Ecological Implications of the 18th and 19th Century Fur Trade:

A Study of Five HBC Post's Accounts

Garth R. Sutton

Ecological Implications of the 18th and 19th Century Fur Trade:

A Study of Five HBC Post's Accounts

By

Garth R. Sutton

B.A., University of Winnipeg, 2007

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT

FOR THE DEGREE OF MASTER OF ENVIRONMENTAL STUDIES:

NORTHERN ENVIRONMENTS AND CULTURES

in the departments of

Anthropology and Geography

LAKEHEAD UNIVERSITY

Supervisor: Dr. J. Scott Hamilton

Second Reader: Dr. Robert Robson

Third Reader: Dr. Michel Beaulieu

External Examiner: Dr. Carolyn Podruchny

January 2016

ABSTRACT

This research critically addresses the ecological implications of the 18th and 19th Century fur trade and whether primary source material written and maintained by European fur traders can measure resource procurement changes through a diverse geographic area over a 62 year period. The study utilizes Hudson Bay Company post journals from five posts selected from three different ecological zones situated along a primary transportation route in north-central Manitoba and Saskatchewan. The study was divided into four periods reflecting different intensity levels regarding resource use. The research challenges the previously held assumptions that over harvest resulted in resource collapse and resulting hardships.

ACKNOWLEDGEMENTS

There is a long line of people who helped me complete this thesis, if it wasn't for their patience and generosity this wouldn't have ever happened. I will forever be in their debt. The first person I would like to thank is my advisor, Dr. Scott Hamilton whose guidance and patience was insurmountable. I also owe a great debt to his family who put up with incessant phone calls from me at all hours.

There is a handful of people who I would like to thank for putting me back on the rails when I periodically went off them, these are David Finch, Pete Garn and Andrew Lints. They were anchors in a sometimes stormy sea. I owe Amber Flett a great debt as well for her encouragement as well as technical advice and for being a great person to work with in the field as well as a great friend. Jill Taylor-Hollings was very helpful with edits and Dr. Tomasin Playford steered me in the right direction with data analysis. I owe a lot to both of them. Big thanks to Dr. Robert Robson and Dr. Michel Beaulieu, who agreed to sit on my internal committee as well as for their critiques and sound advice.

I would like to thank my Mother and Father, as well as my brother for their constant support and teaching me the value of hard work and perseverance. Always there for me pulling me up when I was feeling down, instilling confidences and the willingness for seeing things to the end. For those of you that I missed, I sincerely apologize, but you know who you are.

TABLE OF CONTENTS

Table of Figures

List of Tables

CHAPTER 1

INTRODUCTION

This thesis studies the ecological implications of the 18th- and 19th-century fur trade revealed in records maintained by European fur traders through a focus on five Hudson's Bay Company (hereafter HBC) fur trade posts along the primary water route (lower track) from Hudson Bay into the interior of northern Manitoba. At each of these posts a sequence of annual journals and account books represent characteristic phases in fur trade history. The thesis does not overtly address the socio-economic relationships between Indigenous and European participants, nor does it seek to articulate Aboriginal agency in the fur trade. Instead, it evaluates widely accepted assertions about fur trade-induced resource stress, and examines the nuances of how such intensified predation affected both the ecology of the study area, and the human adaptation to these shifting realities.

The thesis assumes that biotic and physical environments greatly influenced the subsistence activities of humans, particularly northern temperate and subarctic hunter-gatherers. In this case, the intense continental climate and boreal forest/taiga environment favoured traditional Indigenous adaptations built around seasonally conditioned food gathering and widespread broad-spectrum foraging to prevent over-harvesting (Feit 2002; Tanner 1979; Winterhalder 1980, 1983). While such adaptations enabled sustainable subarctic occupation over

millennia, the 18th- and 19th-century fur trade, with its harvest intensification beyond local subsistence needs, presented new challenges to region's inhabitants. Natural resource harvest during the fur trade era reflected the daily food needs of both Aboriginal and non-Native occupants, the provisioning requirements of the extensive transportation system, and also the commercial harvest of furs and other country produce. This thesis addresses how fur trade records portray harvest intensification, whether some biotic regions (or species) were better able to withstand these impacts, and ultimately, how Aboriginal people responded to the ecological pressures. Using European-generated papers, such as post journals, limits the capacity to fully address the emic perspective of the Aboriginal trapper/hunter. Documents by Europeans for European corporate superiors have numerous flaws, biases, inconsistencies, and gaps that obscure Aboriginal actions (Brown 1980; Vibert 2000; Vibert and Brown, eds., 2013). Integration of data from Aboriginal Traditional Knowledge (ATK) and archaeological analysis of material culture that would better represent Indigenous perspectives is beyond the scope of this thesis. Instead, the thesis focuses on the utility of data that can be culled from European fur trade documents, which, despite their biases, reveal a great deal about ecological resource use and adaptation.

The early ethnohistorical literature (Bishop 1974; Ray 1974; Ray and Heidenreich 1976) as well as recent literature (Carlos & Ray 2010) using HBC archival material asserts that intensive and unrelenting resource harvest caused widespread resource exhaustion across what was envisioned as a static and uniform environment. These works proposed that such widespread ecological

transformation caused profound socio-economic changes for the Aboriginal trappers, leading to total dependency on the European trade posts for survival. In turn, this economic dependency transformed the power relationship, forcing continued engagement in fur trade harvest, continued ecological transformation, and set the stage for eventual colonial domination of the Indigenous populations occupying much of British North America. These assumptions are derived from HBC account books and district reports using beaver pelt counts and goods traded as indicators of beaver collapse and eventual dependence. Scholars assumed that the boreal forest was a static, uniform entity. This thesis questions these assumptions by accessing data on resource use at five posts situated on a vital transportation route intersecting three different biomes, during a 62-year period characterized by different levels of land use intensity. By closely looking at the interrelationships through time and across a wide bio-geographical area, I trace the ecological transformations and the adaptive responses of Indigenous peoples visible in European fur trade records.

Much of the classic ethnohistoric literature addressing the fur trade in the boreal forest treats the biotic character of the region rather one-dimensionally. Following widely cited characterizations in the mid-20th-century ethnographic and archaeological literature, the subarctic is often portrayed as a rather austere environment with a harsh continental climate and diffuse resources (compared to biotic productivity noted in other bio-geographic regions of North America). While notable exceptions include some seasonally abundant and predictable resources (migratory waterfowl, the fishery, caribou, etc.), the landscape was traditionally viewed as uniform, rather unchanging, and comparatively vulnerable to over-

hunting (Wright 1972). More recent characterizations of subarctic ecology (and human adaptation) is much more dynamic, and recognizes geographic and temporal variability, and the complex successional pressures. These nuanced views of the environmental are coupled with a much more sophisticated ethnographic understanding of the complexity, resilience, and flexibility of subarctic hunter-gatherer adaptation. Ironically, these ethnographic characterizations of Indigenous social organization, economy, and land use derive from observations dating over the past century, long after the most severe ecological perturbations caused by the fur trade. Scholars are now starting to understand biotic and cultural systems as dynamic, and the impact of rapid European colonial appropriation of natural resources on them. Non-Aboriginal epistemology regarding the cultural ecology and adaptive strategies employed in boreal forest foraging is merely catching up to Aboriginal epistemologies, which have long recognized how humans and the environment interact in dynamic ways to create a complex history.

Consistent with more recent ecological characterizations of the boreal forest and adjacent biomes, this thesis explicitly addresses whether fur trade harvest had variable impact across the subarctic by considering a linear transect across north–central Manitoba at sites of 18^{th-} and 19th-century fur trade posts along the primary water transportation routes that bisected the region. Over approximately 150 years, numerous European traders and Indigenous trappers bartered furs (and other country produce) for European manufactured goods, which supported the international market for furs and the logistical demands of large-scale trade operations that grew to literally span the continent. The

expanding fur trade led to intensive harvest of food and fur resources far beyond indigenous harvest levels, and had a profound cumulative effect upon the structure and composition of bio-regions found within the study area.

The “lower track” studied here is a network of lakes and rivers that drains the Canadian continental interior into Hudson Bay. The south end of the study area coincides with the transition between the mixed-wood forest and the boreal forest, the middle zone is made up of the conifer-dominated boreal forest, while the north end represents a transition into arctic tundra. The study region is characterized by diverse physiographic, hydrological, and sedimentary conditions that contribute to even greater ecological diversity, which offered diverse, albeit seasonally varying, resources to the local Aboriginal peoples, made up of Inninew (commonly called Cree). However, the Inninew were (and continue to be) socio-politically diverse with their own modes of social identity and division. The changing character of resource harvest is considered in each ecological zone (represented by contemporaneous trade posts) through time. These posts are described in more detail in the following chapters.

The majority of the Aboriginal inhabitants of the study area initially formed symbiotic relationships with the newcomers to carry out the trade, but the relative power relationship changed through time in response to a host of local and external pressures. Beginning as early as the late 1600s, the regional fur trade developed as an indirect (middleman) trade system controlled by Aboriginal people reminiscent of pre-contact exchange networks. This system persisted through much of the first 100 years after the 1670 establishment of the HBC. The French had a small direct presence in the early years of “bayside” trade with

several brief posts on the Hayes River as well as American traders operating up the Nelson River and on Gillam Island. This so-called 'bayside' system involved European supplies being conveyed to depots at the mouths of major rivers draining into Hudson and James bays, where the traders awaited the arrival of Aboriginal trade partners travelling by canoes (laden with furs) from the remote interior hinterlands. York Factory is the most important coastal depot for this study. Local coastal groups were also involved in this trade system by providing provisions to sustain the sedentary European coastal settlements. By the early 1700s as French explorers and traders penetrated inland to the region that became Manitoba and eastern Saskatchewan. The French and later British traders became part of a long-standing trading system that operated between Aboriginal groups. Interior trappers could directly barter their furs for European goods, rather than relying upon the Inninew and Nakota (also called Assiniboine) middlemen who controlled the northern water routes. As this direct trade system became larger after the 1760s, the HBC was forced to respond by abandoning the bay-side trade system, and move inland to trade directly with fur trappers. Their move inland triggered a rapid escalation in the volume, intensity, and geographic expanse of the fur trade that culminated in nearly a half century of intensive fur trade operations. The scale and logistical complexity of the trade was staggering, involving the annual movement of trade goods and furs across much of northern North America along water transportation routes. The competition era is also characterized by many more traders operating a network of competing trade posts that cumulatively required an enormous annual supply of preserved food, furs, and other country goods (detailed in chapter 3). While

offering short-term economic opportunities to Indigenous residents, the trade sharply increased demands on the ecosystem, resulting in overhunting, resource depletion, and hardship (Bishop 1974; Marten 1978; Ray 1974).

The expanded ecological impact of the fur trade had a widespread negative effect. The demand for marketable furs and provisions grew rapidly consistent with the ever-expanding fur trade hinterland. Under these intensive harvest pressures, local animal population could not recover to sustain a healthy and viable population. The HBC officers documented the operations under their supervision, and the surviving documents offer insight into the changing nature and volume of resources traded at each post. These records are an invaluable, but incomplete, record of the fur trade and its changing character and represent the primary data source used to explore the pace and dynamic nature of the harvest of country produce at select time intervals at several posts located throughout the study region.

The ecological depletion and its socio-economic impacts caused by the fur trade have been well documented by ethnohistorians, cultural geographers, and economic historians such as Ray (1974) and Bishop (1974), but the timing, geographic area, and the speed in which this depletion occurred have been much less studied. This thesis demonstrates that data drawn from post journals alone, with their Eurocentrism, reveal patterns of resource use in different ecozones, and the ways that Aboriginal peoples responded and adapted to the ecological pressures of the fur trade. Chapter 2 introduces the physical environment and ecology of the study area along with the economically important animal species present within the study area. Chapter 3 reviews the historic sequence of events

affecting the study area to provide a context for understanding the data presented. Chapter 4 reviews the theoretical framework and methodology employed in this study, including the data collection methods, the limitations of the research, and some of the pertinent theories utilized in interpreting the data. Chapter 5 provides a general description of the trends observed in the data at each of the posts at key time periods, while Chapter 6 presents the results of analysis, with interpretations of the trends. Chapter 7 discusses these data interpretations relative to the established literature, and offers some concluding remarks and suggestions for future research. Finally, the appendices present all observations gleaned from the data.

CHAPTER 2

ENVIRONMENT AND ECOLOGY OF STUDY AREA

2.1 Introduction

The large study area encompasses three physiographic zones: Hudson Bay Lowland, Precambrian Shield, and the northern section of the Manitoba Lowlands (Figure 2.1) (Badertscher 1990). Each of these regions has distinct faunal, floral, hydrological, geological, and climatic characteristics that might have responded differently to harvest intensification during the fur trade era. I describe each of these zones and offer a brief environmental history to better understand the processes that shaped the landscape. These characterizations are a generalized perspective of the biotic capacity; the available data limits view of the detailed change that occurred due to the effects of the fur trade. The data does, however, offer insights into short-term shifts brought about by fur trade harvest.

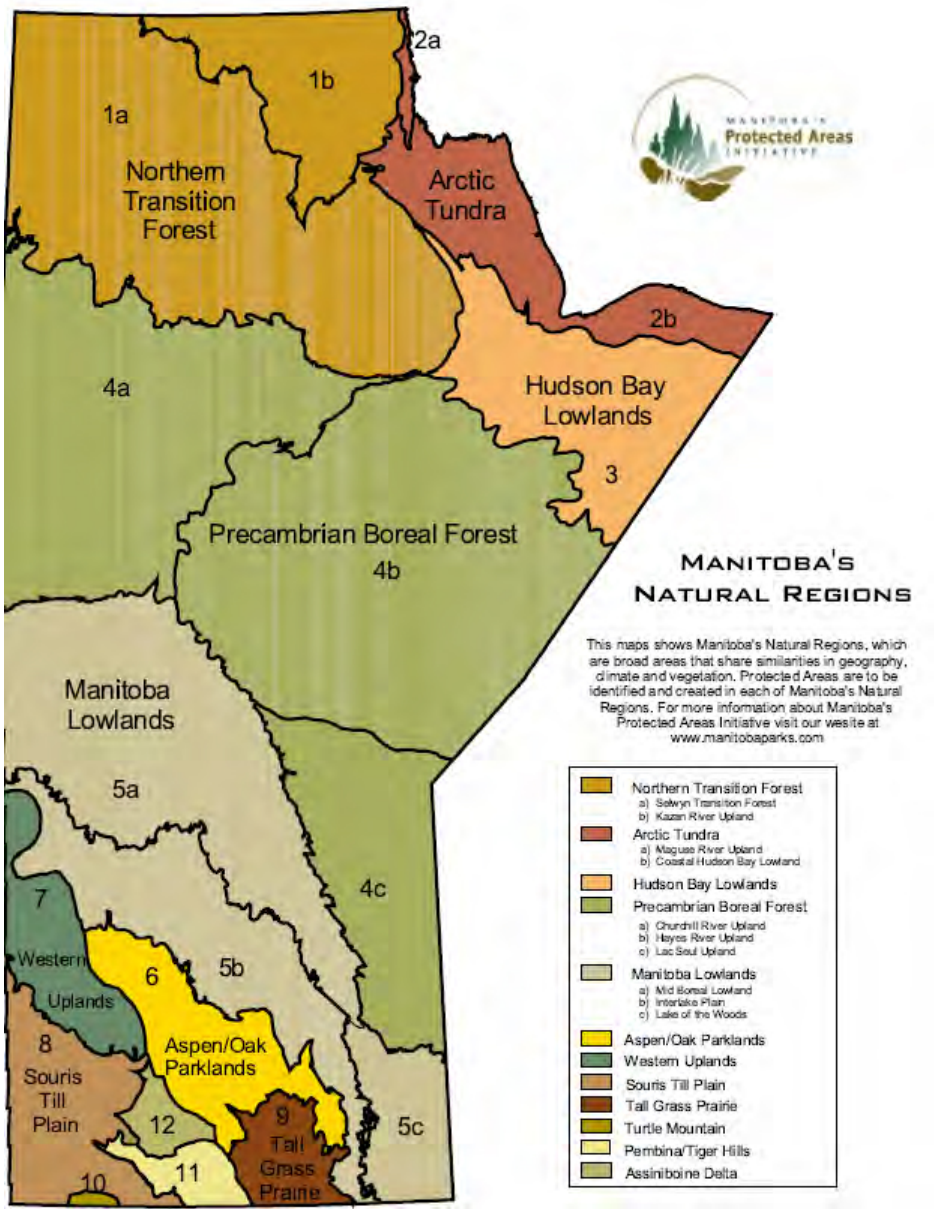

Figure 2.1 Physiographic Zones of Manitoba (Creed 2001, www.manitobawildlands.org).

The Hudson Bay Lowlands, falling within the northeastern portion of the study area, is a low lying, gently sloping, swampy land or an undulating plain of low elevation with many lakes, streams, and swamps, and limestone till mantling Paleozoic strata (Lytwyn 2002; Corkery 1997). The substrate is covered with

marine clays that supports a patchwork of poorly drained muskeg, lakes, and streams. Some relief features derive from strandlines left by the Tyrrell Sea during its retreat (Corkery 1997; Simpson 1972). Localized relief is evident where primary river valleys (Churchill, Nelson, Hayes, Severn, etc.), have down cut through the till and into the bedrock mantle. Drainage is poor due to the low elevation, thick rocky substrata, and permafrost (Simpson 1972). York Factory is situated at the mouth of the Hayes River within the Hudson Plains Ecozone. Gordon House is at the interface of the Hudson Bay Lowlands and the Canadian Shield. Oxford House and Norway House inhabit the boreal forest portion of in the Canadian Shield, and Cumberland House is located at the interface of the boreal forest and the parkland belt. (Figure 2.2)

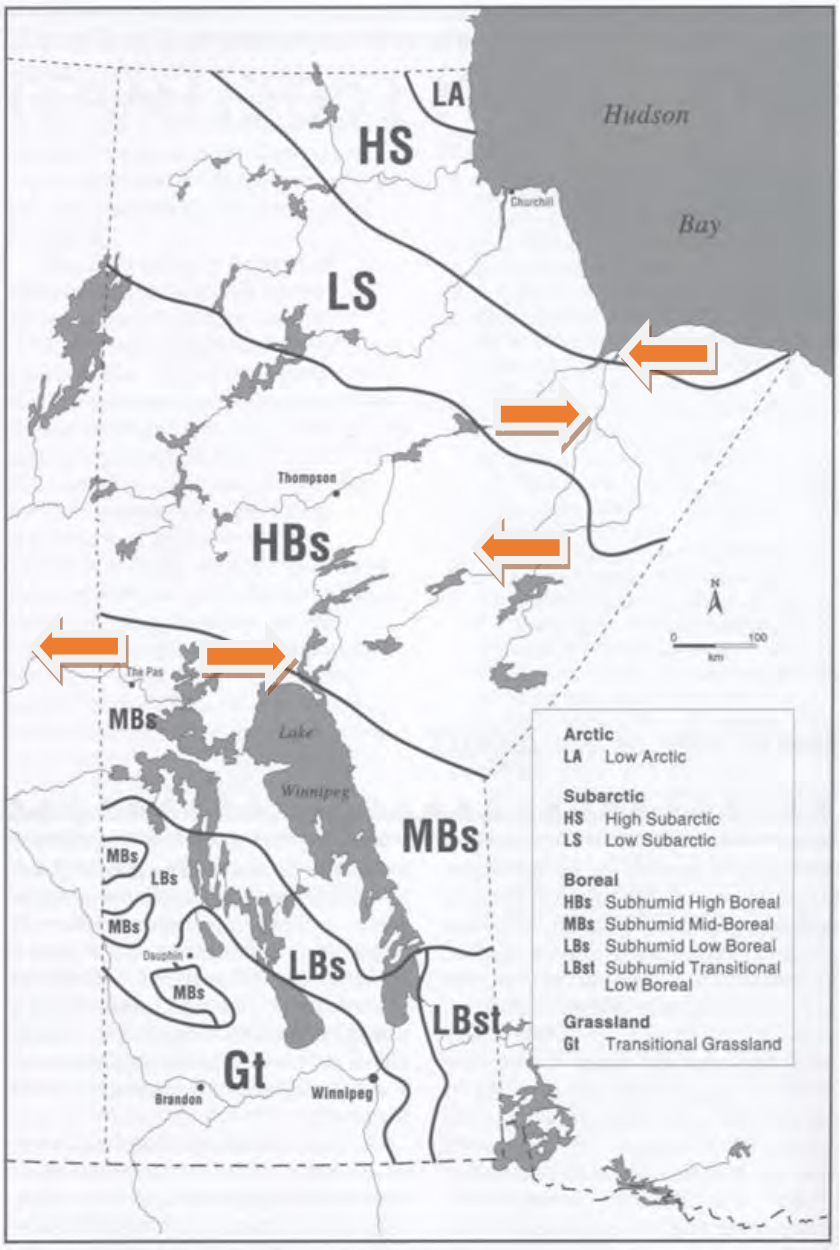

Figure 2.2 Post Locations in Physiographic Zones. Modified from Scott 1997.

The Precambrian Shield, the largest physiographic zone in the study area, is a hummocky or uneven landscape situated on metamorphosed sedimentary rock along with metamorphosed volcanic rock (Corkery 1997; Kroker 1990; Smith et al.1998). It encompasses the middle zone of the area under study and extends

in an arc from Alaska to Quebec, and is the largest physiographic zone in Canada (Rowe 1972). The numerous lakes and rivers interspersed throughout the Precambrian Shield vary widely in depth and area. A significant part of the west-central part of the Shield drains in Hudson Bay via the Nelson, Hayes, and Churchill rivers (Corkery 1997).

The third physiographic zone in the western part of the study area falls within the northern section of the Manitoba Lowlands, and is a low relief gently rolling Paleozoic limestone and dolomite strata that has been greatly modified by glacial scouring (Smith et al.1998; Corkery 1997). The bedrock is overlaid by a layer of glacio-lacustrine sediments (clays, silts, and sands) deposited by glacial Lake Agassiz, which contributes to a low-relief landscape covered by organic deposits making up poorly-drained bogs and fens (Smith et al.1998; Corkery 1997).

The climate of this study area fluctuates wildly with the seasons. It can be described as continental, with very low winter temperatures and high temperatures in the summer (Blair 1997). Average maximum daily temperatures vary between 19 and 24˚C in July and between 26 and 31˚C in January. The lower temperature range is approximately 12-13˚C lower within the Precambrian Shield, and 10˚C lower in the Hudson Bay Lowlands (Blair 1997; Kroeker 1990). The warm months are wet and the colder months are dry. An average of 475-525 mm of precipitation falls every year in the region, two thirds as snow (Blair 1997; Rowe 1972). The last spring frost can occur in June, while the first fall frost happens in late August and mid-September. Freeze up occurs a little later, usually mid-October (Blair 1997; Ray 1974).

2.2 Environmental History

The environmental history of north-central Manitoba is relatively complex. A brief summary is provided here, and readers are referred to Corkey (1997) for a fulsome portrait. The final period of intense glaciation was the Wisconsinan Age, beginning about 75,000 years ago and persisting until around 8,000 years ago (Corkery 1997). This last glacial period spanned the Late Pleistocene and early Holocene epochs. With the exception of the southwestern corner, the province of Manitoba was mantled by the Laurentide Ice Sheet. This massive continental glacier covered much of northern North America, averaged 2-3 km in thickness, and shaped much of Manitoba's current topography. The ice sheet was dynamic, and advanced and receded depending on the climactic conditions. These processes left behind many features that affected the biotic and hydrological character of the land, and played an important role in human utilization of it.

Remnants of the Laurentide Ice Sheet and the subsequent Lake Agassiz are readily evident in a number of features. Glaciation manifests itself in four forms: erosion, deposition, glacial lake formation and drainage, and the alteration of drainage systems. These geomorphic effects contributed to different landforms, which in turn exerted ecological influences on human land use.

The glacial erosional effects resulted in the removal of overburden from the bedrock, leaving it exposed in some places. On such bedrock surfaces striations and gouges may be evident, reflecting a northeast to southwest orientation of glacial advance. The retreating glacier created numerous landforms through a variety of processes. Some of these are a variety of moraines: 1)

ground moraines, which are undulating till plains of poorly sorted sediment left behind by glacial ablation; and 2) end/terminal moraines which are linear ridges of glacial rubble that accumulated at the 'toe' (ablation zone) of a glacial front that paused for a time in its process of retreat (Sims et al. 1991). The Pas End Moraine is an excellent example of this phenomenon. The numerous other landforms in the study area include kames, eskers, and kettle lakes. These landforms affected the biotic capacity of the landscape and also the procurement activities and mobility of people.

As the Laurentide Ice Sheet receded, proglacial lakes formed. The biggest of these was Glacial Lake Agassiz, which formed approximately 13,000 before present (hereafter bp) (Corkery 1997), and transformed depending upon glacial conditions and the opening and closing of its various drainage outlets. Glacial Lake Agassiz was an ice-dammed lake that formed through the ablation processes of the Laurentide Ice Sheet, and non-glacial runoff water from a drainage area approximately two million square km (Thorleifson 1996). There were numerous drawdowns of Lake Agassiz through a number of drainage outlets, specifically through the Red River valley into the Mississippi drainage and on to the Gulf of Mexico, the Minnesota River valley, the Thunder Bay area, the Nipigon Basin, and the Clearwater Spillway into the Arctic Ocean (Figure 2.3) (Thorleifson 1996; Tellar & Thorleifson 1983).

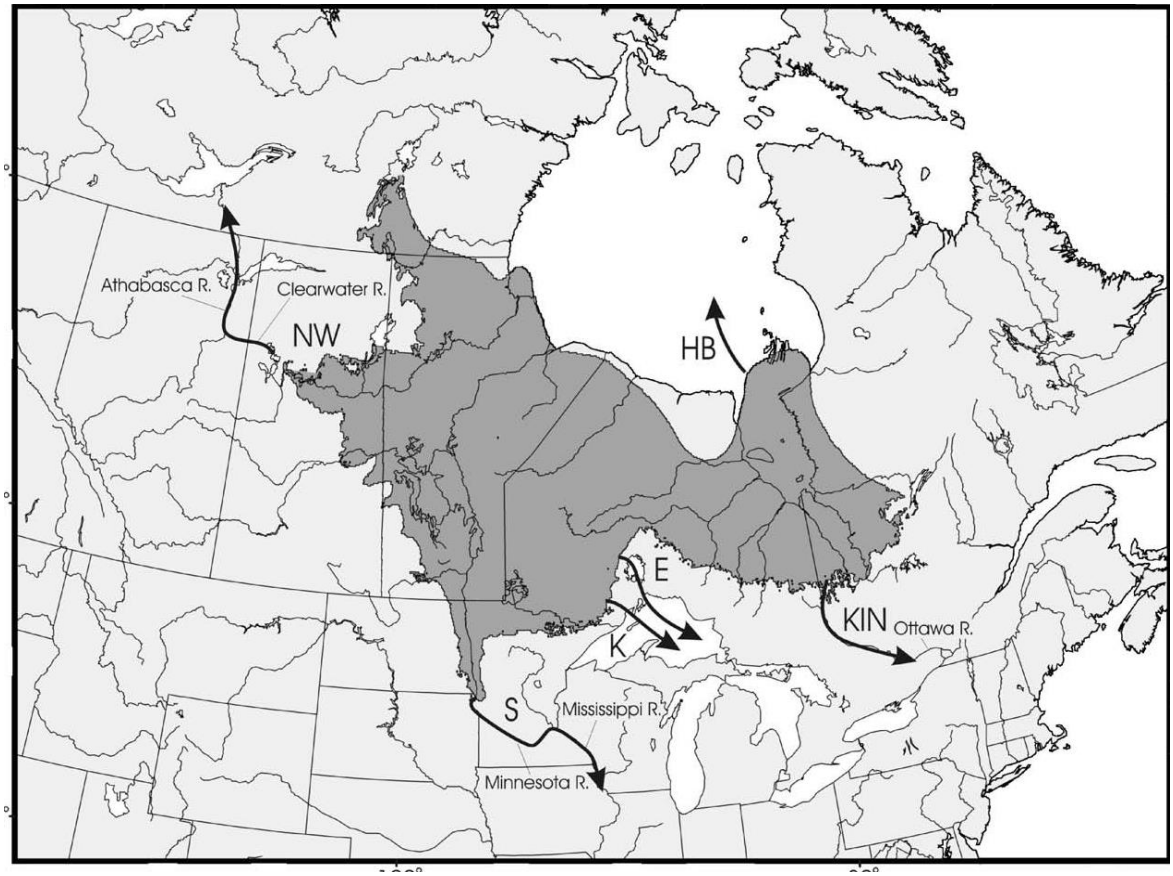

Figure 2.3 Glacial Runoff (Thorleifson 1996).

