: a woman in her mid sixties.

Appendix C: Annotated List of Plants Reported in the Study

Introduction: Information Contained in Appendix C

Scientific name: each plant is identified by genus, species, and variety, as well as the family to which the species belongs. Plants appear in alphabetical order by genus.

Common name: the common English name of the plant.

Cree name: the Cree name, as recorded in either or both of the communities, is given in Roman orthography (see Appendix A). The community of origin of the name is indicated as well: JSR=James Smith Reserve; SLR=Shoal Lake Reserve.

Translation: a translation of the Cree name, either as given by informants, or from the literature. Sources other than the author's own fieldwork are referenced. These sources appear as Leighton (1982), or as (DD). (DD) refers to information from Cree-English dictionaries or glossaries; Anderson 1975, Faries 1938, Beaudet 1995, and Bellegarde and Ratt 1992 were used.

Habitat: A short, general description of the habitat. Unless otherwise noted, these descriptions are from Johnson et al. (1995).

Use Key Word: a word or phrase denoting the general category of the information to follow, e.g., medicine, hide preparation.

Use description: gives more detailed information regarding use of the plant, including (where available) season of collection, modes of preparation and storage, dosage information, and user (i.e., medicines for women, moss for children's diapers). The types of information vary; mode of preparation is noted for almost every plant, whereas information such as dosages and season of collection were less consistently collected. Similar uses from the literature are noted in this section.

To protect the identities of informants, a code, indicating the gender and community of the elders who contributed the information, follows each use description. For example, JSR1m refers to respondent number 1 from James Smith, a man. SLR1f refers to respondent number 1 from Shoal Lake, a woman. Brief profiles of each elder are given in Appendix B.

References to other uses: References, from the literature, to different uses of the particular plant are included in this section. For the most part, only Siegfried (1994), Leighton (1982), and references, included in Leighton, to Saskatchewan and Manitoba boreal forest communities outside her study area, were drawn upon (from Welsh's [1960s] unpublished field notes, and Strath 1903). They are referenced as S94, L82, W60s, and S03, respectively. These reports were considered the most relevant in terms of culture group (Crees of the "y," "th," and "n" dialects) and location (the boreal forest area of the western provinces).

Terms:

Decoction: refers to a liquid obtained by boiling the plant parts (usually roots).

Infusion: refers to a liquid made by pouring boiling water over the plant parts and steeping them.

Maceration: refers to a liquid made by soaking plant parts in cold water.

Emetic: refers to a substance that will cause vomiting if ingested.

Purgative: refers to a substance that relieves constipation by irritating the digestive tract.

Diuretic: refers to a substance that promotes increased urine flow.

Poultice: refers to a solid mass, usually warm and wet, that is applied externally to treat some condition.

Compress: refers to a piece of cloth soaked in a healing liquid and applied in a similar manner to a poultice.

Wash: refers to liquid applied externally to treat some condition.

***Abies balsamea* (L.) P. Mill.** **Pinaceae (Pine Family)**

Common name: balsam fir

Cree name: 1. *pîkowâhtik* (JSR) 2. *napakâsît* (SLR) (also heard: *napakâsîk*; JSR)

Translation: 1. *pîko* - "gum" + *âhtik* - "tree" 2. *napaka* - "flat" + *sît* - "branch" (Leighton 1982)

Habitat: Moist woods, often in association with aspen, birch, and white spruce. Found in the boreal forest of the prairie provinces, but is more frequent as you go farther east.

Healing

In summer, when there's lots of resin (large "blisters" full of resin can be seen), strips of bark about 3 inches wide would be taken from as big a tree as possible. These would be dried thoroughly, ground, and mixed with lard to form a salve, which is excellent for arthritis (JSR2m, JSR4m, JSR6f), infection (JSR2m, JSR4m, JSR6f), skin problems (L82), and cuts (W60s). The respondents have seen especially good results in the case of an ingrown toenail. The grated, dried bark is an ingredient in multi-herb mixtures applied as poultices for infections with tender swelling (SLR2f, SLR4m, SLR5f, SLR7f), pains (SLR7f), and mixed with shavings of Sunlight soap (hard yellow bar) as a poultice for boils (SLR7f).
The bark is part of a remedy to treat a "twisted face," as caused by stroke or bad medicine. It would be applied to the opposite of the affected (twisted) side of the face, to draw it back to normal (SLR1f, SLR6f).
After childbirth, a decoction of the bark, with some other ingredients, is good for a woman to drink (JSR6f).

References to other uses:

(Healing) The bark and/or pitch was used to treat tuberculosis (L82, W60s), coughs and colds (W60s), and menstrual irregularity (L82).
(Craft and construction) Boughs were used to construct brush shelters; paddles were made from the wood (L82).

***Acer negundo* L. var. *interius* (Britt.) Sarg.** **Aceraceae (Maple Family)**

Common name: Manitoba maple, box elder

Cree name: *sôkawahtik* ["*mistikosôkaw*" refers to the sugar itself - literally, "tree sugar" (SLR)]

Translation: *sôkaw* - "sugar" + *ahtik* "tree"

Habitat: Moist soils along streams, rivers and lakes, and in ravines and wooded valleys. Primarily native to southern Manitoba and Saskatchewan.

Food

To make sugar or syrup, the sap of this tree would be tapped in April. (Traditionally the sap was caught in birchbark bowls.)
The sap would be boiled until syrupy, or kept boiling to make sugar (SLR2f, SLR3m).

References to other uses:

None noted in Leighton 1982 or Siegfried 1994.

***Achillea millefolium* L.** **Asteraceae (Aster Family)**

Common name: yarrow, milfoil

Cree name: *astawêskôtawan* (SLR) also heard: *astêskôtawân* (JSR), *astêkôtawan* (JSR)

Translation: *astawê* - "to put out" + *kôtawân* - "a campfire"; may pertain to alleviating burning or pain (DD)

Habitat: Meadows, woods, clearings and disturbed ground; common and widespread.

Healing

For bee stings, crushed or chewed flowers would be applied to take the swelling down and promote healing (JSR1m). The crushed flowers, mixed with another herb, can be applied as a poultice to cuts, to relieve pain and prevent blood poisoning (JSR1m). The above ground parts of this plant, are part of multi-herb mixtures used as poultices for headaches (SLR1f; and fevers, Welsh 1960s), and pains (SLR7f).
A decoction of the plant is drunk to treat a sore chest (JSR3f). The above ground parts are an ingredient in a mixture used as a tea to treat generalized pains (SLR1f).

Note: JSR3f showed this researcher dried samples of *A. sibirica*, which she called by the same name as above (#1), however, pointed out *A. millefolium* growing outside. This suggests the two species are functionally equivalent.

References to other uses:

Leighton (1982) noted the probable functional equivalence of *Achillea* spp., stating that

uses reported for one species were probably applicable to the others.
(Healing) The root was part of several remedies for teething-related afflictions, sores on the gums, and toothache (L82, W60s), also for fever and as a general tonic (W60s). The fresh, crushed flower, was inserted into the nostril to treat headaches, and applied to burns to relieve pain (L82). They were chewed (optional) and applied to stop the bleeding of nosebleeds, wounds, miscarriage, and in cases of excessive menstrual flow. The whole plant (root included) was made into a herbal water to treat diabetes (S94).
(Trapping lure) The plant was used to make trapping lures (L82) or lynx bait (W60s).

***Achillea sibirica* Ledeb.** **Asteraceae (Aster Family)**

Common name: many-flowered yarrow

Cree name: 1. *astêskôtawân* (JSR)

Translation: *astawê* - "to put out" + *kôtawân* - "a campfire"; may pertain to alleviating burning or pain (DD)

Habitat: Moist thickets, stream banks, lake shores and ditches. Widespread.

Healing

A decoction of the plant is drunk to treat a sore chest (JSR3f).

Note: JSR3f showed this researcher dried samples of *A. sibirica* Ledeb., however, pointed out *A. millefolium* growing outside, which she called by the same name as above. This suggests the two species are functionally equivalent.

References to other uses:

Leighton (1982) noted probable functional equivalence of *Achillea* spp., stating that uses reported for one species were probably applicable to the others)
(Healing) The root was part of several remedies for teething-related afflictions, sores on the gums, and toothache. The fresh, crushed flower, was inserted into the nostril to treat headaches, and applied to burns to relieve pain (L82).
(Trapping lure) The plant was used to make trapping lures (L82).

Acorus americanus (Raf.) Raf.
syn. _A. calamus_ L.

Araceae (Arum Family)

Common name: ratroot, wild ginger, sweet flag

Cree name: 1. *wîkês* (JSR, SLR) 2. *wacaskwatapih* (SLR)

Translation: 1. A primary morpheme 2. *wacask* - "muskrat" + *watapih* - "root" (Leighton 1982)

Habitat: Swamps, marshes, and quiet water by streams; scattered across the southern boreal forest. Warning: do not mistake the light brown rhizomes of this plant with the slenderer, greenish ones of *Calla palustris* (water arum), which often grow mixed together. Water arum is poisonous.

Healing

The rhizome is sucked, and the juices swallowed to relieve sore throats and coughs (4,JSR; SLR1f, L82, W60s, S94), alleviate dry mouth (SLR1f), and to relieve pain, "like aspirin" (JSR2m, S94). To rid one of phlegm, the rhizome is boiled, and the liquid drunk (JSR2m). To treat pneumonia, the rhizome is boiled and the decoction drunk (SLR8f).
To alleviate a sharp pain in the foot, the grated dried rhizome was mixed with another herb, soaked in water to moisten, and placed on a square of gauze. Gauze and herbs were soaked in melted Vicks and applied (SLR1f). The grated rhizome was an ingredient in a mixture used as a poultice to relieve pains (1,SLR, L82). The grated dried rhizome would be mixed with camphorated oil and applied as a poultice to alleviate painful joints (SLR1f). For arthritis, the rhizome can be ground (dried) or grated (fresh), chewed, and applied as a poultice (JSR8m).
For a headache, the rhizome would be grated and moistened with warm water. You can also add some melted Vicks to the grated wîkês (SLR1f), or mix it with another herb (SLR1f). Then, it would be applied as a poultice to the head. Rhizomes are part of a mixture that is boiled and the decoction drunk to relieve headaches and fever (SLR7f). For infections, the grated rhizome is part of a mixture of herbs that are moistened and applied as a poultice (SLR7f).
The rhizomes are part of a mixture used to treat a "twisted face," as caused by stroke. A decoction of the mixture was made; some was applied externally and the rest was drunk (JSR3f; facial paralysis, L82). To treat diabetes, drink an infusion of dried grated rhizome (SLR1f).
Rhizomes are part of a mixture used as a tonic for the heart. A decoction of the mixture is drunk anytime the need is felt (SLR7f).

References to other uses:

(Healing) The rhizome was used in various ways to treat chills, (L82, W60s), whooping cough, coughing up blood, stabbing chest pains, lower back pain, teething problems, contact dermatitis, venereal disease, swelling of limbs, and worms in the flesh (L82), diarrhea, high blood pressure, flu (S94), bellyache, rheumatism (L82, W60s). Softened, it was applied directly to cuts, aching teeth, and in the ear for earache(L82). It could be smoked in a pipe to relieve cold symptoms (L82).
(Ritual) A piece of the rhizome is believed to protect against harm, and prevent bad luck from befalling one (S94).

***Agastache foeniculum* (Pursh) Kuntze.** **Lamiaceae (Mint Family)**

Common name: giant-hyssop

Cree name: none recorded

Translation: none recorded

Habitat: Moist meadows, thickets and open deciduous woods; in the southern boreal forest and parkland across the prairie provinces, and north to southernmost NWT.

Healing

A decoction of this and another herb is drunk to relieve pains in the guts (JSR4m).

References to other uses:

(Healing) Above ground parts were part of an infusion or decoction drunk to treat the coughing of blood (L82).
(Beverage) The leaves were added to store-bought tea to flavour it (L82).

***Allium textile* *(?)* A. Nels. & J. F. Macbr.** **Liliaceae (Lily Family)**

Common name: prairie onion

Cree name: none recorded

Translation: none recorded

Habitat: Dry prairie. Common. (Looman and Best 1987)

Food

The leaves were used "like garden onions" as a flavouring for soups and stews (JSR2m).

Note: This species was inferred because the respondent was from James Smith, and described it as growing out on the open prairie. It was neither observed nor collected.

References to other uses:

(Food) The leaves were added to boiled fish for flavour, or eaten raw (L82, in reference to *A. schoenoprasum* L. var. *schoenoprasum*).

Healing

The grated root is an ingredient in a mixture that is applied as a poultice to treat infections (SLR7f; by itself, S94, W60s).

References to other uses:

(Healing) The root was an ingredient in a decoction drunk to treat teething problems, and used externally as a wash for children's infected gums (caused by teething). A decoction of the plant (excluding the berries) was given to a child to treat pneumonia. A decoction of the fruiting stalk was used to stimulate lactation. The root, powdered, was an ingredient in a remedy for various ailments (L82).

Betula papyrifera **Marsh.** **Betulaceae (Birch Family)**

Common name: paper birch

Cree name: *wâskway* (SLR)

Translation: unknown

Habitat: In open to dense woodland; grows best on well-drained but moist sites. Widespread in boreal forest, occasional in parkland.

Household Technology

The bark was traditionally used to make bowls, baskets etc. It must be collected in the spring, before June, so that it can be easily stripped from the tree (SLR2f, SLR3m).

Hide Preparation

Rotten birch wood was used to smoke hides (JSR2m; giving a reddish colour, L82)

References to other uses:

(Food and Beverage) The sap was collected and made into syrup (W60s, L82, S94). The cambium was eaten fresh from the trunk (L82, W60s). The root bark was used as a tea substitute (L82).
(Food preservation) The soft dead wood of this or poplar was preferred for smoke-curing fish or meat (L82).
(Healing) The wood, inner bark, and/or young branches was an ingredient in a decoction

***Amelanchier alnifolia* (Nutt.) Nutt. ex M. Roemer**
syn. *A. alnifolia* Nutt.

Rosaceae (Rose Family)

Common name: saskatoon berry

Cree name: *saskwatômin* (JSR)

Translation: unknown

Habitat: Dry to moist forests, thickets and open hillsides on well-drained soils. Widespread.

Healing

For diarrhea in children, the root (cleaned but not peeled) is an ingredient in a many-herb remedy that is given as a decoction. This will work even if the doctor can't do anything (JSR5f). A decoction of the buds makes a strong drink that will slow down diarrhea. This is preferable to stopping it altogether (JSR1m).