Lake Agassiz left behind numerous features prevalent in the study area that includes strandlines, spillways, deltas, and lake bottom sediments (Corkery 1997; Sims et al. 1991). Lakes Winnipeg, Manitoba, and Winnipegosis are remnants of Lake Agassiz. Some of the northern waterways have steep-sided, flat-floored valleys too large to have been made by the present-day rivers flowing in them. Glacial melt water spillways that transported a very large amount of melt water and sediment from one lake to another created these wide valleys (Sims et al. 1991).

The weight of the immense glacial ice sheet during the last ice age compressed the land around Hudson Bay to the relative level of the sea, allowing Hudson Bay to flood up to 200 km inland from its present shore. This enlarged bay is called the Tyrrell Sea. Since then, isostatic rebound has caused the land rise in relative elevation, resulting in marine waters being displaced to the northeast. Numerous strandlines from the Tyrrell Sea in the Hudson Bay Lowlands are visible today and shaped the geomorphology of the region (Figure 2.4) (Corkery 1997).

Figure 2.4 Extent of Tyrrell Sea (Crosshatched areas extent of sea) (Trott et al. 1976).

Deglaciation and the landforms that resulted from it had a profound impact on later peoples and their procurement of resources. The formation of moraines and eskers as well as the numerous lakes in the study area create microenvironments that offer resources that varied temporally and spatially. Further short- and long-term variation in biotic capacity was shaped by forest succession deriving from fire, wind, insect, and other damage. Forest succession played a pivotal role creating a series of “patch types” within diverse ecological character (Winterhalder 1981, 1982). The rivers and streams in the study area offered strategic resources for human subsistence, and also formed important transportation corridors. Eskers facilitated the movement of large game animals, such as the caribou or moose, as well as human locomotion. Travel along eskers

was especially prevalent along the Hudson Bay coast due to lack of suitable birch stands to construct canoes (Lytwyn 2002). The carrying capacity of each ecozone differed with the season. Along the Hudson Bay coast the resources were particularly rich during the spring and fall due to large numbers of migratory birds as well as barren ground caribou.

2.3 Climate

2.3.1 Hudson Bay Lowlands

2.3.1.1 Surface Geology/Physiography/Hydrology

The Hudson Bay Lowlands are rising 0.7 m a century due to isostatic rebound. The impact of this phenomenon is readily evident from a 1757 inscription left on a granite outcrop at Slopes Cove at the mouth of the Churchill River where the HBC used to moor its ships. Samuel Hearne's autograph is now several meters above the tidewater (Corkery 1997). Isostatic rebound impacted drainage systems inland by impeding drainage, which contributed to the formation of muskeg patches and peat bogs, which in turn, created a complex vegetation mosaic (Corkery 1997; Smith et al. 1998; Winterhalder 1981).

The Hudson Bay Lowlands extend in a crescent-like shape from the Churchill River, south-southeast to the Nottaway River at the southeast point of James Bay. It reaches it maximum inland extent approximately 400 km along the Albany River (Lytwyn 2002). (Fig -2.5)

Fig 2.5 Extent of Hudson Bay Lowland area (Lytwyn 2002: 5).

The Hudson Bay Lowlands are rising 0.7m a century due to isostatic rebound, a process deriving from the massive compressive force of the Laurentide glacier, that once released, enabled the land to slowly rebound. The impact of this phenomenon is readily evident from a 1757 inscription left on a granite outcrop at Slopes Cove at the mouth of the Churchill River where the Hudson's Bay Company used to moor its ships. Samuel Hearne's autograph is now several meters above the tidewater because of isostatic rebound (Corkery 1997). Isostatic rebound impacted drainage systems inland by impeding drainage, which contributed to the formation of muskeg patches and peat bogs, which in turn, created a complex vegetation mosaic (Corkery 1997; Smith et al. 1998; Winterhalder 1981).

2.3.1.2 Ecology

2.3.1.2.1 Vegetation

The Hudson Bay Lowlands are part of the Subarctic-Low Subarctic ecoclimatic zone, with vegetation described as an Open Lichen Woodland (Scott 1997) (Fig 2.6). Rowe (1972) describes it as “subarctic” in appearance due to the prominence of open wooded areas of black spruce and tamarack situated in the muskegs and fens. Along the well-drained low alluvial river banks, closed mixed wood forests predominate and inland zones more frequently contain low-lying swamps, bogs, and fens (Rowe 1972).

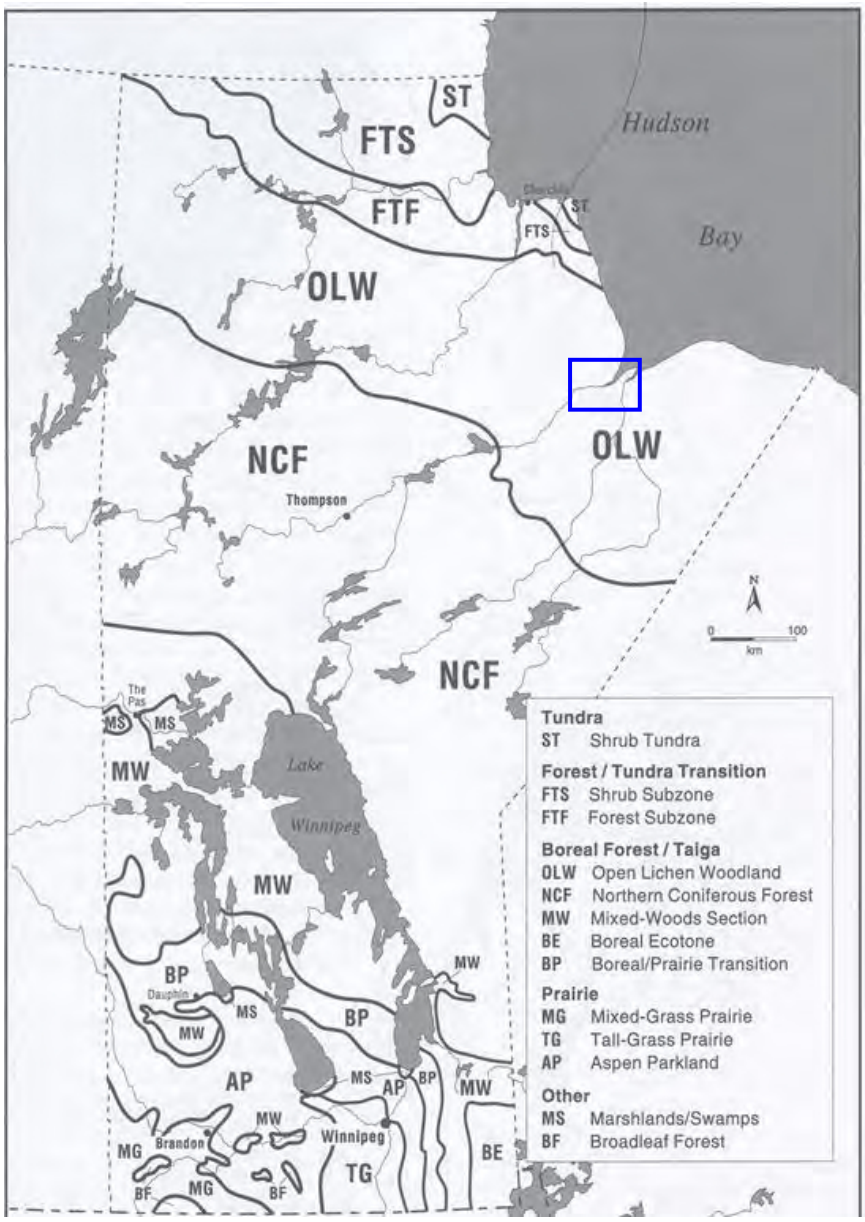

Figure 2.6 Hudson Bay Lowland Ecoclimatic Zone (York Factory area in box). Modified from Scott 1997.

Along the coast there are numerous unvegetated mudflats and tidal beaches and further inland there are extensive peatbogs that increase in depth further back from the bayside. The predominant vegetation species is light colored fruiticose lichens such as Northern Reindeer Lichen (*Cladina stellaris*) and a variety of sphagnum mosses (Johnson et al.1995). Black spruce (*Picea*

mariana) and tamarack (*Larix laricina*) predominate the low lying, poorly drained fens and bogs that are highly acidic (Scott 1997; Rowe 1972; Johnson et al.1995; Smith et al.1998).

Along the well-drained river bank levees stands of white spruce (*Picea glauca*), balsam fir (*Abies balsamea*), trembling aspen (*Populas tremuloides*), balsam poplar (*Populas balsamifera*) and white birch (*Betula papyrifera*) are common (Rowe1 972; Johnson et al.1995; Marles et al. 2000). Common shrubs found in the Hudson Bay Lowland include dwarf birch (*Betula pumila*), bog willow (*Salix pedicellaris*), sandbar willow (*Salix exigua*), red-osier dogwood (*Cornus stolonifera*), and labrador tea (*Ledum groenlandicum*) (Johnson et al.1995).

2.3.1.2.2 Mammals

The Hudson Bay Lowlands supports a moderate range of species. The most iconic animal is the polar bear (*Ursus maritimus*), which spends July to November on the coastal region of Hudson Bay during the ice-free period (Petch 1987; Reid 2006; McCloskey 2008). Due to their size, polar bears were used as a food source and when their fat was mixed with cranberries and ruhiggan it was considered as a great delicacy (Lytwyn 2002). Woodland caribou (*Ranger tarandus caribou*) are found in the coastal area during breeding in late May or June (Reid 2006) where they grazed on lichens found throughout the lowlands. Moose (*Alces alces*), although limited in number, were an important food source and were found in swamps and marshes feeding during the summer months. Snowshoe hare (*Lepus americanus*) are found in littoral areas in coniferous forests (Reid 2006).

Other species found in the Hudson Bay Lowland region include black bear (*Ursus americanus*), grey wolf (*Canis lupus*), arctic fox (*Alopex lagopus*), red fox (*Vulpes vulpes*), marten (*Martes americana*), fisher (*Martes pennati*), wolverine (*Gulo gulo*), river otter (*Loutra canadensis*), porcupine (*Erethizon dorsatum*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), lynx (*Lynx canadensis*), and barren ground caribou (*Ranger tarandus groenlandicus*). Beluga whales (*Delphinapterus leucas*) are found in the estuaries at river mouths, and harbour seals (*Phoca vitulina*) and bearded seals (*Erignathus barbatus*) are found in some rivers and lakes (Reid 2006; Kroeker 1990; McCloskey 2008, 2011).

2.3.1.2.3 Fish

Numerous varieties of fish abounding in the lakes and rivers of the Hudson Bay Lowlands and along the coast were harvested by the residents. The most edible, and hence valuable, fish are lake sturgeon (*Acipenser fulvescens*), lake whitefish (*Coregonus clupeaformis*), northern pike (*Esox lucius*), longnose sucker (*Catostomus catostomus*), white sucker (*Catostomus commersonii*), brook trout (*Salvelinus fontinalis*), perch (*Perca flavescens*), and walleye (*Sander vitreus*) (Stewart et al. 2004; Lytwyn 2002). The majority of the fish were seasonally abundant during their spawning runs in the spring and fall. During the colder parts of the winter fish would usually seek out deeper areas of the lakes.

2.3.1.2.4 Avifauna

Seasonally abundant migratory waterfowl and other bird species available year round also made up the diet of the region's human residents. Species

harvested during spring and fall migrations included Canada goose (*Branta canadensis*), snow goose (*Chen caerulescens*), snow bunting (*Plectrophenax nivalis*), and brant goose (*Branta bernicia*) (Brinkley 2008; Lytwyn 2002). Some species arrived during the spring and prolonged their stay during the summer along the coast in the marshes and salt flats. The common species are mallard duck (*Anas platyrhynchos*), northern shoveler (*Anas clypeata*), green winged teal (*Anas americana*), and the northern pintail (*Anas acuta*) (Brinkley 2008; Lytwyn 2002). Species available on a year-round basis included willow ptarmigan (*Lagopus lagopus*), rock ptarmigan (*Lagopus muta*), spruce grouse (*Falcipennis canadensis*), ruffed grouse (*Bonasa umbellus*), and the sharp tailed grouse (*Tympanuchus phasianellus*) (Brinkley 2008 Lytwyn 2002; Kroker 1990).

2.3.2 Precambrian Shield

2.3.2.1 Surface Geology/Physiography/Hydrology

Numerous remnant glacial features such as moraines and eskers exist throughout the northern part of the region. There are parallel ridges of rock outcrops created by the scouring effects of the retreating glacier. The climate of the Precambrian Shield can be described as a continental one, characterized by long cold winters and short cool summers. The mean annual temperature for the region is -4˚C, with seasonal means of 23˚C in July and -30˚C in January (Smith et al.1998; Blair 1997; Kroker 1990). The area receives approximately 535.6 mm of precipitation a year, 200.9 mm falling as snow. The region has an average of 59 frost-free days (Smith et al.1998; Blair 1997).

2.3.2.2 Ecology

2.3.2.2.1 Vegetation

The boreal forest ecoclimatic province is associated with the Precambrian Shield, and is made up of three subprovinces -- low, middle and high (Scott 1997) -- with the subhumid mid and high boreal subprovinces occurring in the study area (Figure 2.7). Rowe (1972) describes the area as having closed forests where climatic and soil conditions permit. The northern coniferous forest is the predominant wood in the area, with black spruce being the most common tree, with stands in both poorly drained acidic soils in low lying areas as well as on thin soils in the uplands. Jack pine (*Pinus banksiana*) and tamarack are closely associated with the black spruce in this region (Johnson et al.1995; Rowe1 972). On south facing slopes, river banks and lake margins where favorable soil and micro-climatic conditions exist, white spruce, balsam fir, trembling aspen, and balsam poplar abound (Rowe 1972). On better drained sites feather mosses predominate, while poorly drained sites with acidic soils or ground water support sphagnum moss/labrador tea/low shrub cover (Scott 1997).

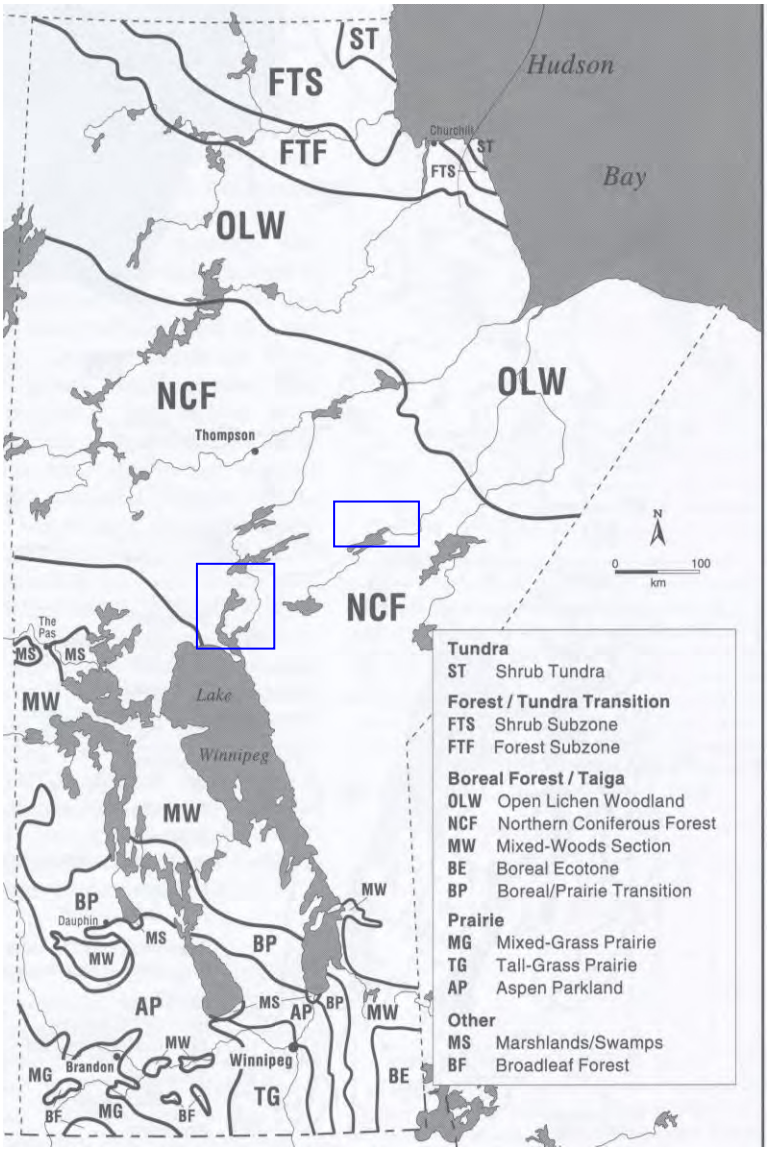

Figure 2.7 Boreal Forest Ecoclimatic Province (Areas of Interest outlined). Modified from Scott 1997.

Succession stages are common in the boreal forest and are described as a natural replacement of certain types of species, either plant or animal, in an area over time (Martin & Gower 1996; Perry 1994). Several agents affect the process of succession. Winterhalder (1983) describes the effects of snow throw, blow down, and fire as three important agents that initiate succession. Davidson-Hunt (2003) mentions insect infestation and disease as important agents of

succession. Out of the four, forest fires have the most profound effects on succession stages and age distribution and composition of the forest stands (Smith et al.1998; Winterhalder 1983).

2.3.2.2.2 Mammals

Large ungulates such as moose and woodland caribou are present in the region. Moose prefer early stage forest, which supplies sedges, reeds, rushes, and other aquatic plants with willow, alder, and birch forage in the summer and stands of balsam fir in the winter (Reid 2006; Kroker 1990). Woodland caribou prefer to browse on shrubs and grasses in the summer and lichens that are exposed in the winter (Reid 2006). The plenty of carnivores in the region includes wolves, lynx, bobcat (*Lynx rufus*), black bears, wolverines, fishers, martens, and weasels (*Mustela nivalis*). Large and small fur bearers include rabbits, beavers, and muskrats that are located within littoral areas in the region (Reid 2006; Smith et al. 1998; Kroker 1990).

2.3.2.2.3 Fish

The innumerable lakes, streams, ponds, and rivers in the boreal forest provide habitats for a vast array of fish. The resident populations utilized as food include lake whitefish, northern pike, white sucker, long nose sucker, lake sturgeon, burbot, walleye, goldeye (*Hiodon alosoides),*lake-trout (*Salvelinus namaycush*), cisco (*Coregonus artedii*), lake chub (*Couesius plumbeus,)* and sauger (*Stizostedion canadense*) (Stewart et al. 2004; Kroker 1990).

2.3.2.2.4 Avifauna

Numerous birds inhabit the boreal forest. With the large number of bodies of water, there are many places for waterfowl to nest and use as staging areas for migratory purposes (Brinkley2008). Kroker (1990) compiled a tentative but comprehensive list of the species of birds recorded in the boreal forest around South Indian Lake and the Rat and Burntwood drainages. Some of them include Canada goose, snow goose, mallard duck, shoveler, northern pintail, green winged teal, blue winged teal (*Anas discors*), spruce grouse, ruffed grouse, and the sharp tailed grouse.

2.3.3 Manitoba Lowlands

2.3.3.1 Surface Geology/Physiography/Hydrology

Numerous remnant features of Glacial Lake Agassiz in the region are represented by beach ridges or strandlines and the very prominent Pas Moraine, which gently arcs south-southeast for approximately 300 km (Figure 2.8) (Smith et al.1998). Bodies of water in the area include the northern basin of Lake Winnipeg, the northern half of Lake Winnipegosis, and Cedar, Moose, Cormorant, Clearwater, and Athapapuskow lakes. The major drainage ways consist of the Saskatchewan and Carrot rivers along with numerous smaller watersheds such as the Minago, Hargrave, and William rivers, which all fall into the Nelson River drainage (Smith et al. 1998; Corkery 1997).

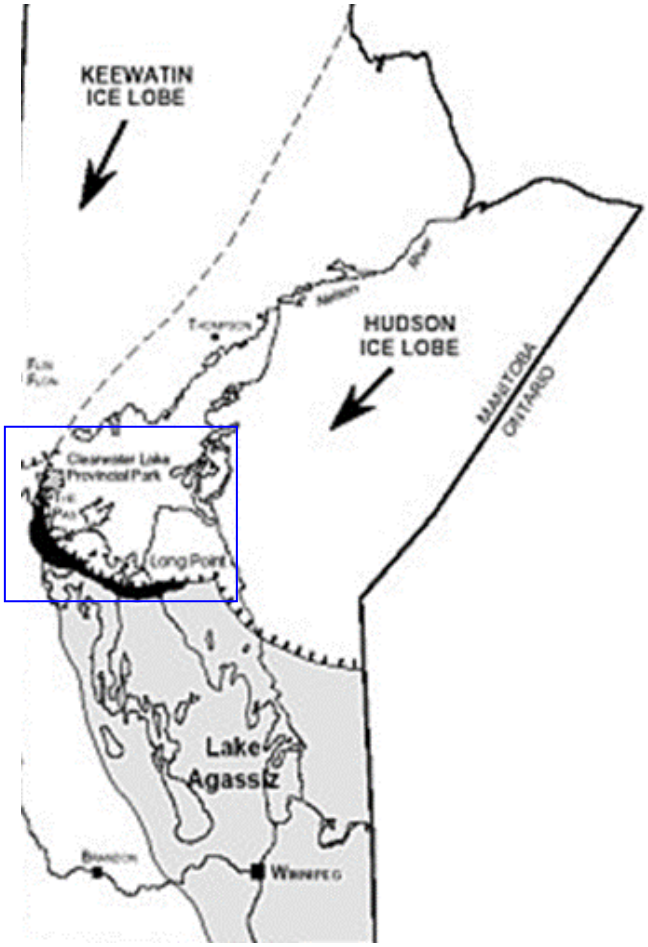

Figure 2.8 The Pas Moraine (outlined). Modified after Connell et al. 1978.

2.3.3.2 Ecology

2.3.3.2.1 Vegetation

The northern section of the Manitoba Lowlands falls within the Mid-Boreal Lowland ecoregion and is characterized by both broadleaf deciduous hardwoods and softwood conifers, which is also referred to as mixed woods or northern mixed woods (Figure 2.9) (Smith et al. 1998; Corkery 1997; Johnson et al. 1995). On poorly drained clayey and loamy tills, closed stands of black spruce, trembling

aspen, balsam poplar, and jack pine predominate and mixed stands of black spruce, white spruce, balsam fir, and trembling aspen prefer lake shores and alluvial deposits along river terraces (Smith et al. 1998; Corkery 1997; Johnson et al. 1995). In the low lying depressions, which form peat bogs and fens, black spruce and various shrubs, mosses, and sedges occur along with tamarack and dwarf black spruce (Smith et al. 1998). Rowe (1972) describes the area as patches of black spruce and tamarack between patches of bogs and fens in flat, poorly drained areas. Stands of white spruce, trembling aspen, balsam poplar, balsam fir, and white birch predominant on the better drained alluvium along river banks and creeks.

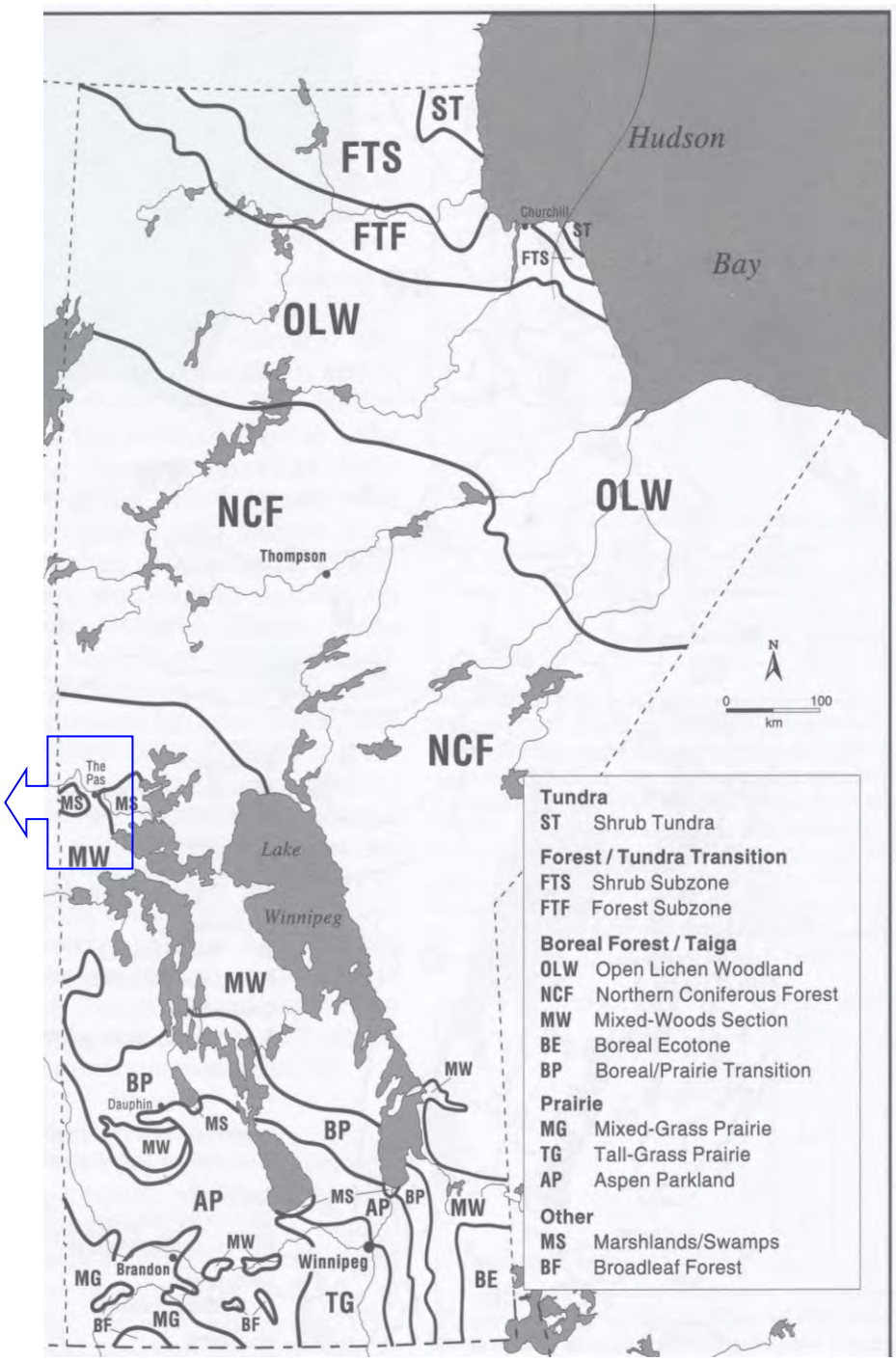

Figure 2.9 Manitoba Lowlands Ecoregion (Area of interest outlined). Modified after Scott 1997.

2.3.3.2.2 Mammals

The characteristic wildlife found in the Manitoba Lowlands include moose, black bear, wolf, lynx, red fox, fisher, weasel, beaver, muskrat, coyote (*Canis latrans*), and the occasional white-tailed deer (*Odocoileus virginianus*) and Bison (*Bos bison*) (Reid 2006; McCloskey 2008, 2011).

2.3.3.2.3 Fish

Innumerable lakes, rivers, streams, and ponds make up the northern portion of the Manitoba Lowlands. Common fish species available for consumption are whitefish, lake sturgeon, walleye, northern pike, burbot, sauger, long nose sucker, white sucker, cisco, goldeye, lake-trout, perch, and lake chub (Stewart et al. 2004).

2.3.3.2.4 Avifauna

Many staging areas and littoral areas for water-fowl to nest can be found in the Mid-Boreal Lowland Ecoregion. Common species of the area are Canada goose, mallard duck, common merganser (*Mergus merganser*), ring-necked duck (*Aythya collaris*), northern pintail, blue-winged teal, northern shoveler, spruce grouse, ruffed grouse, and the sharp-tailed grouse.

2.4 Summary

The local ecology had a major influence on the seasonal round of harvesting practiced by human inhabitants. The three distinct ecozones in the study area have slightly different ecologies and associated landscape features, all of which influenced the behaviors of the animals harvested for food, clothing, and tools. Each landscape had its own set of challenges regarding exploitable

resource potential. Seasonal fluctuations in the resources available temporally and spatially in each of the ecozones affected when and where people travelled. Numerous species that could potentially be exploited had small numbers prone to fluctuation and thus compared unfavourably to species with uniform populations, such as bison on the northern plains. Tanner (1979) described how Indigenous inhabitants used both stable and unstable species in a fragile ecological balance. Specialized strategies for resource harvest for each ecoregion had to be followed to maximize harvest returns.

In the Hudson Bay Lowlands ecoregion, seasonally abundant resources such as migratory caribou and waterfowl were available in large numbers during the spring and fall migrations. Additional species were locally available during the summer months as well. In the boreal forest productive patches were exploited on a seasonal basis and during the summer months. Littoral areas were exploited for a variety of species, spanning aquatic as well as terrestrial. Compared to the Hudson Bay Lowlands, the boreal forest had a greater variety of fur bearers available for harvest. Inhabitants engaged in a seasonal cycle of resource harvest on a sustainable yield basis, which meant that areas were not heavily harvested and permitted to rest, allowing the area to recuperate the species harvested.

CHAPTER 3

STUDY AREA CULTURE HISTORY

This chapter briefly introduces the fur trade in Canada, before focusing on north-central Manitoba and eastern Saskatchewan. Particular attention is paid to the trade route known as the “Lower Track” that ran from the mouth of the Hayes River to Cumberland House on Cumberland Lake (Fig 3.1). The route bisects three ecozones and traverses over many portages and lakes (Morse 1971). I examine five fur trade posts, each serving a different function, along the route: 1) York Factory, 2) Gordon House, 3) Oxford House, 4) Norway House, and 5) Cumberland House. These posts served different functions, and operated over different intervals of the long and complex history of the fur trade. This chapter offers a summary of this historical context to aid in the interpreting the records deriving from each of these posts.

Figure 3.1 The "Lower Track" travel corridor. Modified after Morse 1971.

3.1 Chronological Framework

Several chronologies are currently used by fur trade historians and archaeologists. Each recognizes three periods of culture contact between Aboriginals and Europeans, although they vary on geographic location and time of contact. The three periods are: a) Pre-Contact, the period before Europeans arrived in New World; b) Proto-Historic, the period before direct European contact, but European influence was indirectly felt through foreign goods moving through Indigenous trade networks, transmission of disease, and diffusion of

ideology; and c) Post-Contact, the period of direct contact and interchange between Europeans and Indigenous groups.

While this general chronology offers some insight, the detail of European colonial contact with Indigenous cultures is much more complex when viewed at a local scale. This complexity is further compounded by the fact that much of the conventional fur trade literature focuses on European action and motivation, and projects an essential passivity on the part of Aboriginal participants. Scholars recognize that Aboriginal 'agency' or active engagement in the trade exchange was important, and remained important even in the later phases of the fur trade.

The dimensions of complexity that are well understood in that literature reflect the impact of imperial and commercial competition between Europeans. Again, this is often divided into three primary periods, with sub-phases defining important historical events and processes. The first is the French period, which began with Cartier's land fall in 1534 and ended with the 1760 conquest of New France, and the 1763 signing of the Treaty of Paris. It is divided into two subphases: a) French Monopoly, which coincides with the beginning of the French period and ends with the 1670 establishment of the HBC, and b) French/HBC competition period, which began in 1670 and terminated in 1760; and 2) British period, which began after the1760 integration of New France within British North America and ended with Canadian Confederation in 1867. This period began with intense competition between British commercial fur trade companies. From the early 1760s through to the late 1780s this involved competition between the HBC and several British firms based in the St. Lawrence River valley. As time passed the Montreal firms gradually amalgamated until two

major competitors remained in place: the HBC and the North West Company (hereafter NWC). This period of competition ended in 1821 when the two companies amalgamated under the banner of the HBC. After the 1821 Amalgamation, the HBC enjoyed a ca. 50-year period of relative monopoly, during which time they severely retrenched their operations to cope with the consequences of the unrestrained competition of the earlier period. The Canadian period, this began in 1867 and extends to the present day.

During much of the late 19th century the HBC maintained its relative monopoly in more remote parts of northern Canada. However, in more accessible southern areas, they faced renewed competition and underwent economic reorientation as the fur trade declined in face of European agricultural immigration and the development of forestry and mining, all driven by the development of railroad transportation. Shareholder priorities shifted away from fur trading, and towards mercantile trade to support European immigrant settlement and land speculation. This shift led to the 1870 sale of Rupert's Land to the newly established Dominion of Canada. With Canadian sovereignty expanding over most of British North America, the post-1870 period is defined by gradual development of Canadian authority over Aboriginal nations through treaty-making, and gradual economic and political dominance by non-Aboriginal authority structures. This latter period is much more complicated than presented here, and will not be addressed because it lies outside of the time period of interest.

This study focuses on the British Period, and addresses both the periods of competition and the first part of the period of restored HBC monopoly after the

1821 merger. While useful to frame this study, this historical chronology primarily reflects European economic and political events and perspectives. It does not address the long pre-contact history of Aboriginal occupation that most certainly dates throughout the post-glacial period.

When considering the post-contact period from an Aboriginal perspective, June Helm, Ed Rogers and James G.E. Smith (1981) considered the fur trade a process of inter-cultural contact that varied in time and nature on the basis of major axes for transportation: namely the major waterways and drainage basins. They also considered the contact experience to reflect three discrete phases, the first two of which were driven by fur trade considerations: 1) early/indirect contact, 2) stabilized/regulated contact, and 3) the post-confederation era when the fur trade was declining, and government intervention became increasingly pervasive. The major events and pressures in this chronology are summarized in greater detail later in the chapter.

Helm, Rogers, and Smith divide the early contact/indirect period into three segments based on drainage basins. Initial contact between Aboriginal peoples and Europeans in the St. Lawrence region in eastern Canada occurred in approximately A.D. 1500, in the Hudson Bay drainage around 1670, and in the Mackenzie River drainage circa 1780-1821(Helm et al. 1981). In the St. Lawrence region, the French established relations with numerous groups such as the St. Lawrence Mohawk and the Wendat (Huron), and to the north of the St. Lawrence River with the Mi'Kmaq and the Innu (Montagnais), Naskapi, and other Algonquian-speaking peoples. The HBC established posts at the mouths of major rivers draining into Hudson Bay starting with posts in James Bay, and gradually

expanding northwest along the Hudson Bay coast. They finally reached the mouth of the Churchill River in 1717 with the establishment of Fort Prince of Wales. From the bayside posts, they maintained trade with a range of Algonquian-speaking Inninew (Cree) and Athapaskan-speaking Dene groups who travelled to the coast to trade (Lytwyn 2002). As it developed over nearly a century, this indirect trade transformed into a middleman system controlled by the Aboriginal groups who commanded the water routes connecting the major HBC bayside depots to the interior fur-producing lands. Upon return to the interior, the Aboriginal middlemen exchanged used European goods for furs produced by inland groups, and then conveyed those furs to the coast the following season where they were traded for new European goods (Ray 1974). Finally, as part of the inland expansion of trade by the NWC and the HBC between 1780 and 1821, posts were established in the Mackenzie River drainage, which put them in direct contact with the Athapaskan-speaking Dogrib, Slavey, Hare, Beaver and Kutchin groups that occupied the area (Helm et al.1981).

The Contact-Traditional era or stabilized fur and mission complex (1821-1945)

During this period, Indigenous peoples were subject to intense colonization pressures. Missionaries made their way in great numbers into the western interior, where they established missions that were usually associated with trading posts. Between 1871 and 1929 the Canadian government and First Nations signed treaties, which in the government's eyes meant land title

extinguishment. Eleven numbered treaties with adhesions organized by the Canadian government led to massive land loss for Indigenous peoples in western and northern Canada (Helm et. Al.1981; Miller 2009). Before the signing of the numbered treaties, Indigenous people were quite mobile in their land use and food procurement activities, with loosely defined hunting territories based primarily on river drainage basins (Lytwyn 2002), but as the fur trade continued in the second half of the 19th century, and especially after they became restricted to reserves they became more sedentary with occupation of log cabins, usually close to the trading post or at a major fishery where summer aggregations took place. This transition from mobile to sedentary was a slow process, which extended into and through the 20th century.

The Modern Era (1945 - present) is characterized by the Canadian government's intense regulation of the lives of First Nations through mechanisms such as the Indian Act (signed in 1876), reserve governance, residential schools, Canadian family allowance, old age pensions, and other transfer payments. These payments provided support to the people in the face of declining fur prices and subsistence resources (Helm et al.1981; Smith 1981). On the reserves, day schools resulted in the breakdown of the traditional family-based operation of the winter harvest round. Now, only men travelled the traplines, leaving their families on the reserve where the children were expected to attend school. The log cabins were eventually replaced by lumber and plywood homes and nursing stations and all weather roads were built (Smith 1981).

3.2 Fur Trade History of the Lower Track

The “Lower Track” was the primary route utilized by the HBC after inland expansion and primarily consisted of the Hayes River, which widens at several places forming Knee Lake and Oxford Lake eventually reaching Norway House. This route facilitated fully laden freight canoes that the HBC employed to transport furs from the interior to tidewater (Huck et al.2002).

Prior to British conquest of New France, French colonial fur trade presence extended (under the command of Pierre Gaultier de la Verendrye) as far west as the lower Saskatchewan River valley (Russell 1982; Thistle 1986) (Figure 3.2). Their trading posts were situated close to Aboriginal aggregation centers, where every spring regional hunting groups coalesced to carry out socio-economic and spiritual activities (Meyer & Thistle 1995). By establishing a presence at such gatherings, the French could intercept the prime furs before they reached the bay. The effect of this trade on the local ecology was minimal in part because the French could not transport many trade goods in their canoes along the long and arduous route from Québec (Thistle 1986). The French occupied their posts on a seasonal basis, so contact with Indigenous people was somewhat erratic and limited in nature (Thistle 1986). The seasonal nature of their operations along with the limited amount and variety of trade items likely contributed to significant volumes of fur being transported north to the HBC bayside posts (Thistle 1986; Belyea 2000). This modest fur trade also likely resulted in a modest impact on the local ecology.

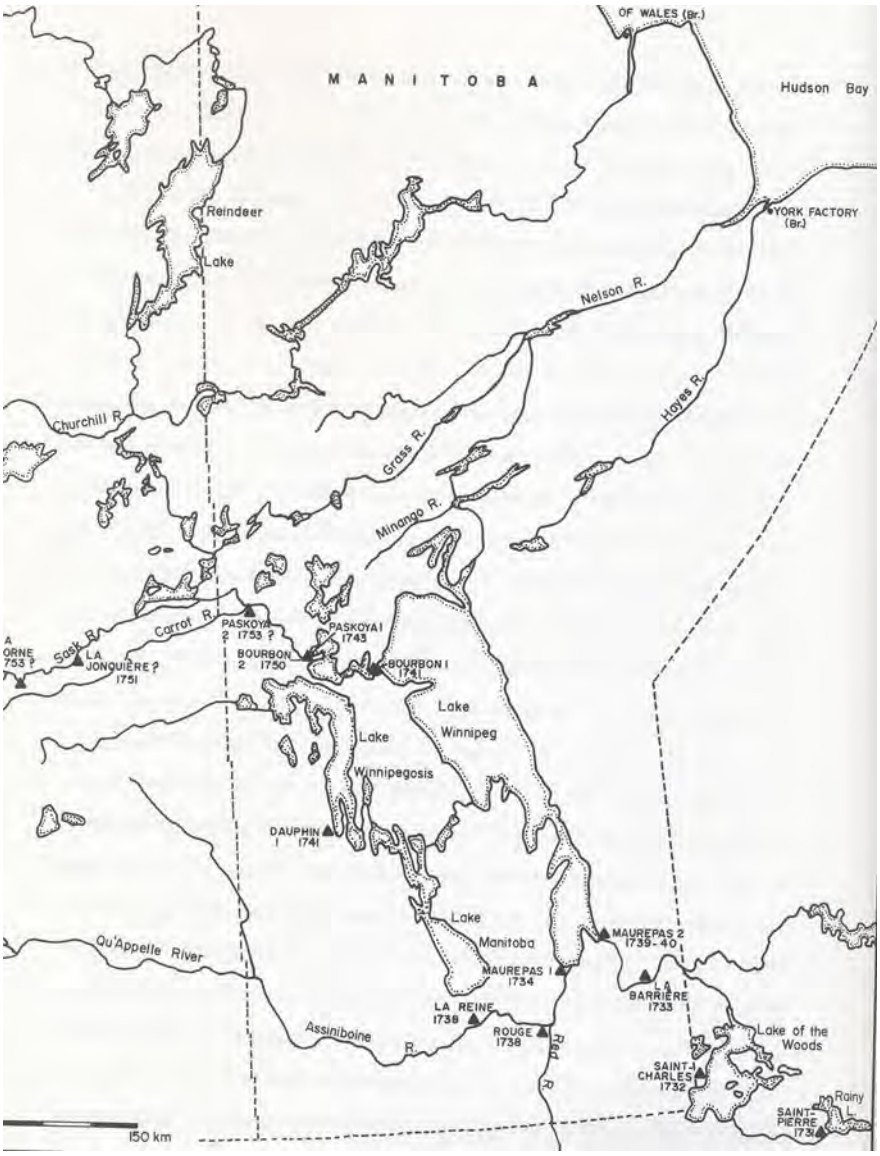

Figure 3.2 French Posts on in Saskatchewan River Valley (Russell 1982: 103).

The archaeological record supports these generalizations about the magnitude of the early trade since very little French and early British material culture has been recovered within the study area. This scarcity could reflect the high value Indigenous people placed on the European materials due to their rarity. The goods' associated functional and status value meant they were likely

highly curated (Hamilton & Nicholson 2007). The scarcity could also reflect a bias in the archaeological record itself through the excavation of European fur trade posts dating to the Competition period at the expense of earlier trade posts or contemporaneous Aboriginal sites (Hamilton & Nicholson 2007).

Ray (1978) indicates that the Inninew and Nakota (Assiniboine) middlemen had a fixed demand for trade goods that satisfied their basic needs, and did not acquire surplus furs and provisions to engage in trade beyond this need. The Inninew and Nakota recycled these used goods by exchanging them for furs with the groups situated in the indirect trade zones as well possibly fulfilling their reciprocal duties to kinsmen in the middlemen trade zone (Hamilton & Nicholson 2007). The flow of trade goods and furs was regulated by the relatively fixed consumer demands of the middlemen as well as the carrying capacity of their canoes, which cumulatively resulted in limited access to European commodities for the groups inhabiting the indirect trade zone as well as the middleman trade zone (Pyszczyk 1997).

Several archaeological sites illustrate the scarcity of European goods during the middleman period compared to the high availability of European goods at sites dating to after the fall of New France and the proliferation of posts (Williams 1983; Thompson 2002). These excavations at “proto-historic” sites yield far more traditional Aboriginal items compared to European commodities. The Nagami Bay site is a burial of an Inninew woman at the north end of South Indian Lake on the Churchill River, with burial inclusions consisting of glass trade beads, two knives with moose rib handles and metal blades, along with an awl manufactured from a loon humerus and tipped with iron (Brownlee & Syms

1999). The burial has a mean calibrated date of A.D. 1665, which was obtained from pin cherry seed beads recovered from the burial (Brownlee & Syms 1999). Traditional Aboriginal technology was recovered in greater abundance than European technology, suggesting that access to European goods was rather limited and was possibly obtained through trade with middlemen groups situated in the Great Lakes area (Brownlee & Syms 1999; Hamilton & Nicholson 2007).

At the other end of the spectrum a burial on the Red Deer River dated to between 1805 and 1810 yielded significantly more European trade goods, reflecting greater access afforded to local Aboriginal groups after the expansion and proliferation of posts in the interior starting in the 1770's (Meyer 1973). These European trade goods included textiles and trade silver, with very few traditional Aboriginal goods, indicating a greater availability of these items, likely through the increased number of trade posts in the area (Meyer 1973; Willmott & Brownlee 2010).

The differences between the Nagami Bay and Red Deer River sites suggests limited availability of European goods and minimal acculturation to European technology during the middleman period, but much more exposure to foreign goods and technology during the intense competition period that followed. Increased goods are likely also due to the proliferation of posts in the study area after the 1770, offering greater access to European goods. It also suggests that a much more intensive harvest of furs and country food in the competition period was required to sustain the rapid pace of trade and enable barter trade for the European technology.

While modest, the Aboriginal middleman trade system that developed after the 1670 establishment of the HBC likely had a significant impact on intergroup relationships in the continental interior. The Inninew and their allies, the Nakota, were in a very advantageous geographical position (Figure 3.3) when the HBC established their posts on the northwestern coast of Hudson Bay. The Inninew inhabited the wooded area between the Saskatchewan and Churchill Rivers and the Nakota were located in the Rainy Lake area, stretching to east-central Saskatchewan (Ray 1974, 1978; Ray & Freeman 1978). The main advantage of their strategic location was that they controlled the river transportation routes that linked the interior to the bayside posts. They also had access to English firearms and edged metal weapons, which could have affected the power relationships, giving the Inninew and Nakota an upper hand. However, no concrete evidence shows that the Inninew and Nakota exploited their position through the use of arms to secure their middleman position (Ray 1974; Thistle 1986).

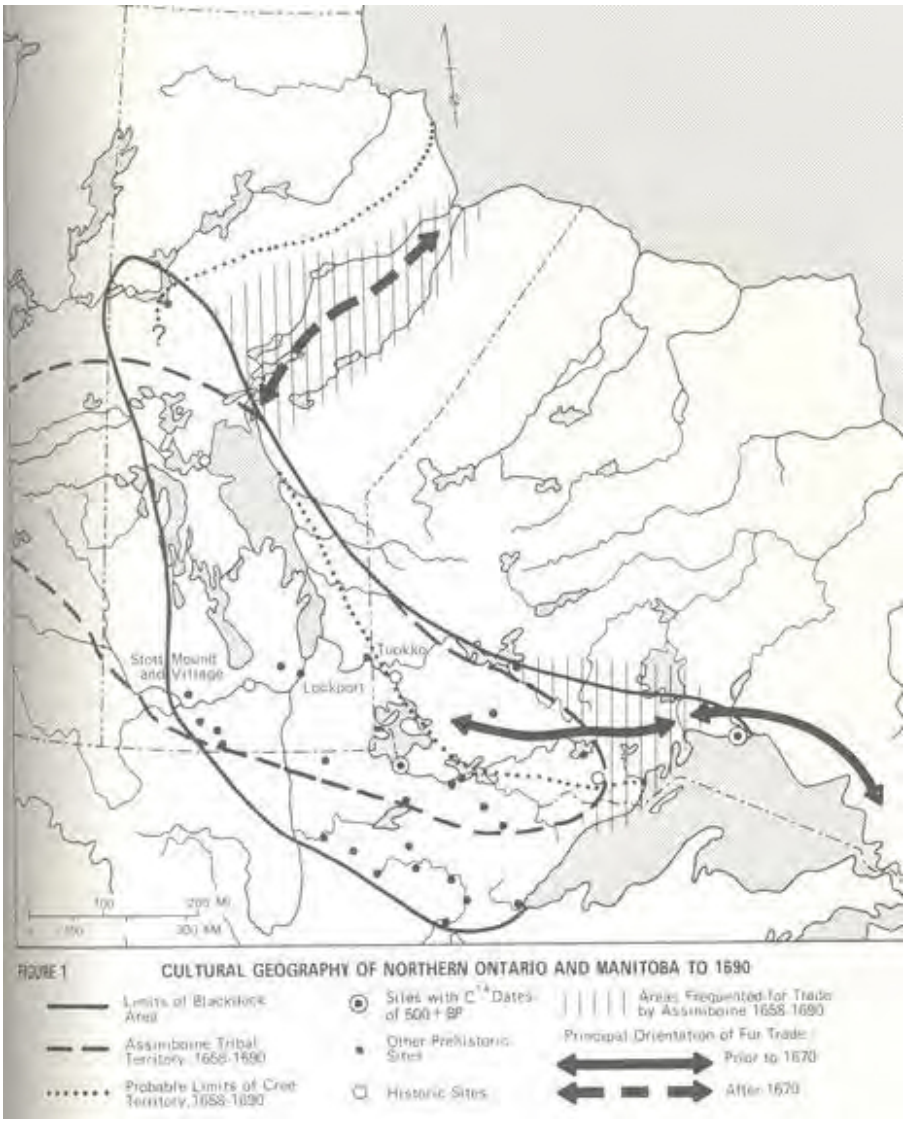

Figure 3.3 Tribal Distributions of the Inninew and Nakota (Ray 1974: 5).

During the years 1682-1714 control of Hudson Bay shifted between the French and the English several times. In 1697 the French and the English crowns signed the Treaty of Ryswick, which gave control of much of the bay to the French. The English retained a small presence at the mouth of the Albany River until the English regained full control of the bay with the signing of the Treaty of Utrecht in 1713 (Luchak 1977; Donaldson 1982; Petch 1987). During this

tumultuous period record-keeping was sporadic, with only personal post journals surviving. It was not until after the Treaty of Utrecht when the HBC regained control that records become voluminous again (Donaldson 1982; Petch 1987; Huck et al. 2002; Lytwyn 2002).

Upon its return to the Hudson Bay coast, the HBC had to re-establish trade relations with Aboriginal groups. Some of the very earliest of HBC records noted trading the “Archithinue,” “Muscotay,” and “Ashkee,” which are thought to be the Blackfoot, Blood, and Gros Ventre who occupied the far interior plains of present-day Alberta and throughout the area between the forks of the Saskatchewan rivers (Ray 1974). However, there is little mention of these groups in the records after 1720; if they are mentioned, it is usually in the presence of either the Inninew or the Nakota or both. There are several possible reasons for this disappearance from the records after 1720. The travel distance to reach York Factory was tremendous, and they risked the possibility of freeze up before they could return to their winter camps (Ray 1974). Another possible scenario was that the Plains-orientated groups lacked the skill set to subsist during the long voyage in the subarctic and were not very familiar with the use of the canoe (Ray and Freeman 1978). The most plausible scenario is that the Inninew and Nakota middlemen began to consolidate their position and exerted their influence through their access to European commodities (Ray 1974).

Arthur J. Ray (1978) developed a spatial model to depict the HBC bayside fur trade. Coastal depots were the point of contact, with local, middlemen, and indirect trading rings (hinterlands) surrounding it (Figure 3.4). Along the coast, the local trade zone was populated with Omushkego (Swampy Cree) or “Home

guards" who supplied the majority of the country produce consumed at the post. Due to their close proximity they could visit the post several times a year. The middlemen trade zone was sufficiently inland to prevent more than one trading journey a year by the Inninew and Nakota (Ray 1978; Ray & Freeman 1978). The indirect trade zone lay furthest afield from the bayside posts and the Aboriginal groups situated within it supplied the middlemen with furs in exchange for recycled European trade goods (Ray & Freeman 1978). The French presence in the area had limited impact on the bayside trade because of the limited numbers of traders and goods, conditioned in large measure by the enormous travel distance between the study area and New France. Their trade was likely incorporated into the existing system of middleman trade, whereby they diverted the prime furs for various low bulk commodities and alcohol (Heidenreich & Ray 1976). In his journey inland in 1754-55, Anthony Henday travelled with a group of Inninew and Nakota middlemen and witnessed the Inninew trading their finest winter skins for French brandy and other items (Belyea 2000).

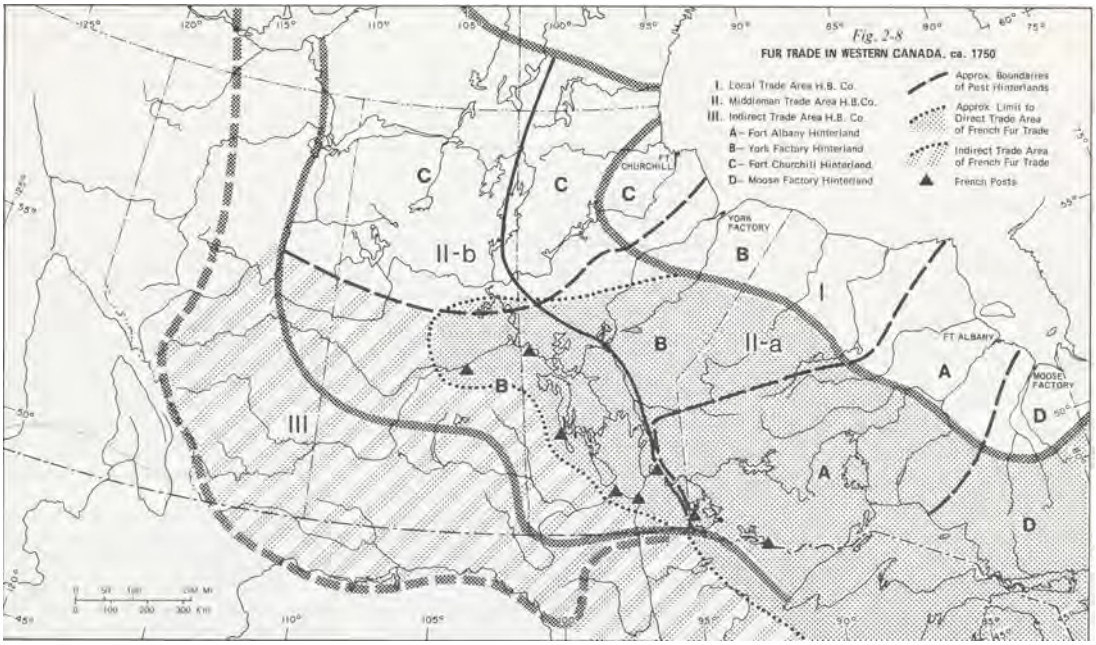

Figure 3.4 Spatial Model of Fur Trade (York Factory and Hinterland in middle) (Ray 1978).

During this time the inhabitants of the forested regions making up the York Factory hinterland (Figure 3.5.) did comparatively little trapping, relying instead on the more distant groups to supply them with furs in exchange for second-hand European goods (Ray 1978). The Cree and Assiniboine were, in essence, expanding their subsistence hunt (instead of trapping) to supply an external market. The ecology of the area was in equilibrium with their subsistence pursuits and no major fur-bearing game shortages occurred. The erratic and ephemeral nature of the French posts as well as the cargo capacity of the French transportation system hindered the variety of trade goods available to the Inninew, and hence did not alter the Inninew's fixed needs for trade (Ray 1978). In short, the amount of Europeans trading directly with the Inninew and their allies as well as the limited temporal nature of the trade did not exhaust the ecology.

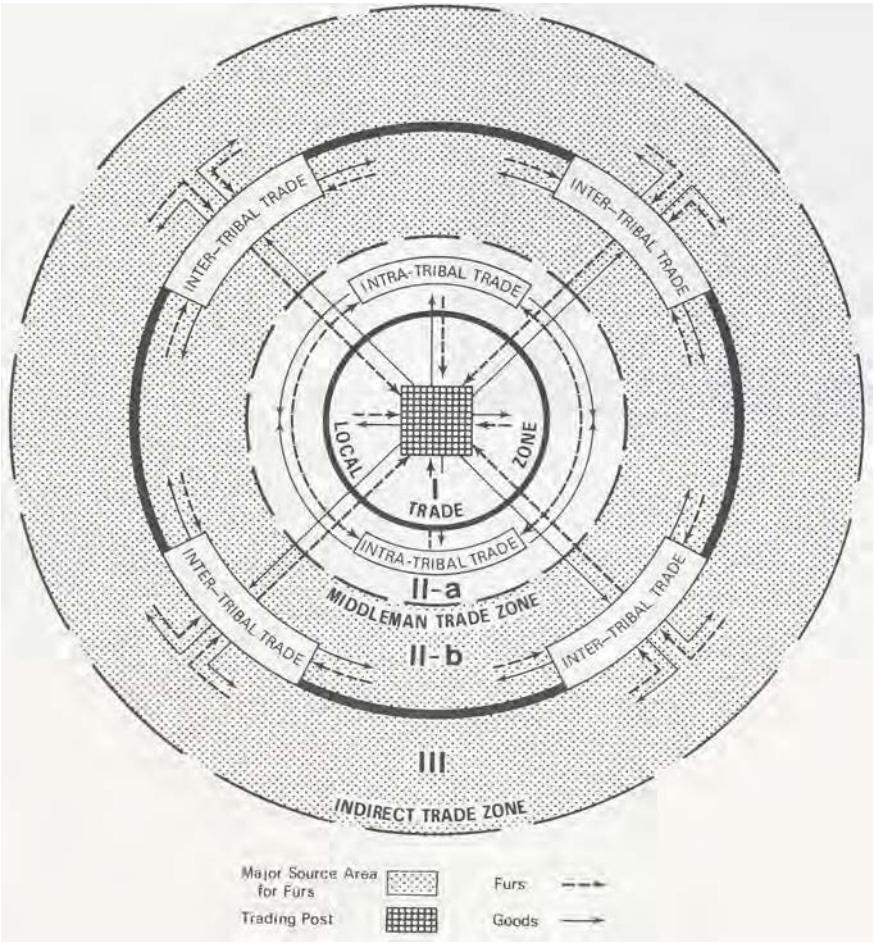

Figure 3.5 Spatial Model of Fur Trade (York Factory and Hinterland in middle) (Ray 1978).