Food

Fruit is eaten fresh or is canned when there is a good crop (JSR, general, S94).

References to other uses:

(Food) Berries were eaten fresh or were sun-dried (L82, W60s); they were a traditional part of pemmican (S94). Four or five sticks (barked and split) were boiled with sturgeon oil to keep it fresh during storage (L82).
(Healing) The root was an ingredient in decoctions drunk to treat teething problems, chest pain, coughs, lung infections (L82), flu and bad colds (W60s), and back paralysis (S94). The stem was an ingredient in a decoction drunk to cause sweating and treat fever (L82).
(Craft and construction) The stem was used for the rims of birchbark baskets (L82), and for making hunting bows (S94).

***Aralia nudicaulis* L.**

Araliaceae (Ginseng Family)

Common name: wild sarsaparilla

Cree name: *wâposôcêpîhk* (SLR)

Translation: *wâpos* - "rabbit" + *ôcêpihk* - "root"

Habitat: Woodlands; widespread and common in the boreal forest.

taken to treat back pain, to make a person sweat, for teething problems and "women's troubles," and to ensure an adequate milk supply when breast feeding. The inner bark was dried or ground and used in an ointment for scabs and rashes (L82, W60s), or boiled to make a wash for skin rashes and sores (L82, S94). The bark was used to treat lung troubles (S03). A thin layer of papery bark was used to bandage burns. The buds were made into ointment (S03, S94).
(Child care) Powdered rotted wood was used as baby powder to prevent rash (L82).
(Craft and construction) Bark was used to cover tipis, utensils and dishes, and make canoes and moose calls (L82), and make baskets (L82, S94, W60s). Wood was used to make toboggans, snowshoes, canoe paddles, tipi frames, curing racks (L82, S94).
(Fire starting) Wood was used as kindling (L82), bark as tinder (S94).

***Carum carvi* L.** **Apiaceae (Parsley Family)**

Common name: caraway

Cree name: none recorded

Translation: none recorded

Habitat: This is an introduced species, and occurs only as an escaped cultivar.

Flavouring

The "seeds" (mericarp) are an ingredient, with *Mentha canadensis*, in a medicinal tea for coughs (SLR7f). It is most likely that this herb is intended to flavour the brew, which is intended for use by children, rather than to contribute any medicinal property.

References to other uses:

(Food) The seeds were used to flavour bannock (L82), or were ground into flour (W60s).
(Healing) The rhizome and seeds were used to relieve colic (S03).

Cornus sericea* L. ssp. *sericea
syn. *C. stolonifera* Michx.

Cornaceae (Dogwood Family)

Common name: red willow, red-osier dogwood

Cree name: 1. *pîmîhkwâhtik* (JSR) 2. mîhkwanîpisîya (JSR) 3. mîhkwa-pêmakwa (JSR)

Translation: 1. *mîhkw* - "blood/ red" + *ahtik* "tree/plant" 2. "red" + *nîpisî* - "bark" 3. "red" + ?

Habitat: Moist woods, thickets, clearings and riverbanks. Widespread.

Healing

For diarrhea in children, the root (cleaned but not peeled) is an ingredient in a many-herb remedy that is given as a decoction. This will work even if the doctor can't do anything (JSR5f).

Smoking Material

Dried bark was broken up very fine, mixed with tobacco, and smoked (JSR2m, JSR4m, JSR6f; inner bark, L82; all the bark, S94).

References to other uses:

(Healing) The berries or pith were used to treat snow blindness, the pith for cataracts (L82). The bark was used as a purgative and emetic (S94).

***Corylus cornuta* Marsh.**

Betulaceae (Birch Family)

Common name: hazelnut

Cree name: *pakân* (JSR)

Translation: nut (DD)

Habitat: Moist but well-drained sites in thickets or woods. Widespread.

Food

The nuts are eaten immediately as a snack (JSR, general, L82, S94). Formerly, they were buried in the sand for from 2 to 5 days to get the prickles off and make the husks easier to remove. Then they were de-husked and kept in a sack for winter use (JSR7f; stored for later, L82).

References to other uses:

None recorded in Leighton 1982 or Siegfried 1994.

***Equisetum hyemale* L. var. *affine* (Engelm.) A. A. Eaton** **Equisetaceae (Horsetail Family)**

Common name: common scouring-rush, horsetail

Cree name: *okotâwask* (SLR)

Translation: ? + *wask* - "plant"

Habitat: Moist, sandy sites, in open woods and along stream banks and lakeshores. Widespread in boreal forest.

Healing

The fertile plant is made into a decoction and used as a diuretic on its own (JSR2m, JSR4m, SLR1f), or mixed with another herb (JSR3f).

References to other uses:

A similar species (*E. arvense* L.) was used as follows (S94):
(Healing) The stems were made into a decoction used as a diuretic.
(Household technology) The stems were used to scour pots.

***Helenium autumnale* L. var. *montanum* (Nutt.) Fern.** **Asteraceae (Aster Family)**

Common name: sneezeweed

Cree name: *câcâmôsikan* (JSR, SLR)

Translation: Translated as "it makes you sneeze" by a respondent from JSR

Habitat: Common in low meadows, beside water courses, and in low places in the prairies. Less common in the parklands (Looman and Best 1987)

Healing

For headaches, the dried centres of the flowers would be crumbled and inhaled into the nose. This makes you sneeze, but it will cure the headache (JSR1m, SLR1f).

References to other uses:

Not noted in Leighton 1982 or Siegfried 1994.

***Heracleum maximum* Bartr.** **Apiaceae (Parsley Family)**

syn. *H. lanatum* Michx.

Common name: Cow parsnip, wild rhubarb

Cree name: *pakwânâhtik* (JSR)

Translation: *pakwa* - "leaves" + *âhtik* "plant" [probably refers to the very large leaves of the plant]

Habitat: Stream banks, moist woods, clearings and ditches. Widespread.

Healing

For toothache, place the root in the mouth against the affected tooth, and swallow the juices (JSR2m, JSR4m, S94).

References to other uses:

(Food) The leaf petiole and/or stem was peeled and eaten fresh (L82, S94), the main stem was split and roasted, and the pith eaten (L82).
(Medicine) The root was part of a poultice and/or wash for painful limbs, headache, and worms in the flesh (L82).

***Ledum groenlandicum* Oeder** **Ericaceae (Heath Family)**

syn. *L. palustre* L. var *latifolium* (Jacq.) Michx.

Common name: Labrador tea, muskeg tea

Cree name: 1. *maskîkowâpoy* (JSR) 2. *maskêkopakwa* ["*maskêkopakwatî*" refers to the tea] (SLR)

Translation: 1. *maskîk* - "medicine" + *âpoy* - "liquid" [refers to the tea] 2. *maskêk* - "muskeg" +*pakwa* - "leaves" [+ *tî* - "tea"; English borrowing]

Habitat: Bogs, swamps and moist woods; indicator of acidic, nutrient-poor soils; widespread across boreal forest, north to Arctic coast.

Beverage

The plant is boiled in a pot to make a pleasant-tasting tea (JSR2m,SLR2f, SLR3m, SLR4m, SLR5f, SLR1f, L82; flowers as well, S94). This is a good drink to have if you are working, because you won't sweat as much (JSR2m).

Healing

For arthritis, the plant is boiled and the decoction cooled. Affected areas are then soaked in the liquid (SLR1f, S94).