Despite the comparatively limited volume of furs traded with the French, these were likely high-value goods that affected the economic viability of the HBC. To counter, the HBC began sending servants into the interior to establish trade relationships with Aboriginals and to encourage them to continue travelling to the coast to trade. Such HBC explorers included Henry Kelsey in 1690, Anthony Henday in 1754, and Matthew Cocking in 1772. Despite these efforts, trade at the bayside factories continued to decrease.

The intensity of fur trade operations within the study area increased dramatically during the British Competition period (1779-1821) when the HBC

pitted itself against numerous Montreal-based trade companies that eventually formed in partnership as the NWC (Williams 1983). The NWC absorbed the French engages that remained after the fall of New France and continued with the colonial French trade system. They re-established the inland depot at Michilimackinac, and eventually established another at the western end of Lake Superior, first at Grand Portage, then later at Fort William at the mouth of the Kaministiquia River. The NWC expanded rapidly and ranged all the way into the Mackenzie River drainage by 1780 (Williams 1983; Huck et al. 2002). During this period they established numerous posts in the hinterlands of York Factory and Fort Prince of Wales. This expansion effectively ended the Inninew's and Nakota's middleman position, which forced them to increase trapping for their own furs, or to move southwest to the plains and parklands to harvest provisions to supply the fur traders (Ray 1974).

The establishment of the NWC in the hinterlands of York Factory greatly depressed the fur returns of York Factory, which prompted the HBC to expand inland. Up to this point the HBC only infrequently sent men inland to scout for trading partners. The aggressive trading tactics of the NWC, the increased use of alcohol and tobacco in trade, and the increase in number of posts closer to Indigenous trappers negated the HBC's efforts to convince Aboriginals to make the arduous journey down to the Hudson Bay to trade (Ray & Freeman 1978).

In 1773-74 the HBC sent Samuel Hearne with some trade items inland. Initially Hearne wanted to establish a post at Pasqeuia, but due to the lack of quality timber it was suggested that the post should be established on Pine Island in Cumberland Lake, close to the Saskatchewan River delta (Williams 1983;

Huck et al. 2002). Cumberland House skirted the margins of the boreal forest and the parkland and was in direct competition with the many independent operators as well as the NWC and the XY Company (XYC, 1798-1804) (Williams 1983).

During this period the York Factory hinterland was quickly saturated with European traders (HBC, NWC, and the short lived XYC), who set up new trade posts operated on a permanent/semi-permanent basis, as well as more temporary wintering posts established to gain short-term competitive advantage. The accumulation of posts available to the local Aboriginal groups for regular inland trade, each sought to maximize fur returns by expanding the range of goods available, by liberal use of trade credit, and by other aggressive trade tactics. This European competition appears to have sharply increased both the intensity and volume of trade. It also involved both furs and provisions required to supply European logistical needs. The new posts and increased competition meant that less and less land was rested and allowed to recover from intensive harvest. This increasing and unrelenting harvest sharply contrasted with traditional Indigenous economies that relied upon high mobility following a seasonal round. This mobility also ensured that individual harvest areas were allowed to regenerate before being subjected to another round of human foraging. Another important consideration was that the trappers were supplying an external market that was characterized by an insatiable demand for resources, which encouraged trappers to harvest fur-bearers throughout the year, further impeding the recovery rate of these species (Banci & Proulx 1999). It appears that the carrying capacity of the forest was quickly exceeded, and led to resource collapse (Ray 1974). To combat the collapses, the HBC and the NWC

established posts on the North and South Saskatchewan rivers close to the plains to supply fresh meat and fat and also preserved provisions (dried meat and pemmican) (Hamilton 1993).

Fur trade provisioning also placed great emphasis on the local fisheries since this was a relatively stable and abundant resource that could supplement or replace terrestrial foods when needed. These fisheries appear to have been sufficiently productive to supply fur trade needs without suffering productivity collapse. Large amounts of fish were harvested during the spring and fall spawning runs using a variety of techniques such as spearing, weirs, nets, and angling (Lytwyn 2002). Different techniques were utilized for specific species and seasons. In the spring, sturgeon was speared at the bases of waterfalls where they are known to spawn. Another effective method was using a weir at stream mouths where they were also speared (Cleland 1982; Colpitts 2008). In the fall whitefish were the most economically valuable species harvested using the weir capture technique to maximize capture rates (Honigmann 1981; Smith 1981). Fish are excellent sources of protein and are generally high in minerals and vitamins; however, they lack the fat necessary for prolonged physical activity in cold climates (Cleland 1982).

The expansion and intensification of the fisheries provided some Aboriginal groups additional opportunities for seasonal employment. They established fishing camps at productive areas, repaired nets, smoked and dried fish, and hauled fish (Lytwyn 2002; Colpitts 2008). Some groups' ceased trapping for barter trade altogether and focused on subsistence foraging (Pettipas 1980). Some groups relocated to the parkland regions to provision the posts with large

game harvested on the plains. Others worked on the watercraft during the trip to York Factory, because the HBC lacked labourers who were proficient navigating the inland waterways and could not handle the canoe with any degree of proficiency (Thistle 1986). This period had a detrimental effect on the ecology, was financially ruinous for the HBC and the NWC, and contributed to increasing levels of violence occurring in the interior. There was such a proliferation of posts in the interior that the trappers had easy access to several alternative trade options (Williams 1983). The trappers enjoyed enhanced bargaining power due to the extreme competition between the rival traders, which is readily evident with the lavish gift giving as a prelude to trade that occurred during the competition era (Ray 1974; Ray & Freeman 1978; Thistle 1986). The trapping season was extended throughout the year by necessity because of the increased volume of trade (Ray 1974). In 1801 the NWC brought in 300 Haudenosaunee (Iroquois) on three-year contracts exclusively to trap beaver, resulting in additional stress to the local ecologies (Williams 1983). It is possible that these depletions were occurring over a wide geographical area, but little research has been done in north-central Manitoba. More to the point, little information is available about the degree, rapidity, and response to such resource collapses, and whether different bio-regions exhibited variable vulnerability to intensive predation.

In addition to trapping for a European market, food provisioning was necessary to provide the winter subsistence needs of the interior posts, and to also supply food to the boat brigades that annually traveled long distances to resupply with new trade goods. As the fur trade hinterland rapidly expanded across the northwest, enormous quantities of fresh and dried provisions were

required to supply numerous trade posts as well as the canoe brigades in the ever expanding transportation system (Innis 1930). The expansion resulted in intense harvesting pressures that quickly and severely shaped the ecology by the early 19th century (Burley & Hamilton 1991; Lytwyn 1981).

Numerous incidents of repeat violence occurred between the rival traders (HBC, NWC, XYC) as well as between the traders and the Aboriginal trappers. In the Athabasca district the NWC controlled the trade with the local Dene groups until additional outfits arrived (XYC 1799, HBC 1802), whereupon rates of violence sharply increased. The Dene were not as motivated by ritualized gift giving as in other areas of trade so the NWC used intimidation to procure their furs, which led to some Dene withdrawing from the trade to resume life ways based on caribou harvesting (Williams 1983). The violence between the HBC and NWC was felt most intensively in the southern portion of Rupert's Land, illustrated by the Battle of Seven Oaks on the outskirts of the Red River colony in 1815 (Bumsted 1999).

The intense competition during this period was very expensive for the companies, particularly due to the cost of ritual gift giving, the increase in number of trading captains and posts, and the improved purchasing power of Aboriginal trappers and traders (Williams 1983). The NWC had a very long transportation network that extended all the way from the St. Lawrence valley where they had to pay heavy duties on furs exported to Europe (Innis 1930). High costs contributed to the absorption of the XYC into the NWC in 1804. This era of competition is characterized by a proliferation of interior posts, a very large labour force, expensive trading practices, and the frequent use of alcohol to attract trappers.

Increased competition led to a sharp decrease in the number of big game animals as well as a decrease in marketable fur-bearers in many areas of the boreal forest (Ray 1974). Both the NWC and the HBC were heading for financial collapse.

The Hudson's Bay Company Monopoly period (1821-1870) began after 42 years of direct competition with the NWC. In 1821 the HBC and the NWC amalgamated under the banner of the HBC. The HBC had the more advantageous bayside route to ship their furs back to England, while the NWC relied upon a series of inland depots to transport their furs to the St. Lawrence valley (Williams 1983). Both companies decided to amalgamate out of economic necessity or face the prospect of financial ruin.

After the amalgamation George Simpson was put in charge of the northern department, and eventually he oversaw all HBC operations in British North America (Williams 1983). He implemented a number of reforms to put the trade back on solid economic ground. He decreased the labour force by offering favorable terms for retirement and the termination of unsatisfactory workers with large families. He restructured the transportation system to take advantage of the more efficient Hudson Bay landfall at York Factory, and improved cargo-carrying capacity with the introduction of York Boats. This change in the transportation system substantially increased the traffic on the Lower Track and increased the need for provisioning with country food (Ray 1974).

The competition period had been so destructive of the fur and food resources that some trade hinterlands were exhausted. In response, Simpson closed redundant posts with shortages of fur-bearing animals and opened new

posts in areas that were still productive. He banned the trapping of beaver out of season (i.e. summer) as well immature beaver (Ray 1974; Williams 1983). The practice of ritualized gift-giving of expensive items and alcohol was banned or reduced in some areas and was replaced by giving away foodstuffs and small amounts of alcohol (Ray 1974).

Not all of Simpson's reforms were welcomed by company officers and Aboriginal trappers. Trapping of beaver out of season was difficult to implement because in many areas big game resources were virtually exhausted and people had become reliant on beaver as a source of food. The chief factors and traders still gave presents to Aboriginal trading captains as part of the reciprocal nature of their trading relationship and distributing alcohol was reduced, not stopped (Ray1974).

3.3 Sale of Rupert's Land to Dominion of Canada.

By the mid-19th century, Rupert's Land was attracting interest for reasons other than the fur trade (Innis 1930; Ray 1974). Several expeditions were undertaken in the late 1850's. The first was initiated in 1857-8 by the Canadian colonial government and conducted by Henry Youle Hind. The second was carried out in 1857-60 by John Palliser on behalf of the Royal Geographic Society, with backing from the British government. Both of these western expeditions revealed the significant agricultural potential of southern Rupert's Land from the United States border to the northern forested areas (Ray 1974; Tough 1996). In 1859 the HBC's exclusivity licence was not renewed, leading to the 1863 sale of the company to Edward Watkin and the International Financial

Society, a consortium of London banking houses and real estate speculators (Williams 1983; Tough 1996). The newly formed Dominion of Canada purchased Rupert's Land for £ 300,000 and the company kept 120 posts and adjoining lands and could claim up to 1/20 of the land under their original charter. The Deed of Surrender was signed July 15, 1870 (Williams 1983; Tough 1996).

After the 1867 establishment of the Dominion of Canada Aboriginal peoples in the subarctic faced monumental changes through increased exposure to outside Euro-Canadian society and influence, which is commonly referred to as the Canadian Period (1867- present day) (Rogers and Smith 1981). Since this period does not fall within the scope of this research, it is only briefly described to provide a broader context and trajectory of culture change.

In the south the HBC shifted its focus to land development in the face of agricultural expansion, but in the northern regions the fur trade remained prevalent. Between 1871 and 1929 the Canadian government signed 11 "numbered" treaties and adhesions with Aboriginal groups to extinguish their title to the land (Helm et al. 1981). Early in this period, Aboriginal contact with Euro-Canadians was limited to the trading post-mission complex where Indigenous peoples met annually to receive their annuities (Helm at al. 1981; Smith 1981). Initially, Aboriginal groups were fairly mobile and had no permanent dwellings at the post. Eventually a few families built log dwellings close to the trading post and mission (Smith 1981), which started a trend towards settlement.

Midway through this period the Canadian government assumed a greater social responsibility for Indigenous peoples by introducing transfer payments and greater access to medicine and education, as promised in the treaties, which

accelerated sedentarization (Helm et al. 1981). More families began to construct log structures near trading posts and missions, and these in turn became permanent dwellings. The clusters of dwellings then became reserves, which were small hubs surrounded by extensive hinterlands utilized for resource harvest. All-male trapping groups, usually kin based, went out for extended periods of time leaving their families in the settlement so their children could attend school, eroding Aboriginal women's role in the mode of production (Helm et al. 1981; Honigmann 1981).

The HBC's monopoly came under attack in this period. With the completion of the Canadian Pacific Railway (CPR), as well as the construction of the Hudson Bay Railway, competition once again increased (Ray 1990). The trading climate was similar to that of the Competition Period (1779-1821), where Aboriginal trappers could access numerous outlets for fur trading and provisions. This situation resulted in the erosion of the subsistence base, which led to hardships and a shift in resource harvesting. This resource strategy focused on the exploitation of fish and hare, observed by Ed Rogers and Mary Black (1976) among the Anishinabe of Round Lake between 1880-1920. There are few examples of this adaptive strategy in the ethnohistorical record, but it's reasonable to suggest that these adaptations could have occurred in other areas of the subarctic.

3.4 Summary

The "Lower Track", which served as the main transportation route between York Factory with Cumberland House, was subjected to various ecological and cultural transformations between the years when Europeans first established

themselves on the coast, through to their eventual expansion inland that culminated in a heavy European presence in the late 18th and early 19th centuries. During the French period Indigenous peoples had little direct contact with Europeans. The French had a very ephemeral and erratic presence on the lower Saskatchewan River where the prime furs were exchanged for utilitarian items such as kettles and axes as well as immediate consumables. The majority of the European goods traded originated at the HBC bayside factories and were transported into the interior by Inninew and Assiniboine middlemen. The middlemen recycled their European goods and had a static demand for non-local goods so a limited amount of goods flowed into the interior. The middle men did very little of their own trapping and the impact on the ecology was limited.

After the fall of New France the HBC had a short lived monopoly in the interior before small independent operators began to appear, establishing seasonal posts with limited goods. The inland independent traders diverted trade from the HBC, prompting the HBC to construct an inland post on Cumberland Lake Shortly thereafter the NWC was formed and established a proliferation of posts in the direct hinterland of York Factory. The Aboriginals of the interior had direct access to European commodities and an easy outlet for exchange, which put a great strain on the ecology of the area as well as the capital of the HBC and NWC.

The amalgamation of the NWC with the HBC in 1821 ushered in a period where the trade was on better financial footing through retrenchment and reformation of operations by George Simpson. The number of posts was greatly reduced,

trading practices streamlined, and conservation measures introduced. The ecology began to recover.

The 5 posts under study -- York Factory, Gordon House, Oxford House, Norway House, and Cumberland House -- were on a route that was extensively utilized by traders and trappers, and that passed through three ecological zones with different animal resources. During the competition period this north-south route had a heavy European presence, which consumed a tremendous amount of animal resources to carry out the trade. The journals kept by the HBC Chief Factors and Post Masters provide a window in which to determine the rate, speed, and severity of this resource collapse and how the local First Nations responded.

CHAPTER 4

THEORY AND METHODOLOGY

4.1 Introduction

This ethnohistorical study addresses the nature and consequences of intensive natural resource harvest to support the late 18th- to mid-19th-century fur trade along the lower track between York Factory and Cumberland House. It uses primary Hudson's Bay Company Archive (HBCA) records as well as secondary ethnographic and ethno-historical sources to explore the timing and details of ecological transformation, and how Aboriginal people adapted. While a noticeable ecological decline induced by fur trade competition (coupled with its socio-economic implications for Aboriginal people) is well documented in the fur trade literature (Bishop 1974; Innis 1930; Ray 1974), it is less clear how rapidly such declines occurred, the severity of these declines, and whether all ecological zones were similarly affected. Also at issue is how the fur trade records, reflecting strong European perspectives, reflect ecological transformation and the behavioural response of the Indigenous trappers and provisioners.

Journals for five posts were examined in search of trends in the type and amount of country produce brought into the locales. These posts were selected because they were situated in different bio-regions along the same primary water route, and many were occupied at times deemed to represent characteristic features of the late 18th- and 19th-century fur trade. By examining records dating to key fur trade periods, the stability of the regional ecology will be addressed

during a time of rapid growth of inland trade activity and European competition. The posts are situated along water bodies that run about 712 km through three different ecozones between York Factory and Cumberland House (Figure 4.1). This data was supplemented with a literature review of ethnohistorical works. The area under investigation lacks any substantial ethnographies save for one by Mason (1967) about the Oxford House band.

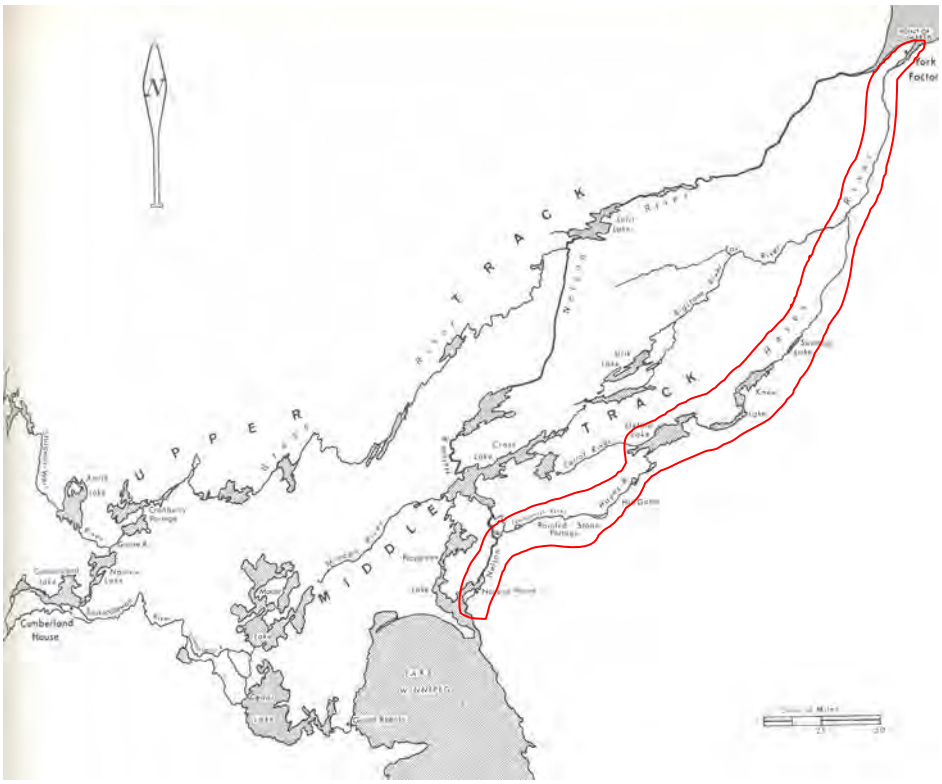

Figure 4.1 Routes from York Factory to Cumberland House with lower track highlighted. Modified from Morse 1971.

The British North American fur trade represented an integration of interests between culturally-diverse populations. On the one hand, European

merchants sought furs with significant commercial value through barter trade with diverse Indigenous hunter-gatherer bands. Furs and other materials were procured by these trappers, who exchanged them for valued manufactured goods. Continued commercial exchange required that the latter were motivated to intensify harvest activities to supply an insatiable European demand for furs.

The European commodities included metal tools, firearms, textiles, and other utilitarian goods as well as non-utilitarian items such as tobacco, alcohol, and personal adornment items. One issue in fur trade scholarship addresses how European traders were able to encourage, and even escalate, the harvesting activities of Indigenous trappers to a point beyond what hindsight indicates was the best interests of the primary fur producers. That is, how were Aboriginal harvest practices intensified to supply an inexhaustible external market beyond the point of ecological sustainability? Why did Aboriginal trappers not keep their fur trapping activities within sustainable limits in keeping with traditional pre-contact practices, and instead, persisted in intensive harvest to the point of ecological collapse?

4.1.1 Theoretical Approaches

This thesis addresses how people of diverse cultural backgrounds engaged in economic activities, both to satisfy basic subsistence needs and also to produce commodities as part of early colonization of northern North America. The following sections briefly introduce various theoretical approaches, and how they are utilized in addressing the research problem(s).

4.1.2 Ethnohistory as History

Ethnohistory is a combination of anthropology and history, which employs a mixture of diachronic and synchronic methods to measure culture change and the impetus behind it (Hickerson 1970). It utilizes several research strategies to infer change -- and its causes-- in a given culture. In its infancy, scholars debate whether ethnohistory was the domain of historical or anthropological enquiry. As this debate matured, ethnohistory was seen as a bridge that could connect the two separate disciplines to form a more comprehensive approach to collecting and analyzing data (Trigger 1982).

Ethnohistory is primarily dependent on records written by non-Aboriginals with a different cultural background from those being described. The early writers were not trained as ethnologists, but were usually missionaries, explorers, and fur traders pursuing socio-economic agendas (Krech 1991). The inherent Eurocentric biases of these primary authors mirror the intellectual climate that was prevalent during the time that they were written (Trigger 1982). Contemporary scholars utilizing these documents must be aware of these perspectives that colour interpretation and usually devalue Indigenous perspectives and motivations regarding the fur trade. Use of this early writing requires critical evaluation and contextualization in acknowledgment of these diverse sources of bias.

In its infancy, ethnohistory was viewed as a means to study change among Indigenous peoples before their lifestyles transformed due to external pressures. This process was sometimes referred to as “salvage ethnography”

and only focused on a certain set of behaviors in a small slice of time and within a restricted geographical area (Wobst 1978). The discipline then expanded over time to focus on long-term change in colonial settings, but studies continued to work within narrative structures constructed around European actions.

Shepard Krech (1991) states that the ethnohistorical model often displays sensitivity to Aboriginal cultures and society, but seldom to Native epistemologies and ontologies. This viewpoint contributes to what have been described as etic biases - put simply, an outsider's point of view as compared to emic or insider's point of view. Aboriginal peoples have also expressed concern regarding the understanding of their histories from this "outside perspective" (Trigger 1982). Their concerns often focuses on how to address the behaviour of Aboriginal people recorded by early explorers or missionaries, and the influence that Euro-Canadians had on culture change (Bishop & Ray 1976). Do these observations represent pre-contact behaviour, or was it influenced by earlier contact with Euro-Canadians? More to the point, how are historical European descriptions of Aboriginal behaviour affected by the ethnocentric filters or interpretative frames of reference used by the European observers? Such concerns make it clear that historic texts cannot be uncritically accepted as historical truth, and that any information gleaned from them is shaped by the context of their production.

Subarctic ethnohistorical studies traditionally made several assumptions: 1) people lived and subsisted in a very marginal and 'limiting' environment; and 2) they were isolated by the forest from the outside world making them a modern relict of very ancient adaptations (Holly 2002). Since it was also assumed that the biotic environment was comparatively static, human adaptation to this

unchanging forest was also perceived as relatively conservative and insulated from culture change and variability. In effect, Aboriginal cultures required adaptation to a harsh and marginal environment, leading to a preoccupation with fulfilling subsistence needs. When culture change did occur, it was thought to have only transpired through diffusion or contact with outside agents.

The boreal forest is not a marginal environment: it has moderate species diversity but usually at low densities. There are exceptions. Depending on the geographic location there is a seasonal abundance of clumped resources, such as spring and fall caribou migrations, seasonal concentrations of migratory waterfowl, as well as spring and fall fish spawns. These seasonal periods of abundance not only supported aggregations of multiple families, but could also enable production of dried or smoked provisions to be cached for later use in the winter (Stopp 2002).

One could think of the boreal forest as a series of ecological “patches” in different stages of succession that could be exploited on a seasonal scheduled round (Winterhalder 1983). The environment is in a constant state of flux. These succession stages are part of a larger natural system that experiences four different phases of a cycle delineated by: 1) exploitation; 2) conservation; 3) release or creative destruction; and 4) reorganization (Abel 1998; Hollings 2001; Walker & Salt 2006). These cycles are connected through space and time. As the interconnections increase, the conditions become optimum for events such as fire, wind, or pest infestation that will initiate energy release, which will lead into another phase that creates new micro-habitats (Abel 1998).

The study area has numerous areas at different stages of succession caused by a variety of factors. These stages attract a wide array of different species throughout space and time that were of economic value as either food or fur (Winterhalder 1983). Through familiarity with the landscape and its schedule of tropic recovery, local Aboriginal inhabitants could predict resource availability (subject to succession and seasonality) and plan their scheduled harvesting activities as needed.

This perspective emphasizes that subarctic foragers where not passive, nor on the edge of starvation. Rather, they were planners and decision-makers who actively engaged with their physical environment. They likely also manipulated that environment through the use of fire to augment favoured microhabitats (Lewis 1988). This perspective challenges conventional images of Aboriginal people and their role in the fur trade that often portrays them as comparatively passive recipients of trade overtures and consumers of superior European technology. Economic anthropology offers interpretative perspectives useful for considering Aboriginal participants as active protagonists.

is a combination of anthropology and history, which employs a mixture of diachronic and synchronic methods to measure culture change and the impetus behind it (Hickerson 1970). It utilizes several research strategies in order to infer change in a given culture and what caused the change to happen. In its infancy, a debate occurred whether ethnohistory was the domain of historical or anthropological enquiry. As this debate matured, ethnohistory was seen as a bridge that could connect the two separate disciplines in order to form a more comprehensive approach to collecting and analyzing data (Trigger 1982).

Ethnohistory is primarily dependant on records written by non-Aboriginals with a different cultural background from those being described. The early writers were not trained as ethnologists, but were usually missionaries, explorers and fur traders who were pursuing certain socio-economic agendas (Krech 1991). The inherent eurocentric biases of these primary authors mirror the intellectual climate that was prevalent during the time that they were written (Trigger 1982). Contemporary scholars utilizing these documents must be aware of these perspectives that might colour interpretation and devalue Indigenous perspectives and motivations regarding the fur trade. Use of this early writing requires critical evaluation and contextualization in acknowledgment of these diverse sources of bias.

In its infancy, ethnohistory was viewed as a means to study change among Indigenous peoples before their lifestyles transformed due to external pressures. This process was sometimes referred to as “salvage ethnography” and only focused on a certain set of behaviors in a small slice of time and within a restricted geographical area (Wobst 1978).

Shepard Krech (1991) states that the ethnohistorical model often displays sensitivity to Aboriginal cultures and society, but seldom to Native epistemologies and ontologies. This viewpoint contributes to what have been described as etic biases - put simply, an outsider’s point of view as compared to emic or insider’s point of view. Aboriginal peoples have also expressed concern regarding the understanding of their histories from this “outside perspective” (Trigger 1982). This often focuses on how to address the behavior of Aboriginal people recorded

by early explorers or missionaries, and the influence that Euro-Canadians had on culture change (Bishop & Ray 1976). Do these observations represent pre-contact behavior, or was it influenced by earlier contact with Euro-Canadians? More to the point, how are historical European descriptions of Aboriginal behavior affected by the ethnocentric filters or interpretative frames of reference used by the European observers? Such concerns make it clear that historic texts cannot be uncritically accepted as 'historical truth' without first providing their interpretative context.

Subarctic ethnohistorical studies traditionally made several assumptions: 1) people lived and subsisted in a very marginal and 'limiting' environment; and 2) they were isolated by the forest from the outside world making them a modern relict of very ancient adaptations (Holly 2002). Since it was also assumed that the biotic environment was comparatively static, human adaptation to this unchanging forest was also perceived as relatively conservative and insulated from culture change and variability. In effect, Aboriginal cultures required adaptation to a harsh and marginal environment, leading to a preoccupation with fulfilling subsistence needs. When culture change did occur, it was thought to have only transpired through diffusion or contact with outside agents.

Contrary to the above statements, the boreal forest is not a marginal environment: it has moderate species diversity but usually at low densities. There are exceptions. Depending on the geographic location there is a seasonal abundance of 'clumped' resources. This might include spring and fall caribou migrations, seasonal concentrations of migratory waterfowl, as well as spring and

fall fish spawns. These seasonal periods of abundance not only supported aggregations of multiple families, but could also enabled production of dried or smoked provisions to be cached for later use in the winter (Stopp 2002).