References to other uses:

(Medicine) The leaves were part of an ointment to treat burns (L82, S94). The leaves were made into a wash for burns, itchy or chapped skin, and sores (L82). The plant was used to treat pneumonia and whooping cough (L82), also heart troubles, kidney problems and arthritis (S94).

(Child care) The leaves were used to heal the umbilical scab, and were powdered and used on babies' rashes (L82).

***Lonicera dioica* L. var. *glaucescens* (Rydb.) Butters** **Caprifoliaceae (Honeysuckle Family)**

Common name: twining honeysuckle

Cree name: *sîpâhtik* (SLR)

Translation: ? + *âhtik* - "plant"

Habitat: Dry woods, thickets and rocky slopes. Common and widespread.

Healing

The stems are boiled and the decoction drunk as a diuretic (JSR1m,SLR7f; inner bark, L82). SLR7f specified that the hollow stem sections (internodes) ONLY are used; you cut off and discard the solid nodes, where the leaves come off the stem (a maceration of the internodes was used for this purpose, W60s).

References to other uses:

(Healing) The stem was an ingredient in decoctions to treat blood clotting after childbirth, and venereal disease (L82), and heart troubles (S94). A maceration of the stem internodes was drunk for flu (W60s).
(Smoking materials) Stem internodes were used as pipe stems (L82).
(Toys) Stem internodes were used as pipe stems for a rosehip pipe (L82).
(Miscellaneous) Stem internodes were used as a straw by children (L82).

***Medicago sativa* L.** **Fabaceae (Pea Family)**

Common name: alfalfa

Cree name: none recorded

Translation: none recorded

Habitat: Introduced as a fodder crop from Europe and now very common, along roadsides and waste places (Looman and Best 1987).

Healing

The aboveground parts would be steeped in hot water and the infusion drunk to treat arthritis, and ulcers (SLR1f).

Note: The respondent learned this use from a German woman.

References to other uses:

None mentioned in Leighton 1982 or Siegfried 1994.

Melilotus albus **Medik.**

Fabaceae (Pea Family)

Common name: white sweet-clover

Cree name: none recorded

Translation: none recorded

Habitat: Introduced, weedy species of cultivated and waste ground. Widespread.

Healing

To cleanse the blood, one would drink a decoction of the whole plant, roots and all, with about 1 qt. of barley seeds. About 1 cup of the decoction would be drunk per week for a month as a general tonic (JSR2m, JSR6f).

Note: The respondents learned this remedy from a Ukranian woman.

References to other uses:

None mentioned in Leighton 1982 or Siegfried 1994.

Mentha canadensis **L.**

syn. *M. arvensis* L. var. *villosa* (Benth.) S. R. Stewart

Lamiaceae (Mint Family)

Common name: field mint

Cree name: *wîkask* (SLR)

Translation: "pleasant-tasting plant"; may be derived from *wîkasin* - "pleasant- tasting," (Leighton 1982)

Habitat: Streambanks, lakeshores, wet meadows and clearings; widespread across the boreal forest and prairies.

Healing

To clear the nasal passages when one has a cold, the whole plant (aboveground parts) is smelled, or one can make an infusion or decoction and inhale the steam (JSR2m, JSR4m). An infusion or decoction of the aboveground parts of the plant can be drunk to treat menstrual cramps (JSR3f) or fever (JSR3f, SLR1f, S94, W60s). It makes you sweat (SLR1f). A decoction of the plant can cure chills (SLR1f, SLR7f). An infusion of the plant helps one sleep (SLR1f). An infusion of the plant is used to treat diarrhea in children (SLR1f). To cure coughs in children, boil with caraway seeds and give them the decoction (SLR7f). For pains (generalized), mix with another herb, and make a tea (JSR3f).

Beverage

Infuse to make a refreshing beverage tea (2,JSR, S94; added to store-bought tea to flavour it, L82, S94).

References to other uses:

(Healing) The flowers were an ingredient in a mixture used to wash pus from infected gums due to teething (L82). The leaves or leafy stems were ground and applied to relieve toothache, or inserted in the nostril to stop a bad nosebleed (L82). A tea was used to cure or prevent a cold (L82), to treat the coughing of blood (L82), to relieve headache (W60s), and to treat high blood pressure (S94).
(Food) Leaves were boiled with sturgeon oil to improve the smell (L82).

***Monarda fistulosa* L.** — **Lamiaceae (Mint Family)**

Common name: bee-balm, wild bergamot

Cree name: 1. *apiscanakâskîsik* (JSR) 2. *môstôswîkask* (JSR) 3. *kapiskotânâskîhk* (SLR)

Translation: 1. *apisc*- "small" + ? (DD) 2. *môstôs* - "cow" + *wîkask* - "pleasant-tasting plant" 3. ? + *âskîhk* - "earth" (DD)

Habitat: Fairly common; on hillsides, thickets, and in shady places; moist grassland, parklands and boreal forest. (Looman and Best 1987)

Healing

To relieve pains in the guts, the plant is boiled with another herb and the decoction drunk (JSR4m).
An infusion or decoction is used to relieve menstrual cramps (JSR3m). To clean out the blood and heal the womb after childbirth, a decoction, made from the whole plant, roots and all, is given. This is especially good for young women (JSR1m).
This plant is an ingredient in a mixture used as a tea to treat headaches and fever (SLR7f).

References to other uses:

None reported in Leighton 1982 or Siegfried 1994.

Nuphar lutea **(L.) Sm. ssp.** ***variegata*** **(Dur.) E. O. Beal syn.** ***N. variegatum*** **Engelm.**

Nymphaeaceae (Water-lily Family)

Common name: yellow pond-lily

Cree name: *waskâtamow* (SLR)

Translation: unknown

Habitat: Ponds, lakes, and slow-moving streams. Widespread and common across boreal forest.

Healing

The rhizome is an ingredient in a decoction given to a woman after childbirth (JSR6f).
The rhizome is also part of a many-herb tonic for the heart. It is made into a decoction and drunk whenever the need is felt (SLR7f).
The rhizome is part of various multi-herb remedies used as poultices on infections (SLR7f, L82, W60s) with tender swelling (SLR2f, SLR4m, SLR5f, L82), also, with melted Vicks, to alleviate sharp pains (SLR1f), and, with shavings of Sunlight soap (hard yellow bar) for boils (SLR7f).
The rhizome is part of a many-herb remedy to treat "twisted face" as caused by a stroke or bad medicine. Apply as a poultice to the opposite side (not the twisted side) of the face to draw it back to normal (SLR1f, SLR6f).
To treat cuts or boils, one can soak some of the dried rhizome to soften it, then apply it as a poultice (SLR1f).

Food

The rhizome is good to eat (JSR4m, W60s).

References to other uses:

(Healing) The rhizome is part of a mixture used as a poultice for headaches, sore joints, painful limbs and worms in the flesh (L82).

Picea glauca **(Moench) Voss**

Pinaceae (Pine Family)

Common name: white spruce

Cree name: *mînahik* ["*mînahikopikêw*" refers to spruce gum] (SLR)

Translation: unknown

Habitat: Grows on well-drained, moist soils; widespread and common across the boreal forest.

Hide Preparation

Build a tipi-like structure, drape the hide over it, hair side in, and sew up the top so that it will hold smoke in. Build a smouldering fire with rotten spruce wood inside the hide structure. The smoke will seep through, so there is no need to reverse the hide to smoke the other side (JSR2m, L82).