One could think of the boreal forest as a series different ecological "patches" that are in different stages of succession that could also be exploited on a seasonal scheduled round (Winterhalder 1983). The environment is in a constant state of flux. These succession stages are part of a larger natural system that experiences four different phases of a cycle delineated by: 1) Exploitation; 2) Conservation; 3) Release or creative destruction and 4) Reorganization (Abel 1998; Hollings 2001; Walker & Salt 2006). These cycles are connected through space and time. As the interconnections increase, the conditions become optimum for events such as fire, wind or pest infestation that will initiate energy release, which will lead into another phase that creates new micro-habitats (Abel 1998).

In the study area there are numerous areas at different stages of succession, caused by the factors mentioned above. These stages attract a wide array of different species throughout space and time that were of economic value as either a food source or for their furs (Winterhalder 1983). Through familiarity with the landscape and its schedule of tropic recovery, local Aboriginal inhabitants could predict resource availability (subject to succession and seasonality) and plan their scheduled harvesting activities as needed.

This perspective emphasizes that Subarctic foragers where not passive, nor on the edge of starvation. Rather, they were active planners and decision-makers who actively engaged with their physical environment. They likely also manipulated that environment through the use of fire to augment favoured microhabitats (Lewis 1988). This challenges conventional images of Aboriginal people and their role in the fur trade that often portrays them as comparatively passive recipients of trade overtures and consumers of superior European technology. Economic anthropology offers interpretative perspectives useful for considering Aboriginal participants as more active protagonists.

4.1.3 Economic Anthropology

Economic anthropology developed out of economic theory, with strong influence from the scholarly study of the industrial revolution that first developed in 19th-century Britain. The central premise was that a key part of cultural interaction involves the exchange of goods or services (Dalton 1961). While often focused on commercial exchanges involving the redistribution of natural resources, labour, land, and other commodities, some of these principles have also been applied to understanding non-industrialized societies. Economic anthropology therefore offers relevance for understanding hunter-gather societies who chose to be involved in the fur trade.

In economic anthropology the two diametrically opposed approaches to understanding human decision-making are formalist and substantivist (Cook 1966; Dalton 1961, 1968, 1969, 1970; Polanyi 1944, 1945, 1957; Sahlins 1960,

1972). Those following a formalist orientation assume that all humans share the same drive to maximize profit while minimizing inputs, even at the expense of others (Dalton 1961). The substantivist orientation proposes that not all humans seek to maximize their economic position, and such behaviour is most prevalent and valued in western industrial societies with a market economy (Hamilton 2013). These positions represent the end points on a continuum, whereby humans chose their economic strategy with a consideration of the social context of the interaction. That is, even a formalist perspective would acknowledge that efforts at maximization are tempered by the social or familial relationship between interaction partners. In this study, I use a substantivist approach to interpret the data collected.

This theoretical position is useful for interpreting the data recorded by European fur traders, who traditionally operated within a profit-oriented market economy. However, Inninew and Nakota people were egalitarian and orientated towards a non-market economy heavily based on reciprocity. In such systems, economic exchange most frequently occurred between people with pre-existing and ongoing social relationships. Thus, from an Aboriginal perspective, a trade relationship between the trader and the trapper might be structured to foster ongoing social engagement involving opening overtures of gift-giving, gestures of friendship, adoption, and establishing a kinship relationship through marriage (Payne 1989).

Hunter-gatherer societies in the boreal forest were traditionally organized differently than western industrial societies due to the mode of production and redistribution, population density, and relationship with the environment. They

followed a scheduled resource harvest round influenced by the seasonality of available resources. Even today Indigenous peoples have an intimate knowledge of their environment as well as the animals that inhabit it. Based on outsider (etic) observations, boreal forest hunter-gatherers harvest foods on a sustained yield basis so that the resource capture rate does not exceed perceived need or the recovery rate of the animals hunted (Berkes 2012). It is beyond the scope of this thesis to determine whether these hunter-gatherers intentionally implemented resource conservation, or if their ecological practices were a by-product of their seasonal round and spiritual value system. Nonetheless, the seasonal round offset harvest pressures and gave the local animal population time to recover. Cultural taboos prevented over-harvesting of resources.

The Inninew did not view their hunting territories as exclusive areas where only certain people could harvest resources. They saw themselves as stewards of the land where neighbouring groups could harvest resources when in need (Feit 1973). Their perspectives were based on extended kinship networks rooted in the notion of generalized reciprocity derived from social rules for resource sharing and acknowledgement of the territorial interests of others. Generalized reciprocity is an altruistic exchange between two parties which values behaviours that support people (kin or associates) who are in need. This ethos for hospitality or generosity is understood to be something that will be reciprocated when the erstwhile host, in turn, is in need of support from kinsmen or associates (Sahlins 1972).

Based on a review of John Cooper's data from the 1930s, Flannery and Chambers (1986) indicate that the foundation of subarctic Aboriginal land tenure

was based on the distribution of flora and fauna as well as how it was harvested. Exploitation of migratory animals such as caribou was facilitated by a communal hunting system, which necessitated the aggregation of residential units. Non-migratory animals such as beaver could be harvested by a single individual or by small family groups. Since Boreal forest foragers utilized a range of migratory/sedentary food sources, they need highly flexible boundaries where group membership could continually shift while letting adjacent lands rest for a period of two or three years (Flannery and Chambers 1986). During the spring aggregation, the winter hunting groups would coalesce for a brief time where they would allot harvest areas to each family group (Tanner 1979).

These observations reinforce the point that hunting territories were fluid entities with no notion of exclusive membership necessary to enable harvest. The notion of trespass was not based on geography but on the appropriate protocols being observed in seeking permission, and the nature of resources to be harvested within that region. Those seeking permission to harvest animals for food in times of need were generally welcomed by the headman of the winter hunting group, but permission might not be granted to harvest economically valued fur bearers (Flannery & Chambers1986). A limitation of these observations is that they were made among people who had already experienced at least a century of adaptation and involvement in the fur trade.

Some ethnohistorians and historic geographers claim that the family hunting territories (with the associated custodial rights to resource harvest) were post-contact phenomena reflecting the post-1821 situation after the amalgamation of the HBC and the NWC (Bishop 1970, 1974; Leacock 1954; Ray

1974). These assertions are based on HBC records. I propose that as resource availability declined in the early 19th century to reduce local competition and conflict, individual hunters or hunting groups identified regions where they were recognized as having custodial rights to harvest. In this sense, individual hunting bands asserted some measure of control over harvest planning and management within their hunting territory, and could agree to share food with supplicants in time of need, but could prohibit the killing of economically valued fur bearers to protect their own interests in the fur trade economic exchange. Following an economic anthropological perspective, we can imagine such a system offering a protocol to ensure subsistence harvest opportunities to those in need, while also protecting the economic (fur trade marketing) interest of the host band. At issue is whether the notion of habitually reaped (and managed) harvest hinterlands associated with individual hunting bands had a pre-contact expression. Consideration of Optimal Forager Theory (OFT) in the context of subarctic hunter-gathers suggests that such organization of land tenure and use is theoretically plausible in pre-contact situations.

Bruce Winterhalder (1983) applied OFT to model boreal forest hunter gatherer foraging behavior and tested four models using observations made at Muskrat Dam First Nation in the boreal forest of northern Ontario. In the context of human foraging, OFT assumes that behaviour evolved through time to maximize harvesting efficiency based on time and energy expenditures (Winterhalder 1982). Its four models are: 1) Diet Breadth; 2) Patch Choice; 3) Foraging Itinerary; and 4) Settlement Pattern. This viewpoint illustrates the heterogeneity and dynamism of the boreal forest as well as the intimate

knowledge and understanding of the seasonal cycles required to harvest resources during their peak seasons. Foragers need to understand ecology to predict resources depending on season, successional stage of the habitat, weather, snow cover, and wind conditions (Winterhalder 1983). To maintain this comprehensive understanding of the land and its complex seasonal schedule and regeneration cycles, one might imagine the need to forage within a broadly defined home range. OFT suggests elements of a formalist economic strategy based on a rational scheduled harvest, minimizing energy and time inputs and maximizing material outputs (Hamilton 2013; Sahlins 1972).

The Diet Breadth model assumes that the forager will encounter resources randomly in proportion to their relative abundance. Out of the resources encounter only certain species will be pursued for harvest. The species are ranked based on their net value relative to handling and pursuit costs. The average pursuit cost decreases as more species are encountered and the hunter selects the most efficient prey to pursue for the net energy returns based on effort. Dietary generalists spend most of their time searching for resources and dietary specialists spend a lot of their time pursuing prey. A rich habitat will reduce average search time, leading to specialization, and resource scarcity leads to a large number of generalists (Winterhalder 1983).

The model of Patch Choice explores the variety of different habitats for prey. Efficiency depends on the number of patch types exploited and how to move among the patches. Foraging occurs in two stages: 1) hunting time in a suitable patch (the forager will visit the patch with the highest rate of net return); and 2) the time spent moving among or searching for different patch types. The

size of the patch will increase the net returns and lead to specialization (Winterhalder 1983).

Foraging Itinerary explains how to move within an environment with a large variety of patch types. This model includes the Marginal Value Theorem (MVT), which explains when a forager should leave the patch in order to harvest a more productive one. Once a patch is harvested it becomes "depressed" in that the prey species either has been depleted or has left the patch, reducing efficiency to locate the prey. In order to forage efficiently, one must have an intimate knowledge of the micro-biogeography of the area. Letting the patch rest to a point of profitability is referred to as "return time" (Winterhalder 1983).

The fourth and final model in OFT is exploring the various settlement patterns and size in relation to resource distribution and predictability. If resources are evenly dispersed and predictable the most efficient settlement system is a regular dispersion of smaller social units to harvest the resources. If the resources are clumped in one general area, the most efficient system is a larger aggregation of people at a central location within the resource range (Winterhalder 1983). The image of a rational forager viewed through the lens of OFT who is actively engaged in maximizing return on the investment of time and energy is somewhat at odds with the model presented by much of the classic fur trade ethnohistoric literature, epitomized by Charles Bishop's work (1974).

4.1.4 Dependency vs. Resiliency

Charles Bishop (1974) addressed the mid-19th-century fur trade, arguing that Aboriginal people depended on the trading posts and their supplies. Bishop

examined the HBCA records from Lac Seul and Osnaburgh House in northwestern Ontario, coupled with the journals of Charles McKenzie dating between 1821 and 1854 (Blain 1991). He proposed that the apparent technical superiority of European goods encouraged Aboriginal customers to abandon traditional technology in favour of imported materials, thereby becoming dependent upon European supplies. This dependence ensured continued (and perhaps escalating) trapping efforts to secure access to needed foreign technology. Coupled with pressure from competing European trade companies to increase fur and food production, Aboriginal dependence led to a collapse in the number of economically valued animals as animals were overhunted to secure European goods and to feed European employees. This decline in country produce contributed to the 1821 amalgamation of the NWC with the HBC. The newly re-formed HBC enforced its monopoly and became more efficient by immediately retrenching its operations, ceasing offering credit, and raising the cost of goods. Without alternative sources of supply, Bishop argued that Aboriginal people (now dependent upon European suppliers) suffered a significant loss of bargaining position, and had few options but to accept the changes in the trade relationship (Bishop 1974). Bishop proposed that throughout much of the late 18th and 19th centuries, Aboriginal dependence on European goods left them with few alternatives but to continue harvesting a steadily declining ecosystem despite their long-established traditions supporting sustained-yield resource exploitation. This rapid shift in the power relationship between economic partners is thought to have transformed the 19th-century fur

trade and left Aboriginal people is a position of comparative weakness in their relationships with Europeans.

The diminished supply of strategic resources (furs and food) also made it increasingly difficult to make a living within the boreal forest, while dependence upon European goods forced the trappers to continue production. The mid to late 19th century has been widely described in the literature as the 'fish and hare' period (Rogers & Black 1976), a time of hardship and hunger for Aboriginal people that forced significant transformations of their political organization, land tenure, and seasonality. In large measure this transformation involved refocused subsistence efforts on fish and hares, with only modest access to the primary prey that had formerly fuelled both the fur trade and the traditional subsistence economy.

Rogers & Black (1976) suggest that the fish and hare period among the Weagamow Cree-Ojibwe in northwestern Ontario be seen as a model of an adaptive strategy. Their observations are based on interviews with elder informants who reminisced about a time of resource scarcity, which occurred roughly between 1880 and1920. The large economically valued game animals had declined, forcing a change in subsistence strategy to more predicable resources such as fish and hare. This shift reflects the productivity of the northern fishery, and the reproductive resilience of hares. However, the narrowing in on specific reliable species contributed to changes in settlement patterns, focusing their main camps on littoral areas and specialized resource procurement "satellite" camps to harvest specific resources. Rogers & Black (1976) outlined two triggers for adaptive behaviour as 1) contact with Europeans and 2)

environmental collapse. These strategies highlight the importance of social organization and settlement patterns in contributing to adaptive resilience in the face of ecological stress and acted as edge zones to facilitate resource harvest and transportation (Rogers & Black 1976; Turner et al. 2003). Adaptive subsistence strategies outlined a “home base” with associated satellite camps of resource exploitation or exploitation ranges, which aimed to maximize resource harvest and minimize energy expenditure. This model requires an intimate knowledge of the carrying capacity of the land, which is carried in social memory and locked in Traditional Ecological Knowledge (TEK) (Davidson-Hunt 2003). Three basic principles guide this adaptation: 1) harvest resources at their peak; 2) settlement size and area is to be situated to maximize harvest and minimize input costs and to have enough resources to support the settlement; and 3) have a contingency plan in case of resource failure. These three principles stress efficiency of resource harvest, flexible group membership, and flexible settlement patterns. The harvest range is a loosely bounded “home territory” that could expand or contract depending on the level of resource harvest. There is no law of trespass, the groups are stewards of the land, and in cases of resource scarcity the exploitation range will expand and overlap with other ranges (Rogers & Black 1976).

Early fur trade scholarship (Bishop 1974, Innis 1930; Rich 1958) asserted that exposure to and prolonged usage of the new technology resulted in a “cultural amnesia,” meaning that rapid abandonment of traditional technology in favour of foreign goods coincided with a time of devastating social and demographic transformation in face of disease epidemics. This loss of cultural

knowledge contributed significantly to an atmosphere of dependence on the trader for supplies, in turn significantly augmenting the power of the Europeans to enforce further change upon their Indigenous customers. Nicolas Jeremie, who was stationed at Fort Bourbon (York Fort) from 1694 to 1713, indicated that the Inninew were dependant on the post for powder and shot for their survival (Thistle 1986). Sixty years later Anthony Henday noted during his inland journey with Inninew and Nakota middlemen that they were entirely dependent on him for powder and shot (Thistle 1986). However, Henday also states that when the Inninew ran out of powder they could easily revert back to their own technology to procure moose and the like (Thistle 1986). Conflicting evidence exists in the records regarding the abandonment of the traditional technology. Since there is very little documentary evidence of Inninew/Nakota hunting practices away from the posts, it is difficult to say which technologies were utilized on what scale. The conflicting evidence could indicate that over a sustained and prolonged period Inninew adopted and integrated the new technology on their own terms, depending on specific needs and purposes (Bohr 2005; Thistle 1986). When one technology failed or was damaged, the Inninew could use the other to harvest game. The new technology did not necessarily result in the “cultural amnesia” phenomenon, but it did increase the adaptive capacity of the Inninew’s toolkit. This adaptive flexibility is often defined as greater resiliency (Peloquin & Berkes 2009; Redman 2005; Thompson & Turck 2009; Trosper 2003).

Resilience explores the source and role of transformative change in adaptive systems through cycles that measure change across space and time (Redman 2005). The phases that influence succession stages in the boreal forest

can be understood as adaptive cycles (Figure 4.2) with hierarchies that are linked across large geographical areas over time experiencing similar transformative forces at different rates (Walker & Salt 2006). Not all cycles will experience or mitigate change in the same way. In addition to changes occurring in large areas, smaller regional change occurs within the cycle (Redman 2005). Four possible changes can occur within an adaptive cycle: 1) growth; 2) conservation; 3) release; and 4) reorganization (Figure 4.3) (Walker & Salt 2006). In the first two stages long periods of growth and increased connectivity are usually followed by the release and reorganization phases, which increase diversity of social-ecological units, functions, and opportunity for innovations (Thompson &Turck 2009). The reorganization phase creates new systems that may be similar or very different from the preceding adaptive cycle. The reorganization phase focuses on the stabilizing or destabilizing forces that influence diversity, flexibility, productivity, and social memory in systems (Walker & Salt 2006; Thompson & Turck 2009). This theory is applicable for interpreting the seasonal round of hunter-gatherers that follow a scheduled resource harvest based on intimate knowledge of the landscape and the different successional stages that influences biomass. Within the study area posts were situated in three ecozones that were in a constant state of flux due to the nature of the adaptive capacity of the different landscapes (Davidson-Hunt & Berkes 2003; Malasiuk 1999; Winterhalder 1983).

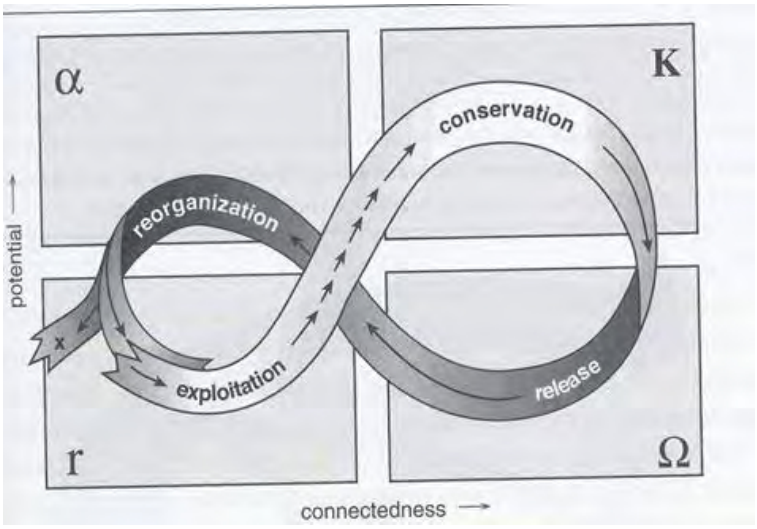

Figure 4.2 Schematic of the Adaptive Cycle (Walker & Salt 2006: 81).

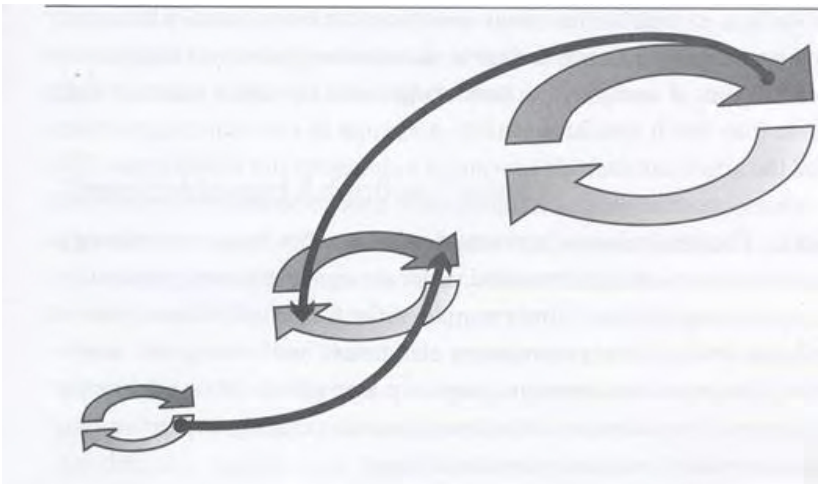

Figure 4.3 Schematic of the Panarchy (interconnected cycles) (Walker & Salt 2006: 91).

The Inninew and Nakota had a specialized knowledge of the landscape throughout the study area that influenced the scheduled resource harvest utilized in the seasonal round (Lytwyn 2002). When applying the adaptive cycle to the seasonal rounds of the Inninew and Nakota, two phases stand out: 1) the Release Phase; and 2) the Reorganization Phase (Thompson & Turck 2009).

These two phases represent the initiation of new succession stages in the boreal forest, which in turn creates new micro-habitats. If groups were more sedentary in the growth and conservation phases they will increase their residential mobility in the release phase to counter resource depletion. The individual Inninew bands had access to loosely defined home territories with no regulations about trespass (Lytwyn 2002). This situation gave them access to a broader resource area than they could exploit. The bands also had flexible membership to offset numbers in the co-residential units. If animals were becoming scarce in the area, the hunting group could split apart into small units (Francis & Morantz 1983). In the reorganization phase mobility begins to decrease due to the reorganization of resource procurement and the development of circumscribed social boundary areas with loosely defined notions of trespass (Lytwyn 2002; Thompson & Turck 2009).

The documented baseline data in the study region regarding the economically important animal species harvested is known through ethnohistorical studies as well as archaeological survey and excavations by Pilon (1987) in the Lower Severn drainage. The early observations on Hudson Bay by European traders and explorers (Jeremie, Marest, Kelsey, 1690s; Isham 1740s cited in Lytwyn 2002) indicate that caribou were crucial for subsistence. Henry Eillis pointed to waterfowl as a important resource at while stationed at Port Nelson in 1746-47 (Rogers 1967). When caribou decreased or changed their seasonal migration route small game and fish increased in diets in the Hudson Bay Lowlands ecoregion (Lytwyn 2002). Later in the period, (19th to 20th centuries), an increased emphasis was placed on the fall/spring goose hunts

observed by Franklin in 1819 (Lytwyn 2002) and the harvesting of fish, hare, and waterfowl by Mclean in 1837 (Lytwyn 2002; Rogers 1967). Was there widespread dependency in the hinterlands of the posts along the lower track? Was there an actual resource depletion and ecological collapse caused by over harvest for external markets and post provisioning, if so, how did the Inninew adapt?

4.2 Methods

This thesis is divided into three sections: 1) literature review; 2) archival data collection; and 3) data analysis and interpretation. Methods employed during each phase of research are discussed below.

4.3 Background Literature Review

A literature review was conducted to establish a working understanding of the research already conducted in ecological studies as well as ethnohistorical and historical works. Background research includes: ethnohistorical observations about the Inninew and Nakota (Drage 1748; Henday 1754; Kelsey 1690); history (Foster 2002; Francis and Morantz 1989; Honigmann 1981; Innis 1930; Krech 1990; Lytwyn 2002; Ray 1978, 1998; Ray & Heidenreich 1978; Smith 1981; Thistle 1986; Williams 1983), ecology (Berkes 2012; Bishop 1974; Davidson-Hunt & Berkes 2003; Feit 1973; Rogers 1967; Rogers & Black 1976; Tanner 2005; Turner et al. 2003; Waisberg 1975; Winterhalder 1980, 1982, 1983), and fur trade provisioning (Bishop 1990; Colpitts 2006, 2008; Hamilton 1991, 1993; Morantz 1990; Ray 1990; Smyth 1978). Particularly important historical research focusing on the Hudson Bay Lowlands was completed by Lytwyn (1993, 2002), who used HBCA records to talk about adaptation by the Swampy Cree during the fur trade

up to amalgamation in 1821. Ray (1974) utilizes HBCA records to illuminate subsistence and settlement patterns of the Inninew and Nakota during the fur trade in the boreal forest and adjacent parklands.

4.4 Archival Research

The second step of the research consisted of gathering data at the Hudson's Bay Company Archives (HBCA) in Winnipeg, Manitoba and through interlibrary loan. In the fall of 2011, the systematic collection of archival data began in post journals on the lower track between the Hudson Bay coast and the interior. The post journals provided a detailed record of provisions not only acquired in transactions with Aboriginal peoples, but in the harvest activities of the post employees not recorded in account books, which were utilized for the recording of the business operations of the post (Ray & Freeman 1978).

The five posts under study -- York Factory, Gordon House, Oxford House, Norway House and Cumberland House – were located in three different ecozones. York Factory is situated at the mouth of the Hayes River in the Hudson Bay Lowlands, Gordon House is found at the edge of the Hudson Bay Lowlands and the boreal forest, Oxford House and Norway House are located in the boreal forest, and Cumberland House is found at the interface of the boreal forest and parkland (Figure 4.4). All of the posts were located on bodies of water. These posts were chosen because they served different functions throughout the years.

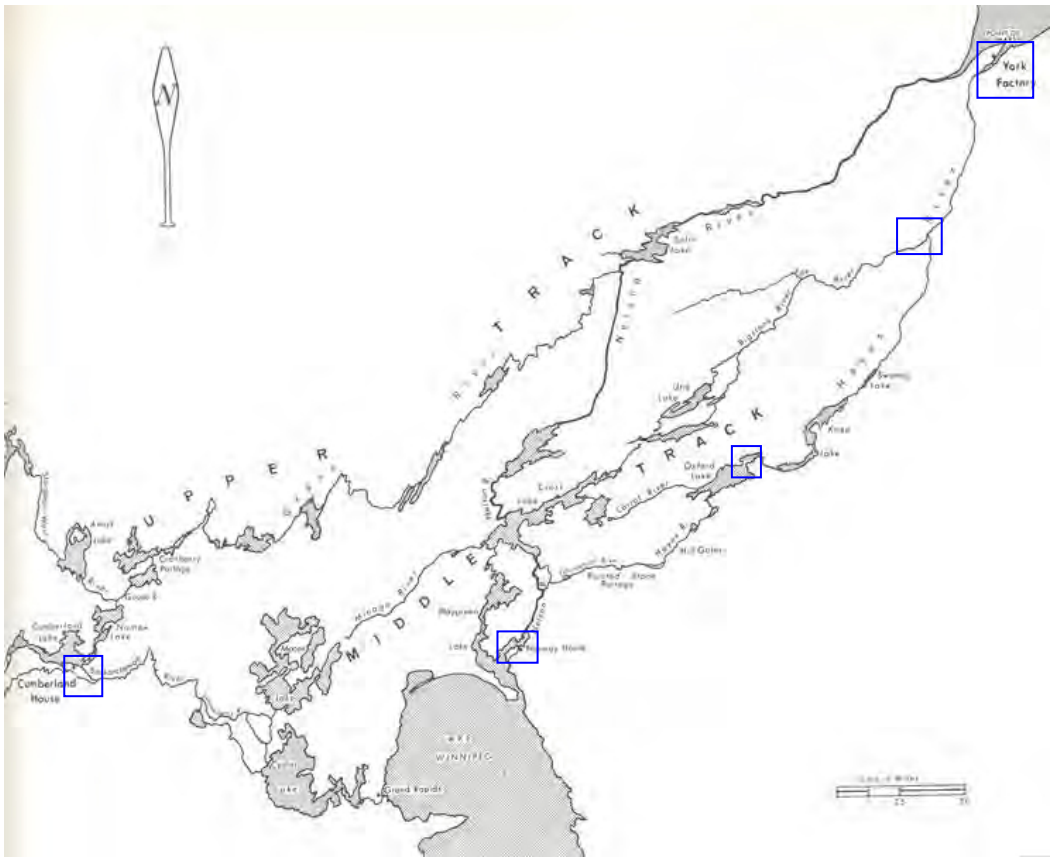

Figure 4.4 Post Locations on Lower Track. Modified from, Morse 1971.

The data was grouped into four phases or periods within the Fur Trade: 1) initial inland expansion by the HBC starting in 1773; 2) establishment of additional posts during a period a rapid expansion by several competing interests that saturated the interior situated beginning in 1793; 3) intensive competition and harvest prior to amalgamation and; 4) after amalgamation between the HBC and the NWC and the retrenchment of George Simpson. These periods represent different levels of harvest intensity and the adaptive response by Aboriginal people. By separating the data into four periods over 62 years, the thesis assesses how resource stress is visible in the records, when was it most

noticeable, how fast it occurred, if it occurred through all three ecozones simultaneously, and the adaptive response by Aboriginal people. By looking at the type and number of recorded resources that were traded at the post it is possible to infer the ecology of the immediate hinterland of the post.

A variety of provisioning behaviors were recorded including the type of country produce exchanged; by whom; from where; time of year; as well as accounts of animal scarcity, furbearer shortages, and references to instances of starvation. Each post specific resource procurement patches were recorded as well as the frequency of use to determine the size and extent of the hinterland and the condition of the ecology. The variation of resources across the three different ecozones that were traded or locally harvested by post employees was recorded to determine the uniformity of the ecology in the three ecozones. The fluctuations of resources through time were examined to ascertain if there were species collapses and if they occurred throughout the study area. Finally, the harvesting trends and patterns of the Aboriginal population were recorded to infer adaptation.

The relevant data was transcribed into notebooks by year, month, and day. Each entry contained the resource traded or harvested by post employees, quantity (if possible) of the resource, where it originated, and who traded the resource. Stress indices were recorded using the nature and context of references to starvation, specific animal scarcity and furbearer scarcity. The data was separated into different animal categories based on class and size as well as if the animal was brought in whole or processed. Additional notes were made if value was added to the product such as by drying, smoking, pounding, rendering

fat, and this was recorded by volume (lbs.) or number. The data was examined and highlighted based on the categories mentioned above. Notes were made on the references to competing interests in the hunting territories of Aboriginal people and the amount of each category recorded for the post journal was tabulated. These steps were undertaken to organize the data.

4.5 Data Analysis

The data was entered into excel spreadsheets separated into the individual categories and the months that they were harvested. Totals were provided at the bottom of each sheet. The data was then separated into periods to understand the changing harvest practices over time. These spreadsheets were converted into bar graphs and then into line graphs to explore patterns and trends in harvest tendencies, resource patch use, and references of stress indices.

4.6 Limitations of Research

There are a few unavoidable limitations with this research project. Only one primary data set was utilized in this thesis, so the data is only interpretable through one lens. The post journals did not identify exact locations where Aboriginal peoples originated as well as differing quantification methods employed by the different Chief Traders and Factors throughout the years. Some journal years were either missing or illegible due to ink bleed or the journal closed when the ink was still wet. Because of limited time and funding, as well as the remote locations of these posts, archaeological excavation was beyond the scope of this thesis. Oral histories were not utilized in the research due to the

same time and funding limitations. In some cases the archival data was lacking because not all years were available either through its destruction or misplacement. In addition, some traders did not record the same details that others did, leading to variances in the data from the time of writing The more experienced traders did not record as much detail as did new recruits perhaps due to the fact that veteran traders saw much of the data as normal happenings not worthy of note (Hamilton 1991).

.

CHAPTER 5

DESCRIPTION OF THE DATA

This chapter describes patterns observed in the fur trade journals that inform land use intensity during four time periods within the study period (1773-1835). These four periods are: 1) Fat of the Land (1773-78); 2) Proliferation Period (1793-1801); 3) Resource Depletion (1810-1821); and 4) Amalgamation and Retrenchment (1827-1835), and are referred to below as P1, P2, P3 and P4 respectively. The journals selected for study from each of the posts approximately correspond to the date ranges of these four periods. They are described in the table below (Table 5.1).

Table 5-1: Post Journals Utilized in Study

Post Name	Reference
York Factory	Period 1: (HBCA PAM B.239/a/70-71) Period 2: (HBCA PAM B.239/a/96-100) Period 3: (HBCA PAM B.239/a/124) Period 4: (HBCA PAM B.239/a/148)
Gordon House	Period 2: (HBCA PAM B.81/a/1-3)
Oxford House	Period 2: (HBCA PAM B.156/a/1-3) Period 3: (HBCA PAM B.156/a/4;7) Period 4: (HBCA PAM B.156/a/10;13)
Norway House	Period 2 (HBCA PAM B.154/a/1-3) Period 3: (HBCA PAM B.154/a/5;9) Period 4: (HBCA PAM B.154/a/17;21)
Cumberland House	Period 1: (HBCA PAM B.49/a/1;3-5) Period 2: (HBCA PAM B.49/a/28-30) Period 3: (HBCA PAM B.49/a/34) Period 4: (HBCA PAM B.49/a/44)

The posts under study are distributed throughout several ecozones bisected by the lower track. The study area runs from the southwest at Cumberland House and proceeds northeast along the Hayes and Nelson rivers where it terminates at York Factory along the Hudson Bay coast (Figure 5.1). Cumberland House is located within the aspen parkland/boreal forest transition. Oxford House and Norway House are examined together because they are located with the boreal forest ecozone. Gordon House and York Factory are treated together because they are both within the taiga transition.

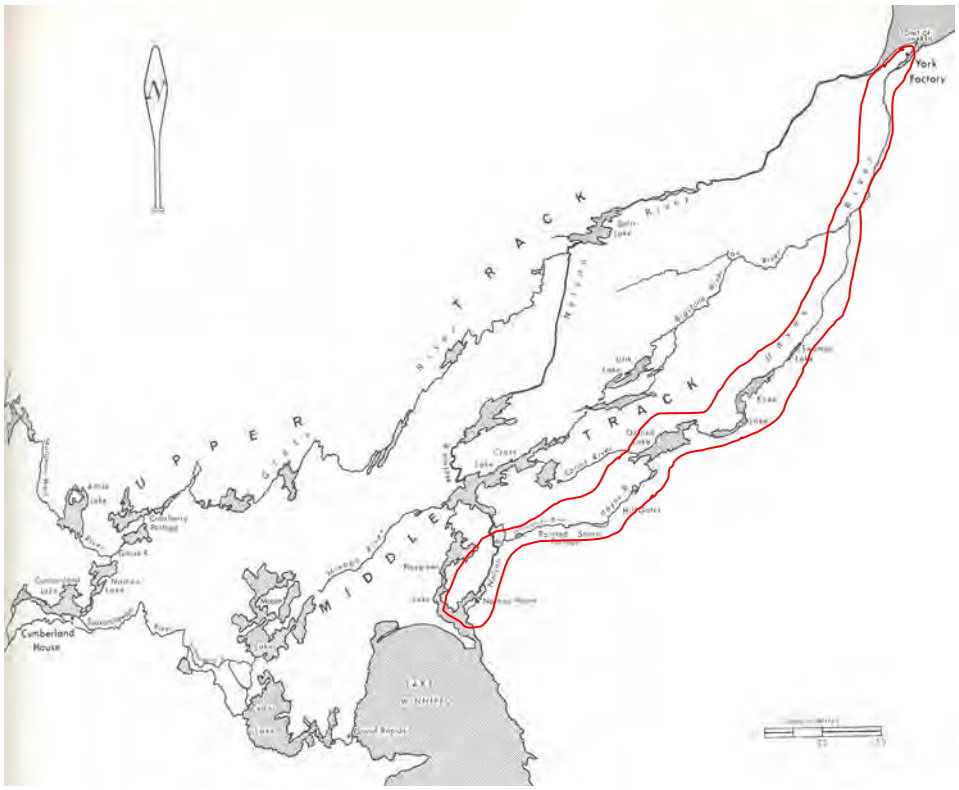

Figure 5.1 The "Lower track" (Highlighted) modified after Morse 1971.

Numerous species were recorded in the journals but were not all are studied here. Data on species were recorded and quantified in a variety of ways

and it would be impossible to trace all species in a consistent fashion. Instead, this study focused on a narrow range of taxa, recorded with consistency, that serve as “indicators” of environmental stress, similar to the “canary in the coal mine” scenario. Some species were consistently used across the study area (i.e. fish, hare, beaver, and muskrats), while in other cases species unique to each ecological zone were considered because they offered a ‘local’ proxy for environmental change. All taxa reported in the journals are summarized in the Appendices.

Measuring the different types and quantities of food and skins recorded in the post journals offers the best available indicator of ecological health of the trade hinterland, and an indirect measure of adaptation by Aboriginal peoples. In the context of the fur trade, some species were highly valued for their furs or hides, and also as food. This ‘country’ food provided local subsistence, reduced the importing of expensive European foodstuffs, and contributed to surpluses of preserved food used to provision the water transportation network. While diverse products were traded, some were particularly valued economically and thus are useful measures of the impact of increasingly intense commercial demand. As European trade competition and the density of trade posts increased, scholars believe that high-value furs and fat-rich meat used for provisions became depleted, forcing a shift to less attractive country produce. Moose, caribou, and beaver were highly valued for their yield of muscle tissue, fat, organ meat, and hides. The trade in whole animal carcasses suggests that there was enough food to feed the Aboriginal hunting groups, leaving surplus ‘kills’ to be traded. However, if food was in short supply, one might imagine less frequent trade in

whole carcasses, with the hunter trading the hide, but retaining all or most of the carcass for domestic consumption. Sometimes these provisions were dried or smoked for preservation. Such foods would be particularly important as warm-season provisions while travelling to the depots for resupply. Given the time and effort required to process such food, these value-added provisions were likely traded at a higher standard. Fish were valued resources, particularly during seasonal spawns when large numbers could be harvested and preserved to add to the food surplus. However, since fish are comparatively low in fat yield, they were less valued than terrestrial mammals.

Newly established trade posts likely exhibited a high representation of high value species (as economically valued fur or fat-rich meat), but as time passed (and availability declined), less valued species such as hare, muskrat, and ptarmigan became more prominent. It is also expected that as fat-rich terrestrial mammals became more difficult to procure in large numbers, fish may have become more important as a subsistence staple. Shifts in procurement records over time serve as a means of measuring the existence, timing, and severity of fur trade induced ecological transformation.

5.1 Cumberland House: Boreal Forest/Deciduous Parkland Interface.

Cumberland House operated between 1774 and 1828. This analysis considers four discrete periods: 1774-78, 1797-01, 1818-19 and 1828-28, which each represent different levels of fur trade competition and associated land use intensity. During the first three to four years of operation, Cumberland House

served primarily as a fur trading depot to directly compete with the “Pedlars” from Montreal (who later formed the NWC), but eventually became a provisioning depot after 1779-80 (Klimko 1982; Russell 1982).

5.1.1 Furs and Hides

5.1.1.1 Made Beaver and unspecified skins

During P1, the Cumberland House post records report a peak in “Made Beaver” (MB) traded. MB, the equivalent of one prime beaver skin, is a unit of quantification used to evaluate trade goods, country produce, and other furs. (Ray 1974). A total of 3302 MB were recorded during P1 (Figure 5.2), along with thirteen unidentified skins that were not quantified in MB. Reports of indeterminate furs (often simple references to furs traded) increased in following periods, perhaps reflecting the shifting emphasis from furs to the collection of provisions, or a decline in the trade of prime beaver pelts (more frequently quantified as MB), and a growing emphasis on miscellaneous furs. This shift in harvest emphasis over time likely relates to the changing role of Cumberland House from offering competition to the Montreal traders to a provisioning depot to supply the canoe brigades travelling into the Athabasca and Saskatchewan districts (Innis 1930; Klimko 1982).

During P2 the number of MB declined to 1620 while the number of indeterminate skins increased to 140 (Figure 5.2). The decline in the number of MB traded might reflect reduced availability, or increased numbers of traders in the area, thereby offering more trade options to Nakota and Inninew (Figure 5.2). The trend for declining numbers of MB traded continued in P3 (250 MB and 30

indeterminate skins) and P4 (0, with thirteen indeterminate skins traded Figure 5.2).

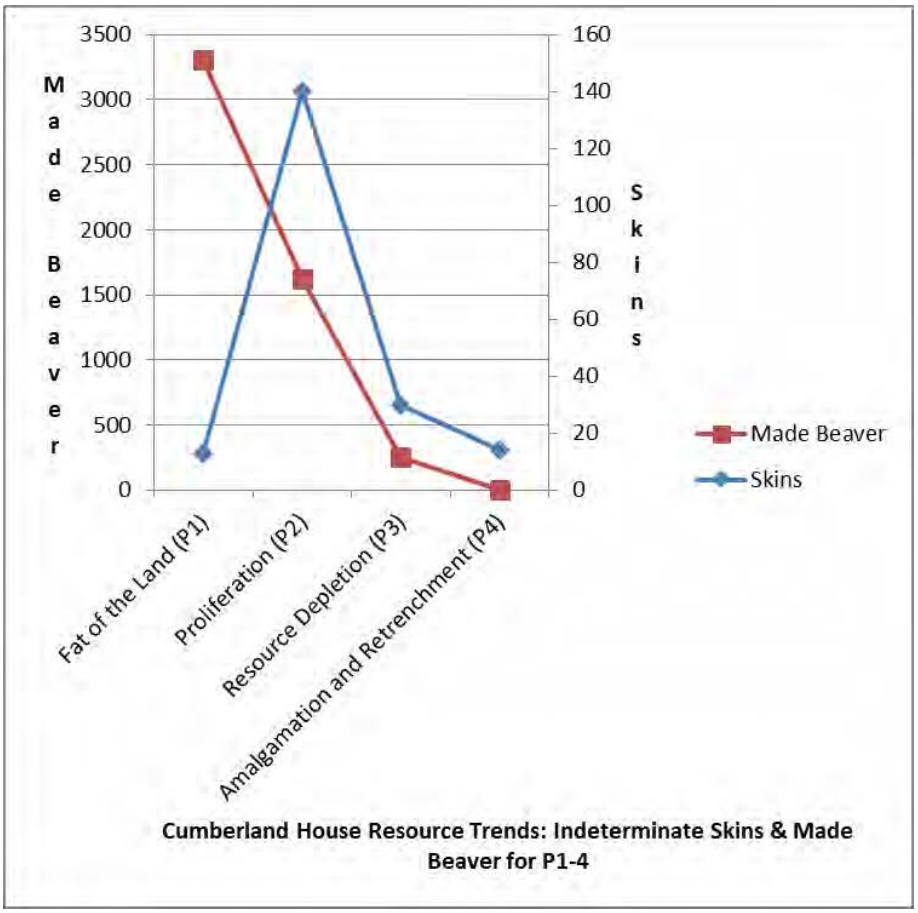

Figure 5.2 Amount of MB and Skins recorded at Cumberland House.

5.1.1.2 Beaver

Traders did not record any specific reference to beaver skins in P1, but skins significantly increased to 110 in P2, steadily declined to 94 in P3, and reached a low of 24 during P4 (Figure 5.3). These declining numbers do not necessarily reflect a decline in the population of beaver because there was a steady increase in the number of whole beaver traded from P1 to P4 (Figure 5.3).

It possibly reflects the increased numbers participating in the fur trade during this time of rapid expansion.

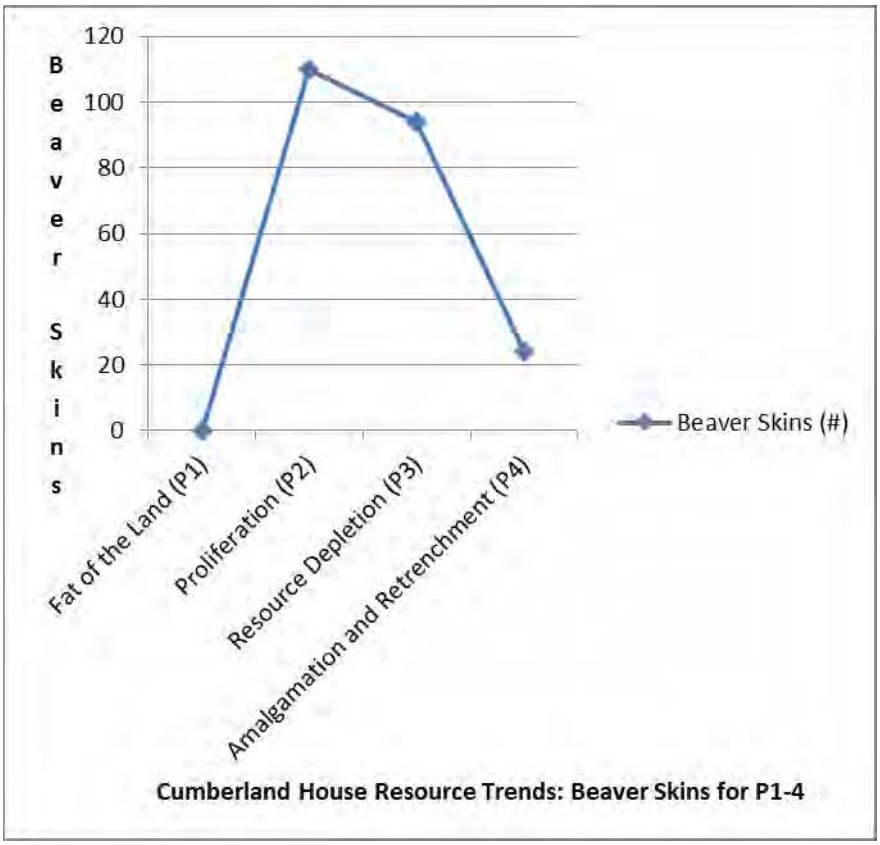

Figure 5.3 Amount of Beaver Skins recorded at Cumberland House.

5.1.1.3 Muskrats

The low-lying Saskatchewan River delta, including the Cumberland House area, is prime habitat for muskrat. However, no muskrat were recorded for the first two periods, possibly because high value fur bearers were relatively abundant and the focus of trade attention (Figure 5.4). Starting in P3, muskrats become an important trade animal, with 6517 recorded (Figure 5.4). Since the number of beaver traded were also increasing it is difficult to interpret the rise of

muskrats. It could possibly indicate a rise in market value for muskrat, or a greater emphasis on muskrats caused by the increased number of trappers participating in the trade.

The amount of muskrats recorded greatly increased in P4 to 99862 (Figure 5.4). The beaver numbers traded also increased in this period, so this data doesn't necessarily reflect depleted beaver numbers.

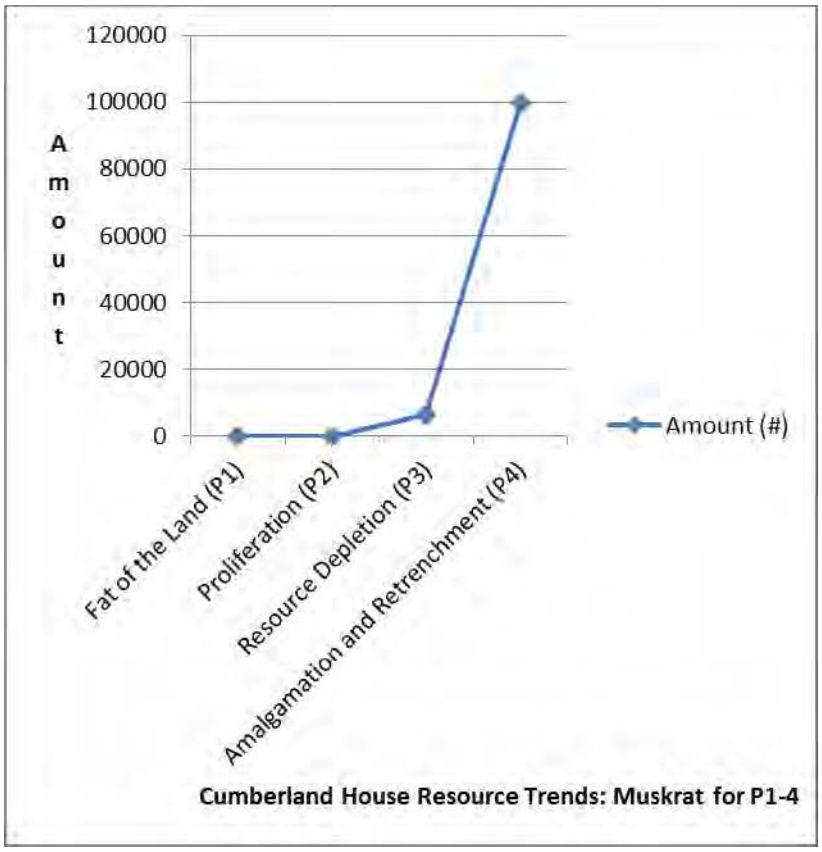

Figure 5.4 Number of Muskrats recorded at Cumberland House.

5.1.2 Provisioning

5.1.2.1 Beaver

Beaver meat procured for provisioning was prevalent at Cumberland House throughout the study period. In P1 traders recorded 422 pounds of meat traded along with twelve whole carcasses. Subsequently, beaver were not quantified by pounds, and instead the number of whole carcasses traded became the only unit of measure used. P2 saw 58 whole beaver carcasses recorded but no processed meat. P3 saw a substantial increase with 234 whole beaver traded.

In P4 we see another significant increase in the number of beaver carcasses traded with 388 recorded (Figure 5.5).

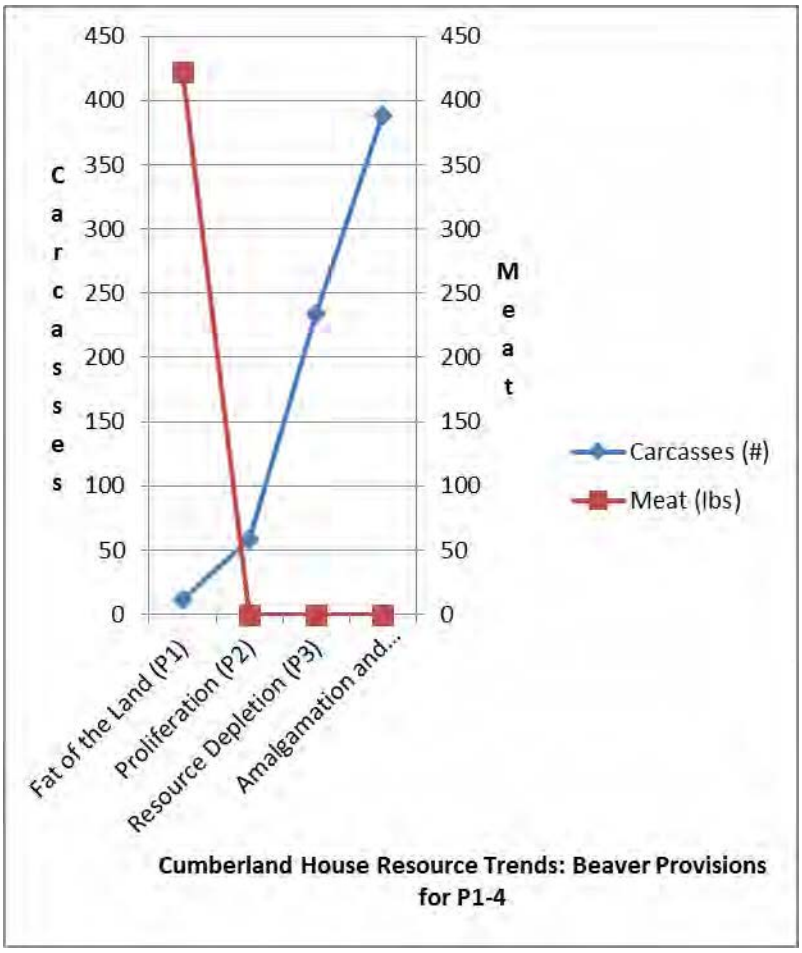

Figure 5.5 Amount of Beaver recorded at Cumberland House.

5.1.2.2 Large Mammals

Moose appear to have been comparatively abundant in the early years of operation at Cumberland House, P1 reporting 1779 pounds of meat and thirteen whole carcasses along with two “sides” brought in. The numerous non-descriptive references to moose in P1 tell us very little about the specific form of moose

provisions. There were also small herds of woodland caribou in the vicinity of Cumberland House, but they initially did not play much of a provisioning role since no caribou were recorded in P1 (Figure 5.6). P2 saw a decrease in the amount of moose meat traded (410lbs), but the number of whole moose carcasses recorded rose to 28. Because Cumberland House changed roles to a provisioning post, the quantification of large economically valued game animals switched as well. The local trappers put a greater emphasis on supplying the post with meat in lieu of furs. The post still received furs but on a smaller scale. Three whole caribou carcasses were recorded for P2, reflecting a stronger emphasis on supplying provisions (Figure 5.6). P3 saw a decrease in whole moose carcasses (eight) but an increase in the amount of meat traded with 2210 pounds recorded along with two noses and 99 skins. One whole caribou was traded along with 370 pounds of meat (Figure 5.6). These numbers might once again reflect a change in the quantification of large economically valued animals. No moose were recorded for P4, however twelve whole caribou carcasses were traded (Figure 5.6), which might indicate a decline in moose numbers in the hinterland of Cumberland House, leading to a switch in emphasis to caribou.

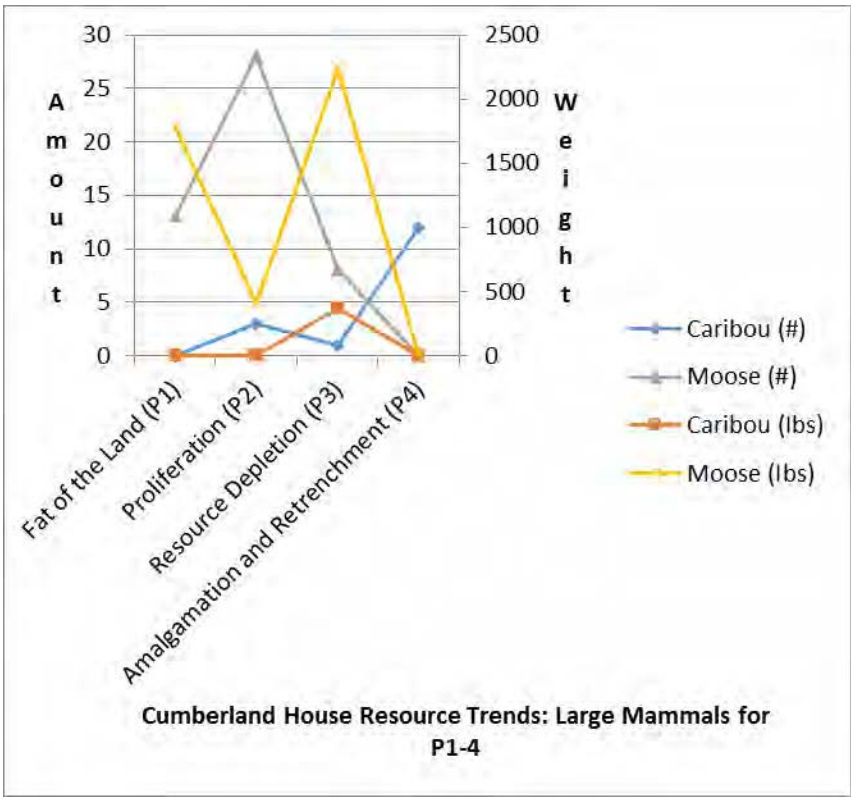

Figure 5.6 Amount of Large Ungulate recorded at Cumberland House.

5.1.2.3 Fishing

The records indicate that the fishery was not as important in the early years as it became in the later years of operation. During P1 only 1129 fish are recorded as harvested, but these numbers gradually increased in subsequent periods (Figure 5.7). The post servants were responsible for the harvesting of fish or a local Aboriginal was hired on a piecework basis to fill this need. P2 had an increase with 3145 fish harvested, likely reflecting the growing importance of fish as a provisioning resource. In P3, the amount of fish recorded at Cumberland House again increased (5148) (Figure 5.7), perhaps reflecting the higher number of post employees situated at the post as the HBC was forced to increase its man

power to compete with the NWC (Williams 1983). The amount of fish recorded in P4 increased to 11910 (Figure 5.7), which seems to reflect the widely increasing importance of fish throughout Rupert's Land.

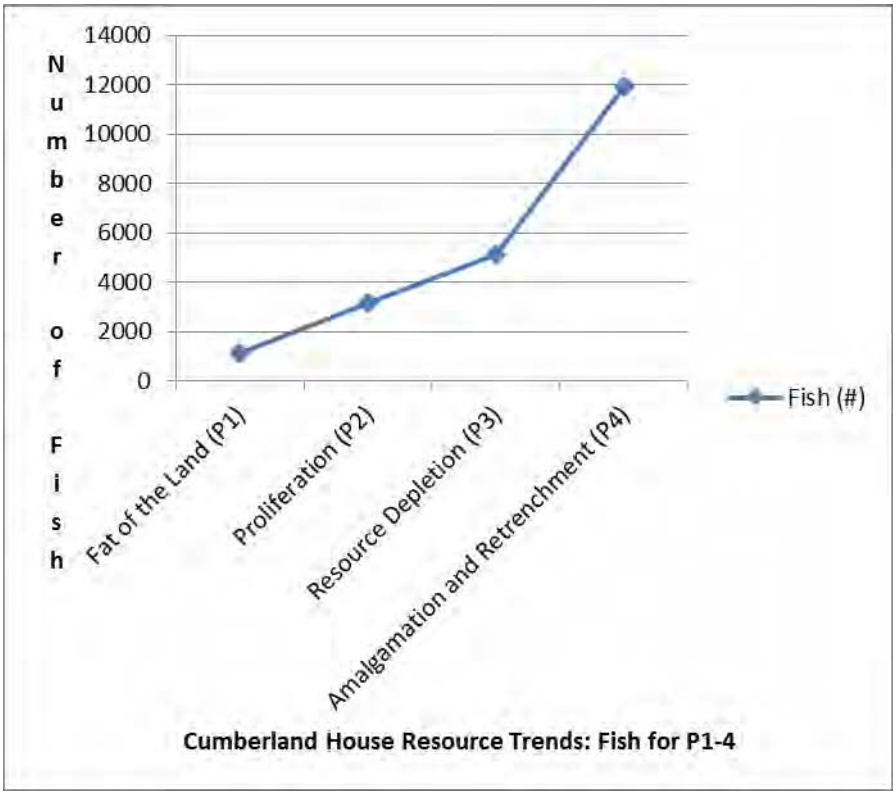

Figure 5.7 Amount of Fish recorded at Cumberland House.