Miscellaneous

The pitch can be chewed for pleasure (SLR2f, SLR4m, SLR5f, S94, L82, W60s).

Healing

For cuts and burns, mix the whitish gum from the bark with lard and apply to affected areas (SLR4m, SLR5f).

References to other uses:

(Healing) Sap or pitch was mixed with lard and put on infected areas such as a boil (but not on broken skin), to draw out pus (S94, L82, W60s), this mixture was also put on rashes, scabies, scabs (L82). It was burned on a hot stove in a house where people were suffering from colds, and chewed by those with colds (W60s). The inner bark was an ingredient in a decoction to treat arthritis (L82). Young branches were made into a decoction for colds (S94).
(Child care) Dried, powdered rotten wood was used as baby powder, and to treat rashes (L82, W60s).
(Craft and construction) The sap or pitch was used to seal canoe seams (S94, L82). The roots were used to decorate and sew birchbark baskets, and to lace birchbark canoes (S94, L82). The wood was used to make canoe paddles, net floats, canoe ribs and gunwales (L82, S94), and snowshoe frames (S94). The bark was used as tent flooring and roofing (L82, S94).
(Dye) The cones were used to dye cotton fish nets (S94).

***Plantago major* L.** — **Plantaginaceae (Plantain Family)**

Common name: plantain

Cree name: *paswêpak* (SLR)

Translation: ? + *pak* - "leaf"

Habitat: Introduced weed of cultivated and waste ground. Widespread.

Healing

For heart troubles, steep the leaves in hot water and then drink the infusion (SLR1f).

References to other uses:

(Healing) The fresh leaves were applied to wounds or sores to draw out infections (S94). **(Trapping lures)** The dried leaves and flowering stalks were ingredients in a bait for fox traps (S94).

***Polygala senega* L.** — **Polygalaceae (Milkwort Family)**

Common name: seneca root

Cree name: 1. *wînsîkas* (JSR) 2. *wîncîkês* (SLR)

Translation: unknown

Habitat: Fairly common throughout parklands; around edges of bluffs and in semi-wooded prairie (Looman and Best 1987).

Healing

The root is an ingredient in a remedy applied as a poultice to cuts, to relieve pain and prevent blood poisoning (JSR1m).
For toothache, apply by packing into the hollow of the affected tooth (JSR1m, L82).
For a sore throat, chew or suck on the root and swallow the juices (SLR1m, W60s).

Note: the W60s reference to use of *P. senega* for sore throat states that this plant was called "weekees." This suggests some confusion with *Acorus americanus* (wîkês), which is also commonly used for this purpose.

References to other uses:

(Healing) The root was used to treat sore mouths, and was an ingredient in a many-herb remedy for various ailments. The flowers were infused and drunk as a blood medicine (W60s).

Populus tremuloides **Michx.** **Salicaceae (Willow Family)**

Common name: white poplar, trembling aspen

Cree name: 1. *mistik* (JSR) 2. *wasî-mîtos* (SLR)

Translation: 1. wood, stick 2. *wasî* - "bright" + *mîtos* - "poplar" (DD and Leighton 1982)

Habitat: A variety of habitats from dry ridges to rich, moist sites. Grows best in rich, loamy soils. Common and widespread.

Healing

For a heart medicine, chew the inner bark and swallow the juices (JSR1m).
To relieve diarrhea, scrape off the green bark, boil it and drink the decoction (JSR4m).
For diabetes, drink an infusion of the outer bark (SLR1f).

Food Preservation

Dried meat is smoked with rotten aspen wood (JSR2m; moose and whitefish, L82).

References to other uses:

(Food) The sweet, pulpy cambium was eaten in early summer (L82, W60s, S94).
(Healing) The fresh leaf was crushed and applied to a beesting to reduce the irritation (L82). The outer bark was used to treat venereal diseae (L82; unspecified bark, W60s). The inner, light green bark was used to stop the bleeding of cuts (S94; bark from the side of the tree on which the sun shines, W60s), as was a powdery, white substance scraped off the outer surface of the bark (L82).

Prunus virginiana **L. var.** *melanocarpa* **(A. Nels.) Sarg.** **Rosaceae (Rose Family)**

Common name: chokecherry

Cree name: *takwêhiminân* (JSR)

Translation: *takwêh* - "grind, pound" + *minân* - "berry" (DD) [refers to the method of preparation]. Translated as "berry that is crushed" by respondents.

Habitat: Woods, clearings, hillsides and river terraces; often on dry and exposed sites. Widespread.

Healing

To help a sore stomach, boil the bark and drink the decoction. This will make you vomit (SLR4m). For diarrhea in children, the root (cleaned but not peeled) is an ingredient in a many-herb remedy that is given as a decoction. This will work even if the doctor can't do anything (JSR5f; for anyone, not just children, W60s).

Food

The fruit is crushed between 2 stones. It can be used right away or frozen for later. To eat this food, one warms it up in a pan with lard and sugar (JSR, general; with grease, L82), or mixes it with cream. It is usually eaten with bannock (JSR, general).

References to other uses:

(Food) Fish eggs were sometimes added to the crushed fruit and grease. Pancake syrup (L82, S94) and jellies (S94) are made of the fruit with the stones removed. The Wabasca/Desmarais disparage this fruit, but believe it is a good laxative. In contrast, the Woods Crees relish it, but believe the berries alone (without the addition of grease) can cause constipation.
(Healing) The bark is made into a herbal water used as a douche (S94), and to treat colds (S94).

Rosa acicularis Lindl. — Rosaceae (Rose Family)

Common name: prickly rose

Cree name: *okînîak* (JSR) [This is plural; singular form is: *okînî*]

Translation: None recorded.

Habitat: Open forest, thickets, riverbanks, and clearings; widespread and common.

Healing

As a wash for sore eyes, use the strained decoction of the root (JSR1m, L82). However, JSR1m specified that only plants with "eye-shaped" (i.e., elongated, not round) fruits are to be used.

References to other uses:

(Food) The ripe fruit was eaten as a snack, but the seeds were discarded because they are believed to irritate the digestive tract (L82). The fruit was made into a brew (S94), or boiled into a syrup to be eaten with bread or pancakes (S94).
(Healing) The root was an ingredient in a decoction taken for coughs (L82; chest colds, S94), and on its own as a decoction to treat irregularities of the menses (S94).

(Toys) A fresh rose hip was halved and hollowed out to make the bowl of a toy pipe, and necklaces could be made by stringing the firm hips (L82).

***Rubus idaeus* L. ssp. *strigosus* (Michx.) Focke**
syn. *R. idaeus* L. var *aculeatissimus* Regel & Tiling

Rosaceae (Rose Family)

Common name: wild red raspberry

Cree name: *ayôsikan* (JSR)

Translation: Translated as "soft berry" by respondents

Habitat: Thickets, clearings and open woods. Widespread.

Healing

For diarrhea in children, the root (cleaned but not peeled) is an ingredient in a many-herb remedy that is given as a decoction. This will work even if the doctor cannot do anything (JSR5f).

Food

The berries are eaten fresh or are canned when lots are available (JSR, general; or made onto syrup or jam, S94).