5.1.2.4 Hare

Hare does not seem to have been economically important during P1 with only 36 whole carcasses being recorded and no skins recorded. The low number might reflect the low point of the hare eight to ten year population cycle. In P2 720 hare were recorded, illustrating Cumberland House's new emphasis on provisioning as well as the possibility of a recovering hare population (Figure 5.8). Hare numbers decreased to 261 in P3 (Figure 5.8), possibly reflecting the beginning of a low phase of the cycle, or a shift in emphasis away from hare

harvest. No hare were harvested in P4, possibly showing a shift in emphasis to muskrats (Figure 5.8)..

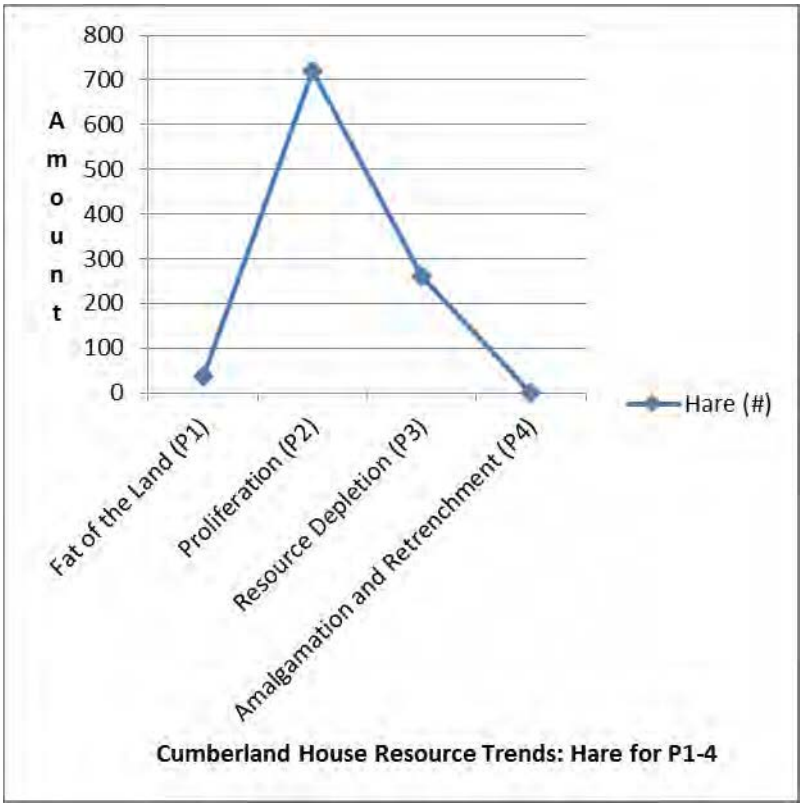

Figure 5.8 Amount of Hare recorded at Cumberland House.

5.1.2.5 Bison

Cumberland House was located in close proximity to the vast bison herds in the plains to the southwest, which made it a logical place to collect pemmican and other bison food products to support the canoe brigades and to redistribute to other parts of Rupert's Land. Bison were not mentioned during P1 or 2, but that does not necessarily indicate no bison traded. The bison tallies might have been quantified differently than other provisions. In P3 16784 pounds of bison meat

were imported from the Plains. In P3 140 bison tongues were imported from up the Saskatchewan River. There was 5945 pounds of unspecified meat recorded, which makes it difficult to ascertain amounts of bison.

5.1.2.6 Pemmican/Fat

In P1 142 pounds of fat were recorded along with 100 pounds of pemmican. P2 saw a substantial increase, with 34 bags of pemmican imported as well as eighteen pounds. The journal mentions the production of ten bags of pemmican at the post. The journal fails to mention the origin of the pemmican imported, but it records its arrival in two HBC canoes (HBCA B.49/a/29). Ray (2008) mentions a typical bag of pemmican procured from the plains weighed 90 pounds and that bags were packed in bison hides. Liboiron and St-Cyr (1988) state that pemmican was packed in green bison skin bags called “parfleches” and were sealed with melted tallow. When the parfleches dried they shrank, compressing the meat, making for easy storage. Fur brigade canoes had limited room for provisions due to the amount of trade goods shipped in the canoes (Ray & Freeman 1978). In P3 the amount of fat traded increased to 630 pounds, however no pemmican was traded, perhaps reflecting the production of pemmican at Cumberland House to supply the ever-growing number of canoe brigades. P4 saw a substantial increase with 1819 pounds of fat recorded, 1519 originating up the Saskatchewan River, along with 34 bags of pemmican, reflecting the changing role of Cumberland House as a provisioning post (Figure 5.9).

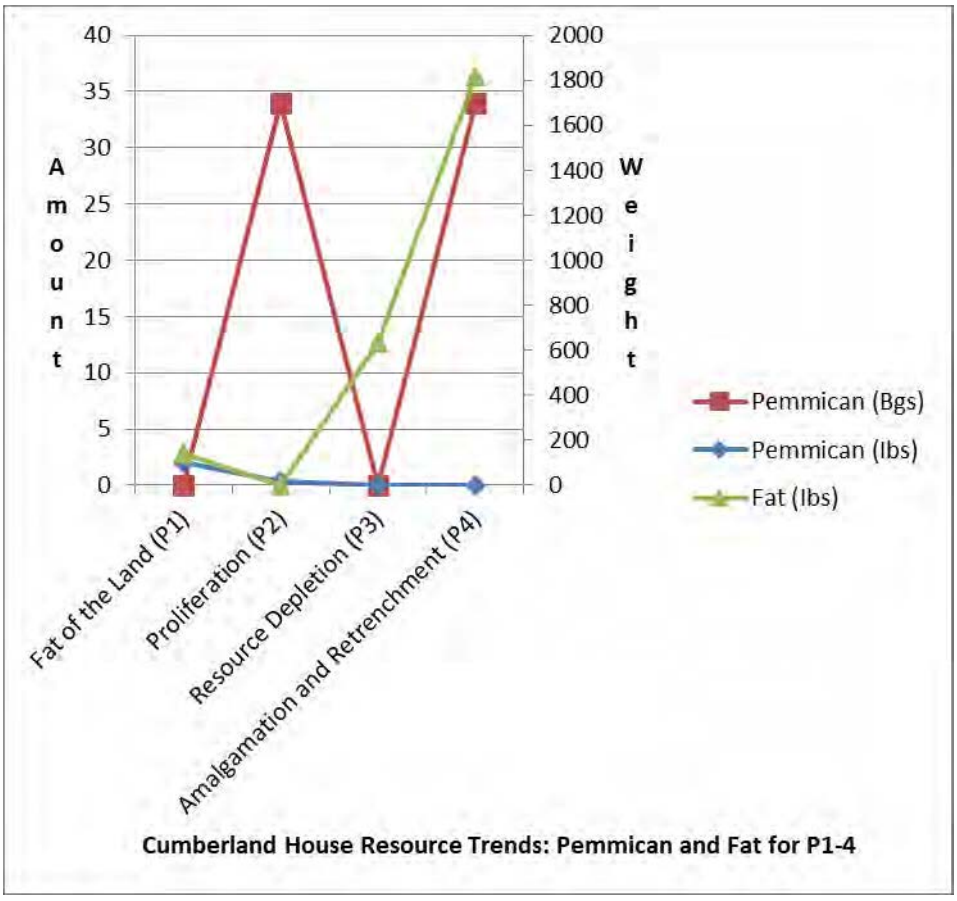

Figure 5.9 Amount of Fat and Pemmican recorded at Cumberland House.

5.2 Oxford House and Norway House/Coniferous Boreal Forest

Oxford House (1798-99 to 1832-33) and Norway House (1796-97 to 1832-1833) linked the interior with the coast along the lower track. Given the duration of use of these trade posts, [Oxford House (1798-99) and Norway House (1796-97)] I consider only three samples within the study period (1773-1835), i.e. P2, P3, P4. The figures below use the period names followed by the years for each period due to differing journal years for each post. Similar to Cumberland House,

these posts served specific functions that changed over time. They served as transshipment depots as well as trade posts (Innis 1930).

5.2.1 Furs and Hides

5.2.1.1 Made Beaver and unspecified skins

During P2 high levels of MB were recorded, with a combined total of 6416 (Oxford House yielded 4750 MB and Norway House was 1666 MB). P2 also saw an increase in fur bearer harvesting because of the competing traders in the region. With intensifying competition, each trader sought to maximize the return to minimize competitors' success. However, the returns in MB dropped significantly in P3 to a total of 247, (220 from Norway House and 27 from Oxford House). The drop may be a product of the intensive harvesting of the previous period resulting in decreased numbers in fur-bearers. P4 saw a slight increase in MB traded (773 in total with 241 for Norway House and 532 for Oxford House) (Figure 5.10). However, this marginal increase is not considered significant in light of the significant decline from P2. There were 1400 indeterminate skins traded during P4, 77 at Oxford House and 1323 at Norway House (Figure 5.10).

P2 the amount of MB recorded was high; with a combined total of 6416 (Oxford House yielded 4,750 MB and Norway House was 1,666 MB). During this period there was an increase in fur bearer harvesting because of the competing traders in the region. That is, with intensifying competition, each trader sought to maximize the return in order to deny competitors trade success. However, the returns in MB dropped significantly in P3 to a total of 247, (220 from Norway House and 27 from Oxford House). This may be a product of the intensive

harvesting of the previous period resulting in decreased numbers in fur-bearers. There was a slight increase in P4 in MB traded (773 in total with 241 for Norway House and 532 for Oxford House) (Figure 5.10). However, this marginal increase is not considered significant in light of the significant decline from P2. There were 1,400 indeterminate skins traded during P4, 77 at Oxford House and 1,323 at Norway House (Figure 5.10).

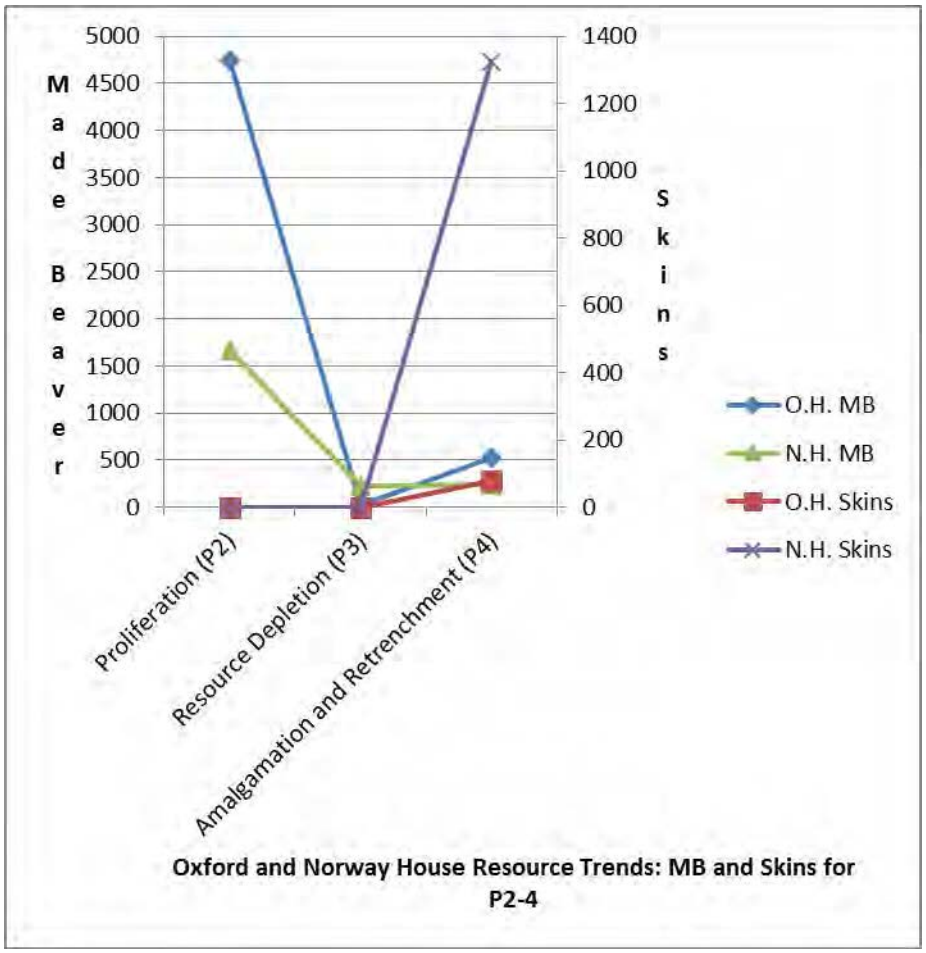

Figure 5.10 Amount of MB and Skins recorded at Oxford and Norway House.

5.2.1.2 Beaver

Oxford House Oxford House recorded all of the beaver skins for the coniferous boreal forest; Norway House received very few beaver products. In P2 Oxford House recorded the staggering number of 872 beaver skins. The amount significantly decreased in P3 to 71, which could reflect that the area was under harvested previously and utilized extensively in P2. The amount of beaver skins declined in P4 with three recorded at Oxford House (Figure 5.11). Norway House did not receive any beaver product.

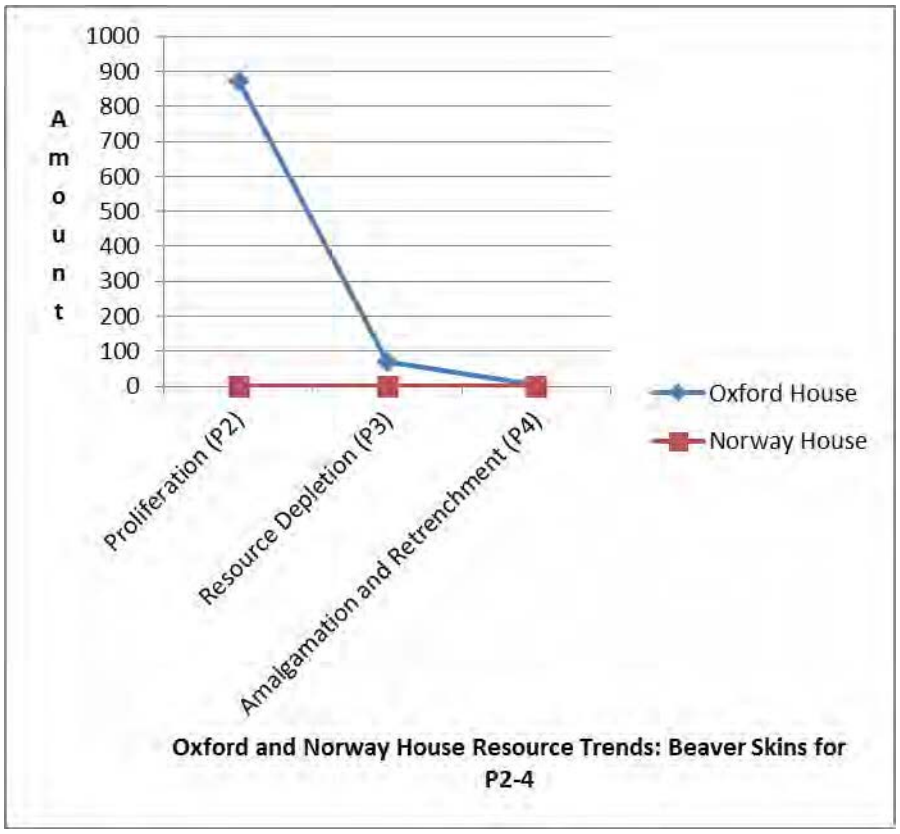

Figure 5.11 Amount of Beaver Skins recorded at Oxford and Norway House.

5.2.1.3 Muskrats

While While muskrats were not important during the early periods of operation at these posts, they became much more important later. In P2 no muskrat were reported at either Oxford or Norway House (Figure 5.12). Starting in P3 there were a total of 479 muskrats recorded at Norway House and none at Oxford House. In P4 there was a substantial increase at Norway House with 5445. Oxford House saw a total of 186 muskrats traded (Figure 5.12).

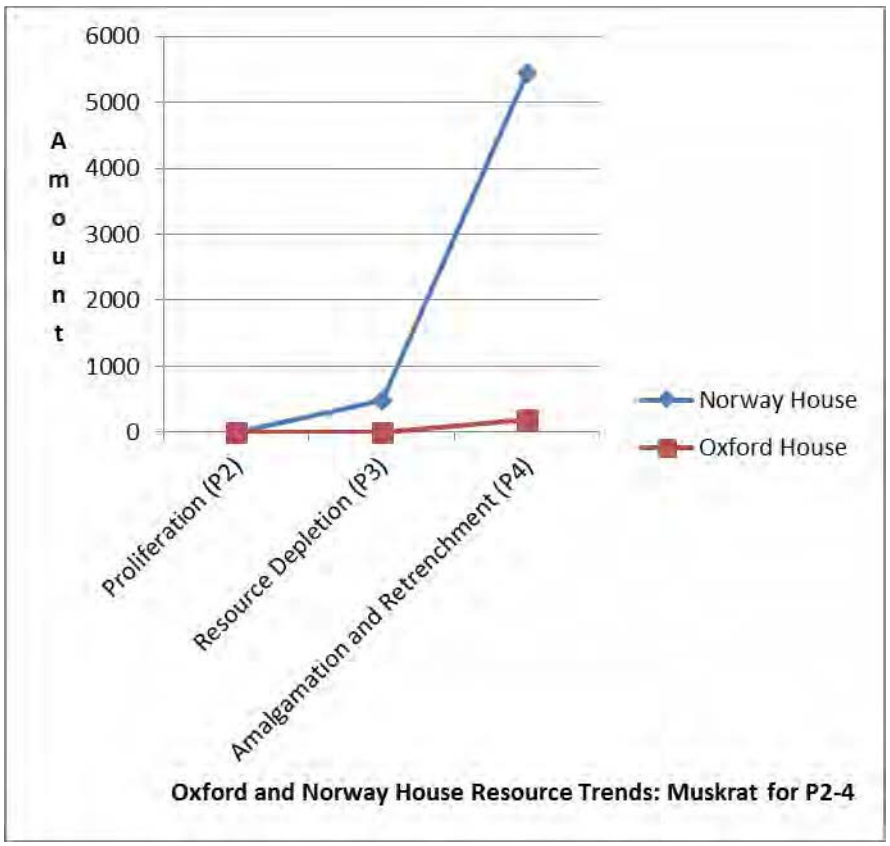

Figure 5.12 Amount of Muskrats recorded at Oxford and Norway house.

5.2.2 Provisioning

5.2.2.1 Beaver

Beaver were harvested for food at Oxford and Norway House. In P2 there was 717 pounds of meat for Oxford House, none for Norway House along with a total of twelve carcasses recorded (five at Norway House and seven for Oxford House). Oxford House recorded an additional 22 pounds of castoreum. During P3, no beaver carcasses were recorded at Norway House; however Oxford House increased to eleven followed by a further increase in P4 to 24 beaver carcasses (Figure 5.13).

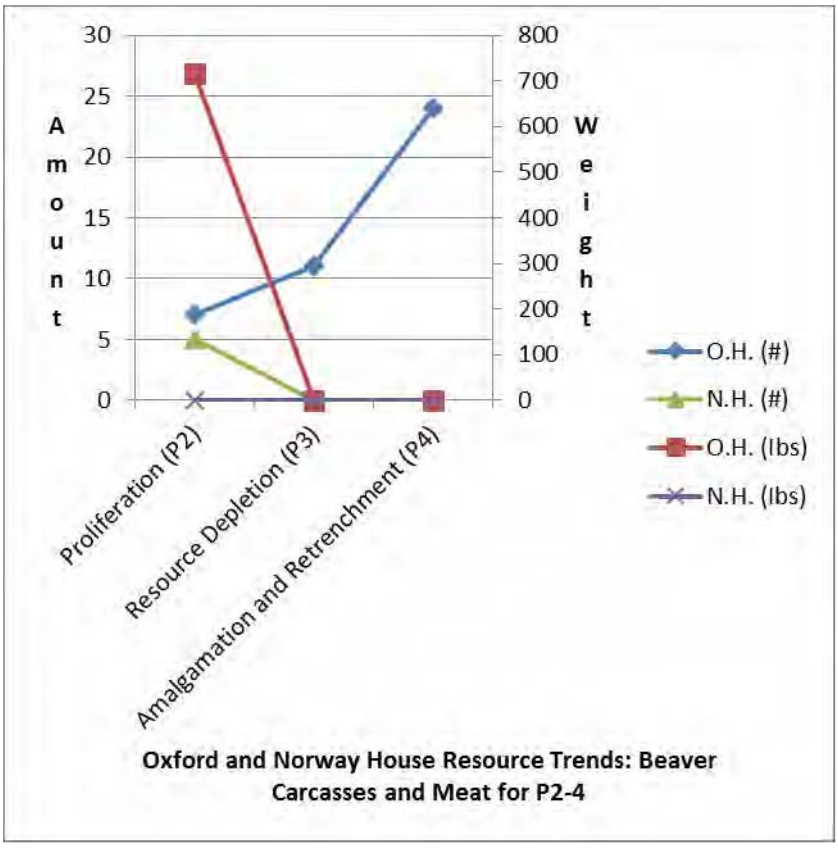

Figure 5.13 Amount of Beaver recorded at Oxford and Norway House.

5.2.2.2 Large Mammals

Records show caribou harvested at both Oxford House and Norway House. During P2 a total of 35 whole caribou were recorded at the two posts as well as 1613 pounds of processed meat. The reporting of caribou harvest draws attention to the implications of variable quantification methods. The Norway House records emphasized carcass counts, with a total of 34 carcasses and only 50 pounds of meat. However at Oxford House only one carcass was reported, but the rest of the harvest was documented as 1563 pounds of meat plus ten skins (Figure 5.14). There was a total of 10706 pounds of moose meat recorded

for both Oxford and Norway House in P2. Oxford House accounted for 10702 pounds of the total, while four pounds were recorded at Norway House. It is not clear why this disparity existed. No carcasses were recorded, however six “rumps” were traded at Norway House and five noses and seventeen skins at Oxford House (Figure 5.15). The numbers of caribou recorded decreased during P3, with a total of fourteen carcasses and 1045 pounds of meat (Norway House had eight carcasses plus 518 pounds of meat and Oxford House had six carcasses plus 527 pounds of meat). There was also one “rump” and two “sides” recorded at Norway House, and one “rump” and seven skins at Oxford House (Figure 5.14). The moose numbers slightly declined in P3 with a total of 2179 pounds meat traded, but with a slight increase in carcass numbers to eight. Oxford House recorded 364 pounds of meat as well as one carcass and Norway House saw a dramatic increase in meat recorded (1815 lbs) and an increase to seven carcasses. Ten noses were traded at Oxford House along with two skins and Norway House saw one heart as well as nine skins traded (Figure 5.15). In P4, eight whole caribou carcasses along with 884 pounds of meat were recorded at Norway House, while Oxford House received 370 pounds of meat. Oxford House recorded eight skins, while Norway House traded two heads (Figure 5.14). Moose numbers had declined with Oxford House receiving nothing and Norway House recording three carcasses (Figure 5.15).

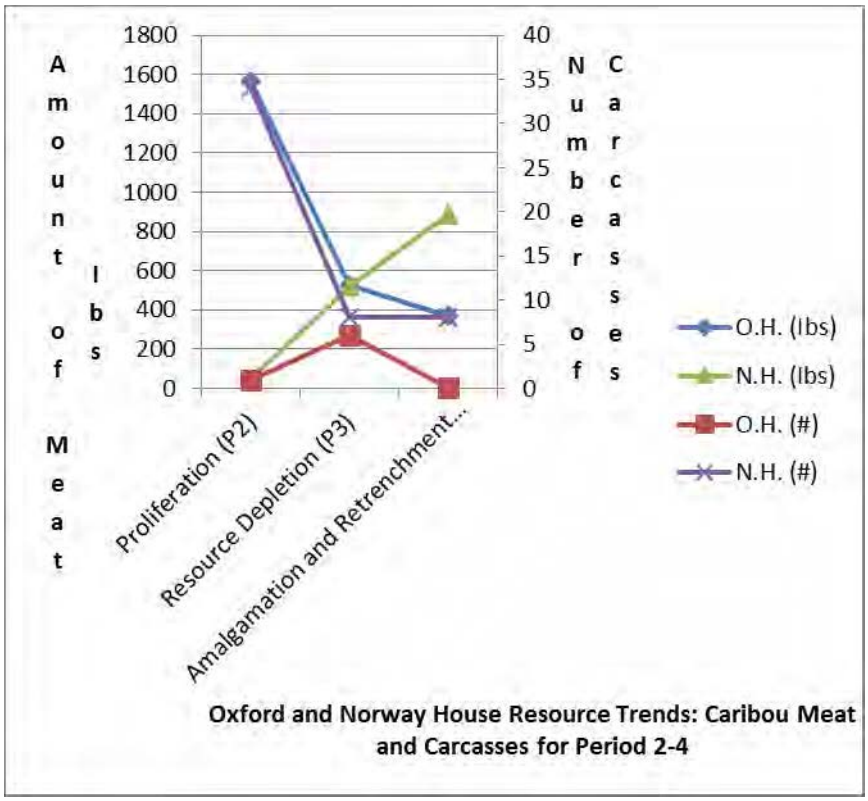

Figure 5.14 Amount of Caribou recorded at Oxford and Norway House.

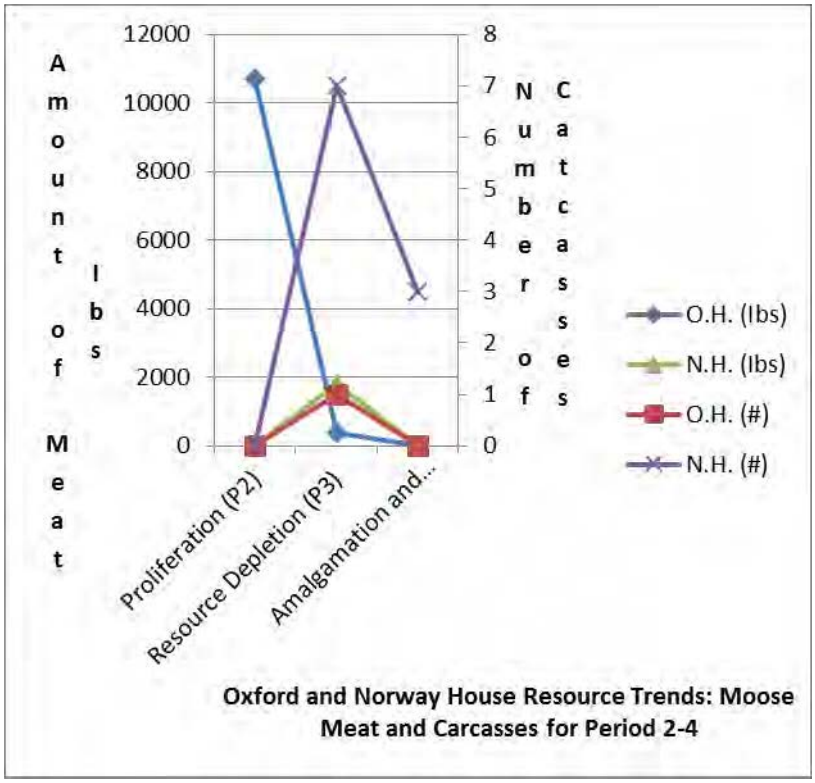

Figure 5.15 Amount of Moose recorded at Oxford and Norway House.

5.2.2.3 Fishing

Fish are thought to have always played an important subsistence role with boreal forest foragers, and the Oxford House and Norway House records demonstrate that fish were important throughout the life of the posts. In P2 a total of 36209 fish were harvested, (17981 for Norway House and 18228 for Oxford House). The total fish yield declined slightly in P3 to 25860 fish primarily due to the decline in numbers at Oxford House, (18296 for Norway House and 7564 for Oxford House). The drop in fish resulted in Oxford House establishing four additional fishing camps to offset the pressure placed on the initial fisheries of Jack Lake and Fishing Creek (HBCA B.156/a/1-4). The amount of fish harvested

in P4 represents a significant increase from P3 with, a total of 106571 fish (59981 for Norway House and 46590 for Oxford House) (Figure 5.16).