References to other uses:

(Food) The fruit was eaten with dried fish flesh and fish oil (L82). The young green shoots were peeled and eaten fresh (L82).
(Healing) The stem and upper part of the root were ingredients in decoctions to treat sickness due to teething, to help a woman recover after childbirth, and to slow menstural bleeding (L82). The leaves were infused and the infusion given to treat cholera (in infants?) and dysentery (S03). Some people ate the fruits as a heart medicine (W60s).

***Sagittaria cuneata* Sheld.**

Alismaceae (Water- plantain Family)

Common name: arrowhead

Cree name: none recorded

Translation: none recorded

Habitat: Marshes, ditches, muddy shores and shallow water. Widespread.

Healing

As a remedy for scrofula, the leaf is washed and placed on the affected skin. It sticks on as it dries. It should not be removed, but left to come off on its own. It draws the infection with it. This treatment will need to be applied several times (JSR1m).

Note: this species was inferred from a description by the respondent, but was not observed nor collected.

References to other uses:

None recorded in Leighton 1982 or Siegfried 1994.

***Salicornia rubra* A. Nels.** — **Chenopodiaceae (Goosefoot Family)**

Common name: red samphire

Cree name: *sîwîtâkan* (SLR)

Translation: salt

Habitat: Very common in strongly saline sloughs throughout prairies and parklands (Looman and Best 1987).

Food

To make salt for food use, wash plants well. Boil them in water until the water is almost gone. Transfer the mixture to a frying pan and keep at a boil until the water is totally evaporated and salt remains (SLR1f, SLR2f, SLR3m).

References to other uses:

None recorded in Leighton 1982 or Siegfried 1994.

***Salix* sp.** **Salicaceae (Willow Family)**

Common name: willow

Cree name: none recorded

Translation: none recorded

Habitat: Wetlands, streambanks, thickets; widespread and common in the parklands and boreal forest.

Healing

For constipation, peel and discard the outer bark. Then, peel the inner bark (always toward yourself), tie the strips in four knots, make a decoction and drink it (JSR3f). For diarrhea, follow the same procedure, but peel the inner bark away from yourself (JSR3f; unspecified procedure, make an infusion, L82).

Note: willow was not collected.

References to other uses:

(Healing) The root inner bark was chewed and applied to a deep cut to stop bleeding and promote healing without infection (L82). The bark was boiled and used as a poultice for back problems (S94).
(Craft and construction) The stem was used to rim birchbark baskets, to make bows and arrows (L82), and to make fish roasting sticks (L82, S94). The bark was made into netting (L82) or rope (W60s, L82).
(Ritual) The branches and twigs are used to weave thanks offerings to bears (S94).
(Toys) Whistles were make from willow branches).

***Sarracenia purpurea* L.** **Sarraceniaceae (Pitcherplant Family)**

Common name: pitcher plant

Cree name: *ayîkicâs* (JSR)

Translation: *ayîkis* - "frog" + *mitâs* - "pants" (DD) [*ayîkicâs* is in the diminutive form, where "*c*" replaces "*t*"]

Habitat: Bogs and fens, across boreal forest of prairie provinces, north to northeastern BC and southern NWT (though rare in BC and NWT).

Healing

To dry this thick, yellowish root properly, you must slice it and string it. To treat a cut, soak a slice to soften it before using, then apply to the affected area (JSR4m).

References to other uses:

(Healing) A decoction of the root was given to a woman to prevent sickness after childbirth (L82); with other herbs, it was taken as a decoction to help expel afterbirth (L82). The root was an ingredient in a decoction to treat venereal disease (L82). A decoction or infusion of the leaf was taken to ameliorate sickness caused by the absence of menses (L82). The leaf was mixed with another herb and made into a decoction to break a fever (S94); on their own, they were made into a decoction used as a diuretic (S94). Dried, the leaves were sniffed up the nose to treat headaches (S94). An unspecified part of the plant was an ingredient in a decoction taken for lower back pain (L82).
(Toys) Children used the leaf as a toy kettle in which to cook meat over a fire (L82).

Shepherdia canadensis (L.) Nutt.

Elaeagnaceae (Oleaster Family)

Common name: Canada buffaloberry

Cree name: *kinêpikôminânahtik* (SLR)

Translation: *kinêpik* - "snake" + *minân* - "berry" + *ahtik* - "tree"

Habitat: Open woods, thickets and riverbanks. Widespread.

Healing

The leafy stems can be boiled to make a decoction for use as a purgative and an emetic (SLR1f).

References to other uses:

(Healing) A decoction of the plant was applied externally to treat aching limbs and arthritis, and to treat sores on the head and face (L82). The stem was an ingredient in a decoction taken for venereal disease (L82). The root was an ingredient in an infusion taken for coughing up blood (L82). An infusion of the inner bark, scraped from the stem in a downward motion, was used as a laxative (L82; note similarity to procedure described for inner bark of willow by JSR3f). The most recent year's growth of twigs was used to make a decoction taken to prevent miscarriage (L82).
(Food) The berries were whipped to make "Indian ice cream" (S94). Too much of this treat upsets the digestive system.

***Sium suave* Walt.** — **Apiaceae (Parsley Family)**

Common name: water-parsnip

Cree name: *sîwaskâtask*; *sîwaskacâskwos* (SLR)

Translation: *sîw* - "sweet" + *skatask* - "carrot" [*sîwaskacaskwos* is in the diminutive form, where "*c*" replaces "*t*" and the ending "*-os*" is added]

Habitat: Marshes, sloughs, slow-moving rivers, lakeshores. Common and widespread. Warning: this plant often grows with *Cicuta* spp., the water-hemlock, which is poisonous. The two species are quite similar, and if there is any doubt about whether a plant is water-parsnip or water-hemlock, it should be considered poisonous.

Healing

The root, eaten raw, is a good tonic, and tastes sweet. It is good for general health (SLR4m, SLR5f). The roots were used in a many-herb mixture for the heart. A decoction of the herbs was taken whenever the need was felt (SLR7f).
The root was eaten raw (or boiled with another herb and the decoction given) to treat chest congestion (1,SLR). The root was part of a multi-herb mixture made into a decoction for headaches and fever SLR7f).

Note: this plant was neither observed nor collected with elders from Shoal Lake. However, its name is very similar to *"ôskâtask,"* which has been well-documented in the area (Meyer 1985), and identified as *Sium suave* (Leighton 1982); the name *"sîwaskâtask"* represents simply the addition of the morpheme meaning "sweet." A variation of this name, *sîskatask*, or "sweet carrot" was recorded by David Meyer in 1971 during a conversation with Joel Whitehead from Red Earth. (Mr. Whitehead's wife was from Shoal Lake.) In addition, the description of habitat given by the elders is the same as that for *Sium suave*, while not matching that of other edible species of this family.

References to other uses:

(Food) The roots, collected in early spring or late fall, were roasted, fried or eaten raw (L82). The roots were boiled, or eaten raw by children (Meyer 1971).

***Sorbus americana* Marsh.** — **Rosaceae (Rose Family)**

Common name: western mountain ash

Cree name: *maskwaminânahtik*

Translation: *maskwa* - "bear" + *minân* - "berry" + *ahtik* - "tree"

Habitat: Open woods, thickets, in southern Manitoba and east-central Saskatchewan.

Healing

The bark can be boiled to make a decoction which is good for the bones, and also for general pains in the body (SLR1f; branch or twig, S94).

Note: this plant was not collected with the respondent.

References to other uses:

(Healing) A decoction of the peeled sticks was drunk to relieve back pain (L82; branch or twig, S94; inner bark of non-fruit-producing plants, for backache and rheumatism, W60s). Branches or twigs were made into a decoction good for heart problems (S94), and an unspecified part of the plant was used in a mixture to treat cancer (S94).

***Sphagnum* spp.**

Sphagnaceae (Peat Moss Family)

Common name: peat moss

Cree name: none recorded

Translation: none recorded

Habitat: Hummocks in open bogs, extensive ground cover in black spruce bogs. Very common in the region.

Child Care

Moss was collected in great quantities, dried by hanging on trees, then cleaned. It was used as diapering material, packed around children in their moss bags (SLR1f, L82, S94). The respondent stated that only the soft, dense moss with pinkish tops was used, not the "looser," whitish-topped type.

Note: this plant was not collected with the informant. However, the description given, coupled with information in Leighton 1982 suggests that the species referred to might be *S. fuscum* (Schimp.) Klinggr. Another possibility, given the description, is *S. capillifolium* (Ehrh.) Hedw. (syn.: *S. nemoreum* Scop.).

References to other uses:

(Child care) The powdered dried moss was used to treat diaper rash (L82).
(Craft and construction) The moss was used as chinking for log cabins (S94).

Symphoricarpos occidentalis **Hook.**

Caprifoliaceae (Honeysuckle Family)

Common name: western snowberry

Cree name: *mâhikaniminanahtik* (JSR)

Translation: *mâhikan* - "wolf" + *minan* - "berry" + *ahtik* - "plant" [commonly called "wolf willow" by respondents]

Habitat: Dry open woodland, river valleys, hillsides, ravines and overgrazed prairie; widespread.

Healing

The leafy stems and the white berries (when present) are part of different mixtures that are made into decoctions and used as a diuretic (JSR3f) and to treat kidney troubles (JSR3f).

Horse Medicine

A decoction of this plant was given as a diuretic for horses (JSR1m).

References to other uses:

(Healing) A similar species (*S. albus* (L.) Blake) was used as follows (L82): The berries were made into an infusion to treat sore eyes. The root and stem were ingredients in a decoction taken to treat fever caused by teething problems, and to treat venereal disease. An infusion of the plant was consumed as well as applied externally to treat skin rash.

Thuja occidentalis L. — **Cupressaceae (Cypress Family)**

Common name: white cedar

Cree name: 1. *masîkîsk* (SLR) 2. *mascakês* (JSR)

Translation: unknown

Habitat: Moist woods, southeastern boreal forest (Looman and Best 1987)

Healing

The crushed leaves are part of a many-herb treatment for pain; applied as a poultice to affected areas (SLR7f).
The crushed leaves are an ingredient in a mixture used to treat a "twisted face," as caused by stroke. A decoction of the herbs is made; daily, wash the face with some of the liquid and drink the rest (JSR3f).
A different remedy, to treat a "twisted face," as caused by stroke or bad medicine, uses the leaves of this plant with other ingredients as a poultice applied to the opposite side (not the twisted side) of the face, to draw it back to normal (SLR1f, SLR6f).

Note: this species was traditionally obtained from Manitoba, though it is now a fairly common planting.

References to other uses:

(Healing) The needle-covered branches were made into a decoction or chewed and the juices swallowed, as a diuretic, or for a sore bladder (L82). The branches were an ingredient in a decoction taken for pneumonia (L82). The powdered branches were an ingredient in a many-herb remedy to treat various ailments (L82).

Typha latifolia L. — **Typhaceae (Cattail Family)**

Common name: cattail, bulrush

Cree name: *ôtawaskwa* (JSR)

Translation: translated as "water-edge plant" by respondents from JSR

Habitat: Marshes, ponds and wet ditches in slow-flowing or standing water. Widespread.

Healing

The fluff from the seed head was mixed with lard to make a paste. This was applied as a poultice to burns, and bandaged (JSR2m, JSR4m, JSR6f, S94). The bandage should be left for 2-3 days before changing it. This will heal the burn quickly, with no scarring (JSR2m, JSR4m, JSR6f).

Child Care

The fluff from the seed head was added by some people to the dried *Sphagnum* moss used in babies' moss bags (SLR1f). Though it is not absorbent, the fluff could have been used for extra warmth.

Food

The rhizome was cooked and eaten (JSR4m; just before the plant blooms, W60s; dried for winter use, or eaten raw whenever obtainable, L82).

References to other uses:

(Food) The fresh stem bases and young shoots were eaten in July (L82; early summer, S94).

***Urtica dioica* L. ssp. *gracilis* (Ait.) Seland.**
syn. *U. dioica* L. var. *procera* (Muhl.) Wedd.

Urticaceae (Nettle Family)

Common name: stinging nettle

Cree name: *masânah* (JSR, SLR)

Translation: unclear, but pertains to stinging (Leighton 1982) [translated as "itchy weed" by respondents from JSR]

Habitat: Moist woodlands, thickets, open areas, streambanks and disturbed sites; widespread across the boreal forest.

Healing

To relieve the welts and itching caused by touching this plant, boil the root and wash the affected area with the decoction (SLR1f).

References to other uses:

(Healing) A decoction of the plant was taken to keep blood flowing after childbirth (L82). The plant was an ingredient in a decoction used to break a fever (S94). The root was made into a herbal water used as a diuretic by anyone; the stem was for use specifically for men for this purpose (S94). The leaves and stems were made into a decoction to treat anemia (S94).

(Food) The leaves and stems were cooked and eaten as greens. They could be preserved by drying (S94).

***Vaccinium myrtilloides* Michx.** **Ericaceae (Heath Family)**

syn. *V. angustifolium* Ait. var. *myrtilloides* (Michx.) House

Common name: blueberry

Cree name: 1. *sîpîkômin* (JSR) 2. *îyinomin* (JSR)

Translation: 1. *sîpîko* - "blue" + *min* - "berry" 2. *îyin* - "person" + *min* - "berry" (DD) [Note: #1 is a calque, or copied form, directly translated from English]

Habitat: Gravelly or sandy soils in open forests (usually coniferous stands) and clearings; widespread and common across the boreal forest.

Food

Berries are picked in great quantities when available. They are eaten fresh or are preserved for the winter (JSR, general, W60s, S94; also made into jam, L82).

References to other uses:

(Dye) The berries were boiled with porcupine quills to give them a blue colour (W60s).
(Healing) The leafy stems were ingredients in decoctions used as "women's medicine," to prevent miscarriage, to bring on menstruation, to slow excessive menstrual bleeding, to make a person sweat (L82), and to bring blood after childbirth (L82, S94). A decoction of the stems was used to prevent pregnancy (L82).

***Vaccinium vitis-idaea* L. ssp. *minus* (Lodd.) Hulten** **Ericaceae (Heath Family)**

syn. *V. vitis-idaea* L. var. *minus* Lodd.

Common name: dry-ground cranberry

Cree name: *wîsaki(h)min* (JSR)

Translation: *wîsak*- "bitter" + *min*- "berry" (Leighton 1982)

Habitat: Raised areas in bogs, moist forests, rocky clearings, open slopes and dry woods; very common and widespread across the boreal forest and north past treeline to the southern Arctic islands.

Food

Berries are eaten raw with sugar only when really ripe (JSR, general, L82). Otherwise, they are canned for later use (JSR, general; or frozen, L82, W60s, S94). They are generally cooked with sugar and eaten with cream. They are usually picked in late fall; they have a better flavor after a frost. They can also be picked in the spring, when they are REALLY ripe (JSR, general).

References to other uses:

(Food) The berries were stewed and served with fish or meat, or mixed with boiled fish eggs, livers, air bladders and fat (L82).
(Toys) The firm ripe berries were strung on a string to make a necklace (L82).
(Dye) The berries were boiled with porcupine quills to give them a red colour (W60s).

***Valeriana dioica* L. var. *sylvatica* S. Wats.** **Valerianaceae (Valerian Family)**

Common name: valerian

Cree name: *apiscisakwêwaskwos* (SLR); also heard: *apiscisakôwaskwos, apiscakâwaskwos* (JSR)

Translation: *apisci* - "small" + *sakwêwask* - may pertain to the strong smell of the plant (Leighton 1982) [Diminutive form, with the ending "*-wos*"]

Habitat: Moist meadows, grassy openings and wetland edges; widespread across the boreal forest, north and west to Great Bear Lake and central Yukon.

Healing

As a general tonic, a decoction of the root is used (JSR2m, JSR4m; infusion, L82). Choose plants with no flowers, just leaves. Plants with flowers are considered female and not as strong. This is one of the most powerful medicines known to the informants (JSR2m, JSR4m). The root can be added to any other remedy to make it more powerful, make it work faster, make it work better (JSR2m, JSR4m).
Chewing the root is good for the heart (SLR6f). This will also prevent aging and wrinkles, and will keep you active (SLR1f).

References to other uses:

(Healing) The root was chewed and used as a poultice for earaches and headaches, and in the case of seizure, especially in babies (L82). The powdered root was an ingredient in a many-herb remedy for various ailments, and to treat menstrual troubles, and an ingredient in a decoction for pneumonia (L82). It was an ingredient in a smoking mixture for colds (L82).
(Ritual) An unspecified portion of the plant was part of good luck charms (S94).

***Viburnum opulus* L. var. *americanum* (Mill.) Ait.**

Caprifoliaceae (Honeysuckle Family)

Common name: high bush-cranberry

Cree name: *nîpiminân* (JSR)

Translation: *nîpi* - "summer" + *minân* - "berry"

Habitat: Poplar groves, river valleys and moist open woods across the northern parklands and southern boreal forest of the prairies. Increasingly common to the east.

Food

Fruit was occasionally preserved or made into jellies. Some distaste was expressed towards the fruit, however, because of its "stinky feet" or "toejam" smell (JSR, general).

References to other uses:

A similar species (*V. edule* (Michx.) Raf.) was used as follows:
(Food) The berries were eaten fresh (L82, S94). They were also gathered in the fall and frozen (L82, S94), or left to freeze on the bush. They were made into jam or jelly (L82, S94), or boiled into a mash (S94). S94 also notes the "smelly feet" odour described by consultants.
(Healing) The unopened flower buds were chewed and applied to sores on the lips (L82). The twig tips were chewed and swallowed for a sore throat (L82). The root was an ingredient in a decoction taken for sickness associated with teething (L82). The plant was an ingredient in a gargle taken for sore throat (L82), and an infusion of the leaves and stems was taken for sore throat (L82).

Appendix D: Plants Reported in the Study, for Which the Scientific Name is Unknown

The following plants were named to the author in Cree. Neither the respondents nor assistants knew the English names of the plants, and they were not observed during field trips. Neither do the Cree names appear in sources such as Leighton (1982), which might otherwise have provided a clue. As much information as possible was recorded on each plant, in hopes that future research might shed light on their identities. (Letter codes in brackets refer to respondents, as outlined in Appendix B.)

iskotêwâpoypak - "fire-liquid-leaf" - a viny plant with white flowers

a) the plant was boiled, and the liquid applied topically to sore muscles (SLR4m, SLR5f).

kâkâwatakît

a) the bark was boiled for about two hours and the decoction given to treat the coughing of blood. (SLR8f)

kaskitêcêpihk - "black root"

a) the dried root was grated, wrapped in a cloth, infused and administered as a tea to act as an emetic (causes vomiting), to cure fever and sore chest in children. (SLR7f)

b) the root was boiled, and the decoction administered to cure fever and diarrhea in children (SLR6f, SLR7f).

kawsawaswokamîtihk - about 1.75m tall, with bunches of what resemble "sunflower seeds" at the top, with large (about 10 cm across), five-lobed leaves and green stems. A suggestion as to the identity of tis plant is *Heracleum maximum*, or cow parsnip (Marles 1997, personal communication.)

a) three bundles of roots were boiled and the decoction given internally to treat a sore back (SLR8f).

mihkocêpihk - "red root"

a) the dried root was grated, wrapped in cloth, and infused; the liquid was used as an emetic to cure fever and sore chest in children (SLR7f).

b) to cure fever and diarrhea in children, a decoction of the root was made and administered (SLR7f, SLR6f).

mistê-ôtêminahtik - "big strawberry plant" (literally, "big heart-berry plant) - described as being about 45 cm tall, with a large "strawberry" at the top and three heart-shaped leaves at the base.

a) the roots were used in a many-herb mixture for the heart; a decoction of the herbs was given whenever the need was felt (SLR7f).

môstôsowîkask - "sweetgrass" (literally, " cow pleasant-tasting plant) - possibly *Hierochloe odorata*. Identification is problematic, since *môstôsowîkask* was identified as *Artimisia frigida* (pasture sage) by Leighton (1982), and by this author as *Monarda fistulosa* (wild bergamot) at James Smith reserve. However, the name was given in English as "sweetgrass" by informants, and, given the pan-American diffusion and popularity of *Hierochloe odorata*, this was likely the species they meant.

a) the whole plant (dried) was used as an air freshener in house or vehicle (SLR1f, SLR6f).

It was surprising to this researcher that this plant's use as a sacred smudge in ritual and spirituality was not mentioned, considering how common this use has become among most First Nations groups. It is possible that other aromatic plants such as cedar (*Thuja occidentalis*) may have traditionally filled this role in the Shoal Lake area, or that there was reluctance to discuss the spiritual use of the plant.

pînêkohcêpihk

a) the root is grated and added to cinnamon, cloves, allspice and alum. This powder is then rubbed on the gums of a teething baby; it can also be used by anyone with sores in the mouth (SLR1f). Note: cloves are certainly a well-known toothache remedy in western culture.

b) to treat diarrhea (in anyone), a decoction of the root is given (SLR8f, SLR7f).

c) a decoction of the root is used to cure fever and diarrhea in children (SLR7f, SLR6f).

sîwîpak - "sweet leaf" - described as being about 1m tall, having small blue flowers that look a bit like rosebuds, and probably finished flowering before the end of August.

a) to treat fever in children, a decoction of the leaf is given (SLR8f).

wawîyêpahkos - a trailing plant that grows on *Sphagnum*, having tiny, rounded, alternate leaves. "Smells like peppermint" when you boil it. The author showed two elders examples of *Linnea borealis*, but both said that wasn't the right plant. Another possibility is *Gaultheria hispidula* (L.) Muhl. [Ericaceae], the creeping snowberry (Harms 1997, personal communication).

a) an infusion of the plant was used as a tea to cure fever and headaches; also used as an enema for children (SLR2f, SLR4m, SLR5f, SLR1f).

b) the plant was boiled with the root of another herb, and the decoction given to treat chest congestion (SLR7f).