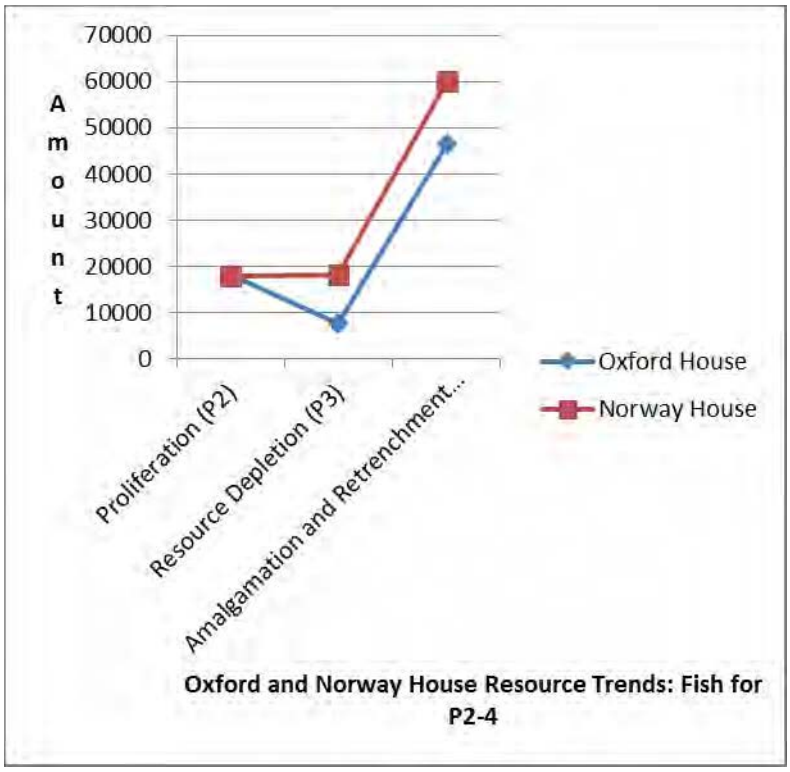

Figure 5.16 Amount of Fish recorded at Oxford and Norway House.

5.2.2.4 Hare

During P2, the number of hare recorded for this region totalled only eighteen (all at Norway House). The low numbers could indicate a low ebb in the cycle or emphasis placed on higher valued fur bearers (Figure 5.17). There was a slight decline in the number of hares recorded in P3 to sixteen, by Norway House, with no hare traded at Oxford House. There was an increase in P4 with

67 hares recorded by Oxford House, while there was a drop off to no hares traded at Norway House (Figure 5.17).

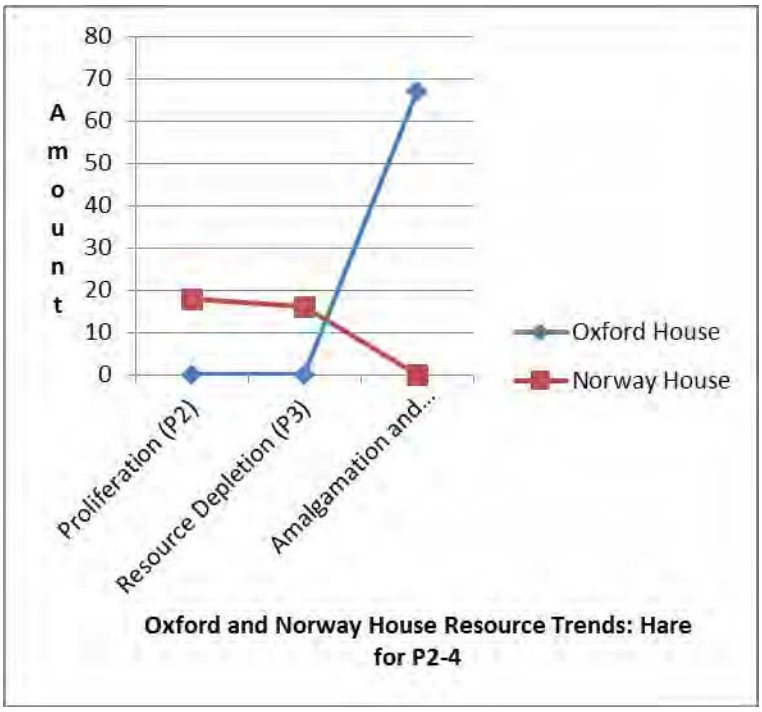

Figure 5.17 Amount of Hare recorded at Oxford and Norway House.

5.2.2.5 Migratory Water Fowl

Migratory waterfowl are seasonally abundant within the region when not hindered by inclement weather and flooding. In P2 there were a total of 786 fowl recorded; 255 for Oxford House and the remaining 531 received at Norway House. There was a significant decrease in P3 in water fowl numbers with 60 at Oxford House and 322 at Norway House. There was no mention of unfavorable weather or spring flooding, which would disrupt the seasonal waterfowl hunt. The harvest of seasonally available water fowl continued to decline in P4 with a total

of 89 recorded by Norway House with none traded at Oxford House (Figure 5.18).

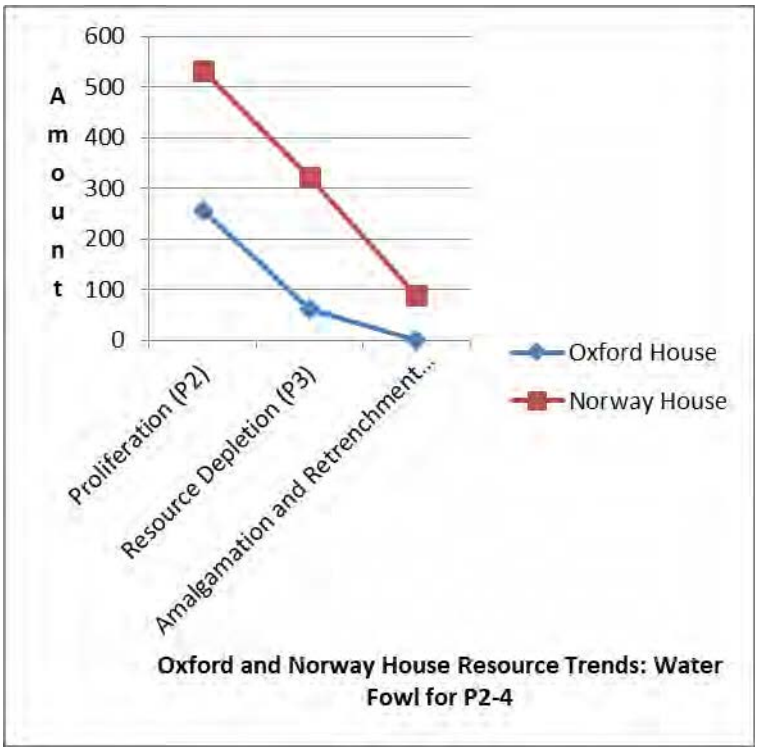

Figure 5.18 Amount of Migratory Waterfowl recorded at Oxford and Norway House.

5.2.2.5 Pemmican/Fat

In P2 683 pounds of fat was traded at Oxford House, along with 66 pounds of pemmican (Figure 5.19), 20 pounds of the pemmican were traded by "Bungee Indians" possibly coming from the east side of Lake Winnipeg (HBCA B.156/a/3). P3 saw a significant decrease to seventeen pounds of pemmican recorded at Oxford House and none at Norway House. P4 saw a large increase with 152 pounds of fat recorded at Norway House (Figure 5.20) as well as 490 bags of pemmican and 48 bags of bison tongue imported from the Red River District as

well as the Saskatchewan District (HBCA B.154/A/17). Oxford House recorded 63 bags of pemmican imported from Swan River, Rainy River, and Norway House (HBCA B.156/a/13) (Figure 5.19).

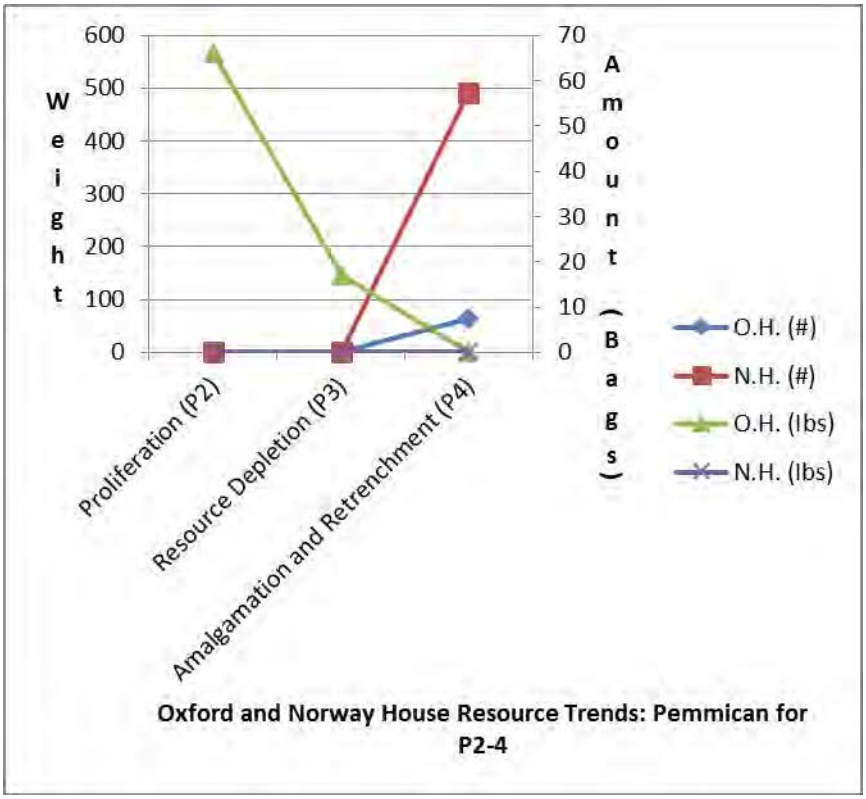

Figure 5.19 Amount of Pemmican recorded at Oxford and Norway House.

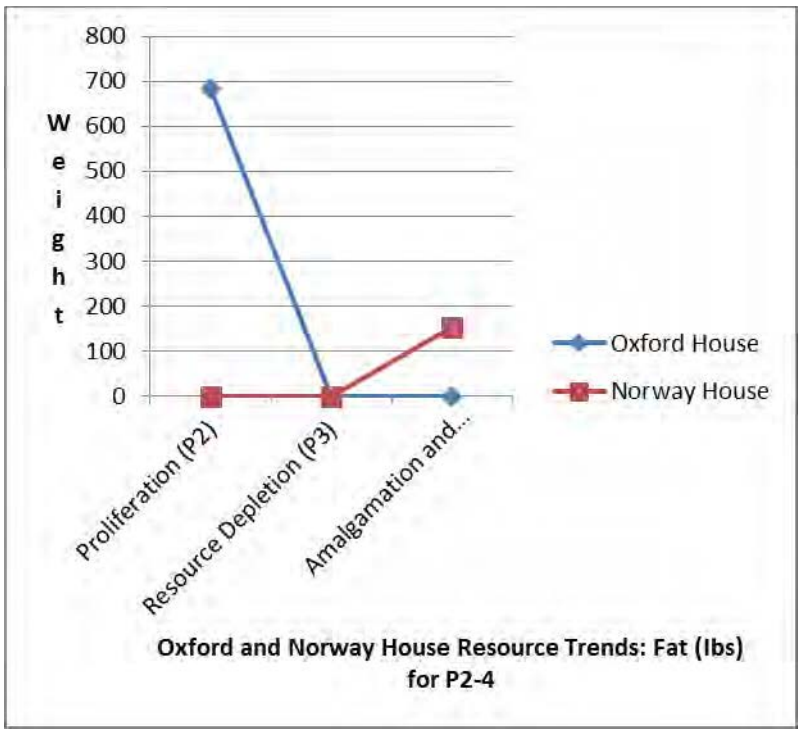

Figure 5.20 Amount of Fat recorded at Oxford and Norway House.

5.3 York Factory and Gordon House/Hudson Bay Lowland

Gordon House was a short-term (1794-1799) transhipment depot/provisioning post located 175 km upstream along the Upper Hayes River, close to the confluence with Gods River. York Factory was situated on the north bank at the mouth of the Hayes River, and functioned as the main entrepôt of the HBC for an extended period of time. York Factory spans the entire study period (1773-1835), with Gordon House is only represented by Period 2 (1794-97).

5.3.1 Furs and Hides

5.3.1.1 Made Beaver and Unspecified Skins

In P1 York Factory recorded 19,599 MB being traded, with an increase to 30,000 MB in P2, possibly reflecting an increase in the amount of people involved in the fur trade. Gordon House had 1440 MB traded during P2 along with 60 indeterminate skins. The amount of MB decreased significantly in P3 at York Factory to 605, which possibly reflects the decrease in high value fur bearers in the hinterland. The amount of MB significantly decreased in P4 with 50 recorded in the journal. An additional eight indeterminate skins were traded as well, but the returns show a decrease in furbearers, or a possible change in the quantification methods (Figure 5.21).

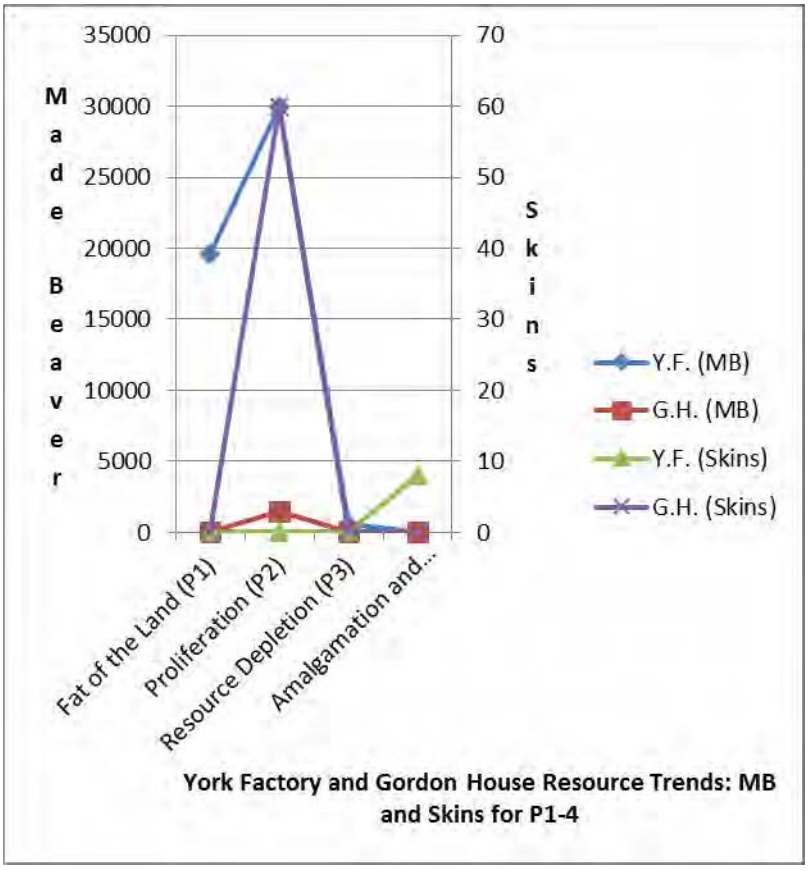

Figure 5.21 Amount of MB and Skins recorded at York Factory and Gordon House.

5.3.1.2 Beaver

Six beaver skins were recorded at York Factory in P1, followed by a sharp decline in P2 with no beaver skins being recorded. In P3 there were 89 skins traded, which then again declined to none in P4 (Figure 5.22).

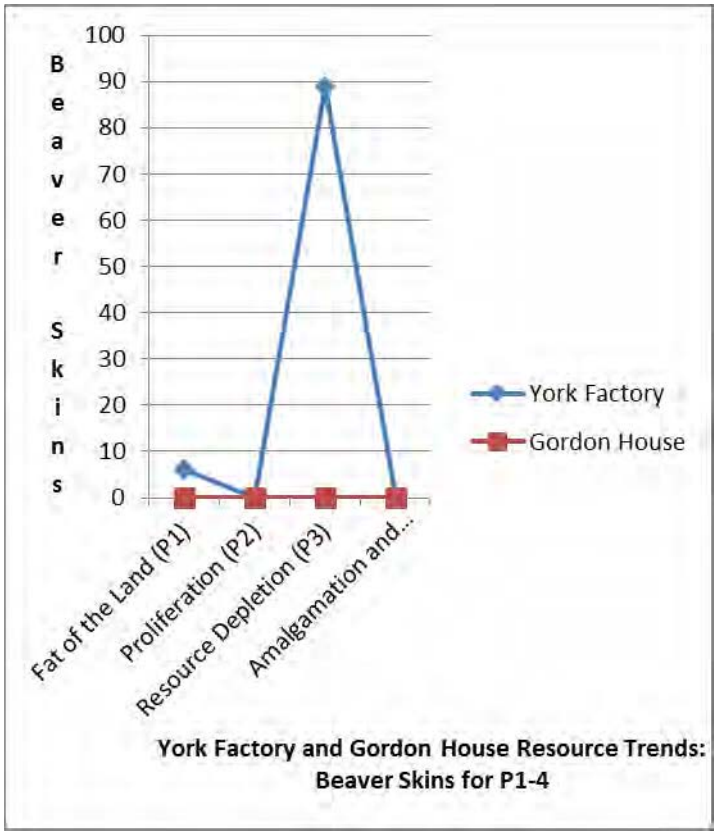

Figure 5.22 Amount of Beaver Skins recorded at York Factory and Gordon House.

5.3.1.3 Muskrat

Muskrats were not residents of the Hudson Bay Lowlands and did not play a big role in the trade at York Factory or Gordon House. There were no muskrats recorded in P1 or P2, but P3 saw an increase with 658, followed by a sharp drop to zero in P4 (Figure 5.23). There were no muskrats recorded at Gordon House in P2. The muskrats recorded at York Factory in P3 where largely traded by "Bungees" (English-descended Metis), possibly from the east side of Lake Winnipeg or the Saskatchewan River area.

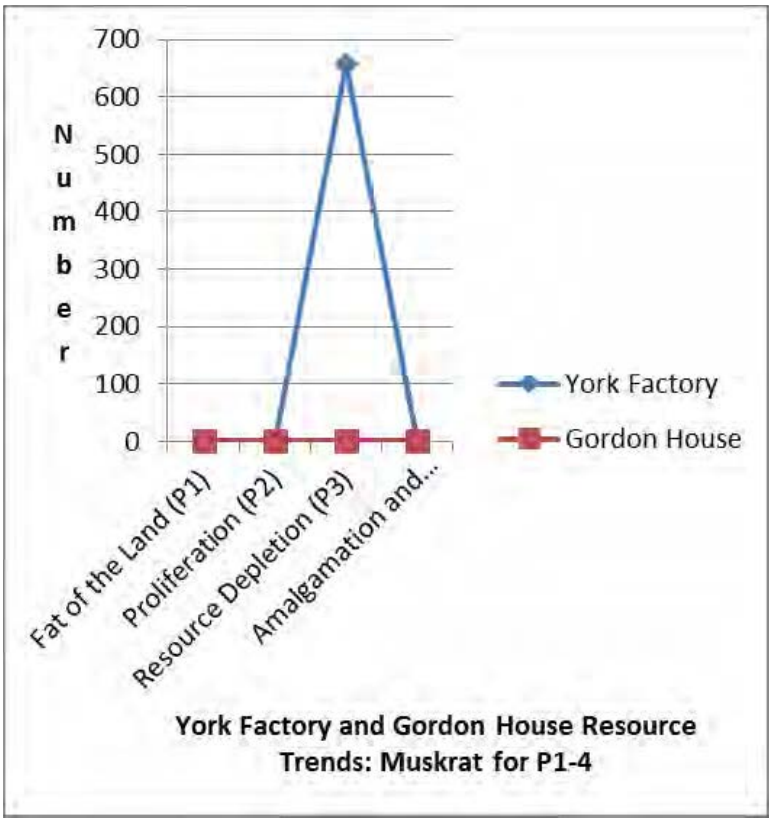

Figure 5.23 Amount of Muskrats recorded at York Factory and Gordon House.

5.3.2 Provisioning

5.3.2.1 Beaver

Beaver were available inland from the coast. In P1 20 whole carcasses were recorded at York Factory, along with fourteen tails. In P2 beaver carcasses slightly increased to 23; Gordon House recorded 112 pounds of meat along with three carcasses. P3 saw a great increase in beaver numbers with 526 carcasses traded at York Factory along with 32 pounds of meat as well as 32 pounds of castoreum. P4 witnessed a significant drop in beaver numbers with none recorded at York Factory (Figure 5.24).

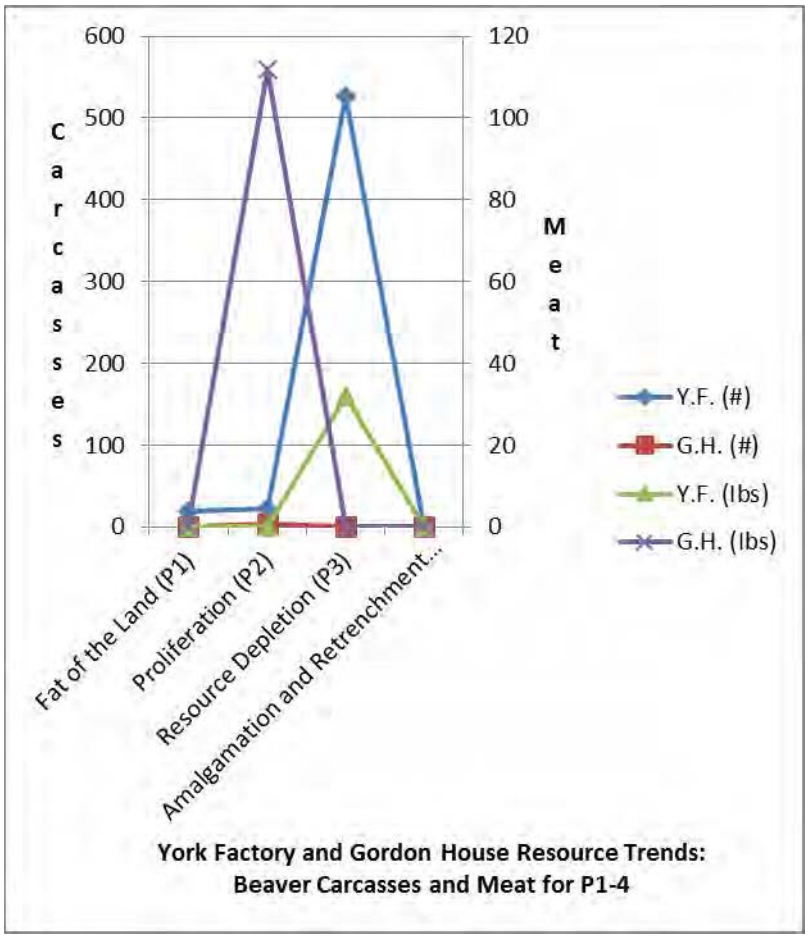

Figure 5.24 Amount of Beaver recorded at York Factory and Gordon House.

5.3.2.2 Large Mammals

Caribou played a pivotal subsistence role in the Lowlands. In P1, York Factory recorded a total of 474 whole carcasses (Figure 5.26) along with 304 heads, 1480 tongues, 40 hearts, 68 “rump,s” and 51 “sides” (Figure 5.27). There was no processed meat recorded, possibly due to different recording methods implemented by the Chief Factor. Due to the limited availability of moose in the lowlands, only one moose carcass was recorded in the journal of York Factory (Figure 5.25). There was, however, 116 “sides” of moose brought in. It is difficult to infer if the moose were harvested locally or were imported by Aboriginals from a distance. The moose meat was dried and traded during the fall and summer, which might reflect that the moose originated inland from the coast. During P2 the number of caribou carcasses decreased to 156 with 60 heads traded. However, the amount of processed meat traded increased to 2000 pounds (Figure 5.26). Gordon House provided seven whole carcasses with an additional 526 pounds of meat. The amount of moose harvested dropped at York Factory to a count of zero and at Gordon House only one moose was traded (Figure 5.25). There was a substantial increase in P3 at York Factory with 312 whole caribou carcasses (Figure 5.25) recorded along with 40 heads, 160 tongues and eleven “rumps” (Figure 5.27). There was 23591 pounds of processed meat traded (Figure 5.26). No moose were traded at York Factory during this period. In P4 the number of caribou carcasses declined to 80 (Figure 5.25) along with fifteen heads, 35 tongues and 27 “rumps” (Figure 5.27). There was 7850 pounds of meat recorded

(Figure 5.26) along with 602 caribou skins. The emphasis on caribou skins was possibly due to the low number of MB received during that period. No moose were recorded in P4. In the figures below, moose meat was not included due to the fact that no moose meat was recorded for the region and Gordon House was not included in the figure representing caribou by-products. Gordon House did not record any in P2.

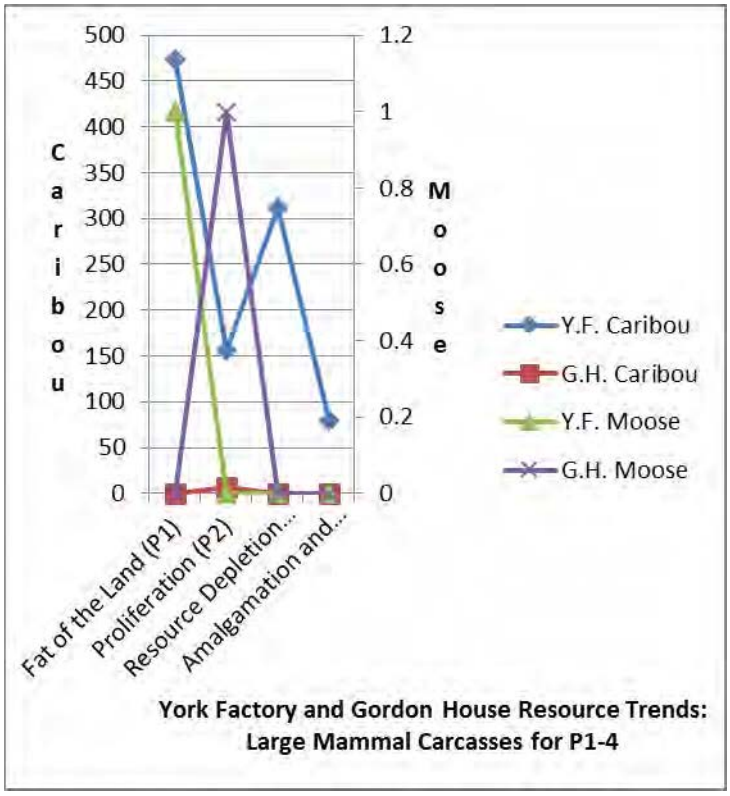

Figure 5.25 Amount of Large Ungulate Carcasses recorded at York Factory and Gordon House.

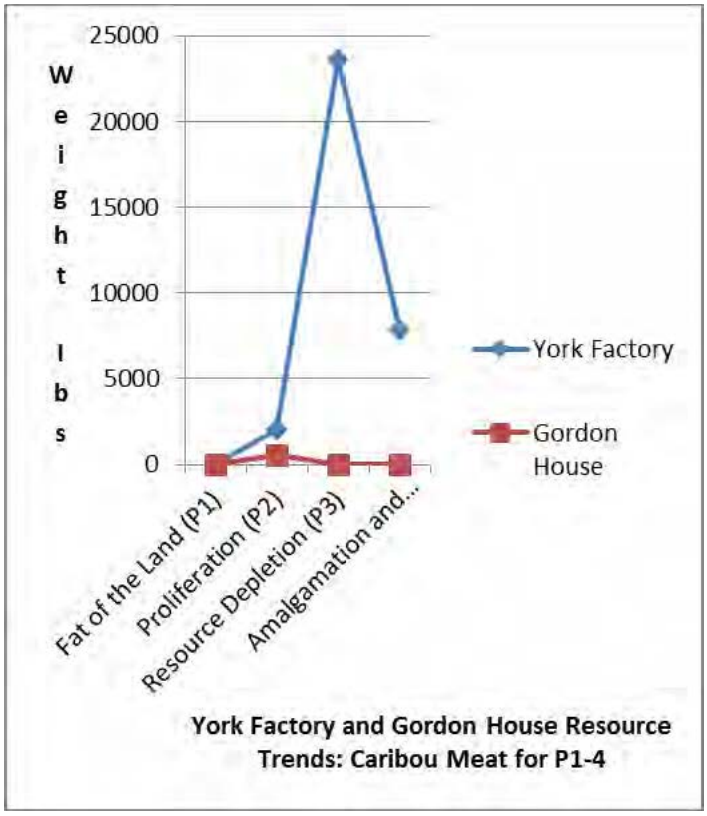

Figure 5.26 Amount of Caribou Meat recorded at York Factory and Gordon House.

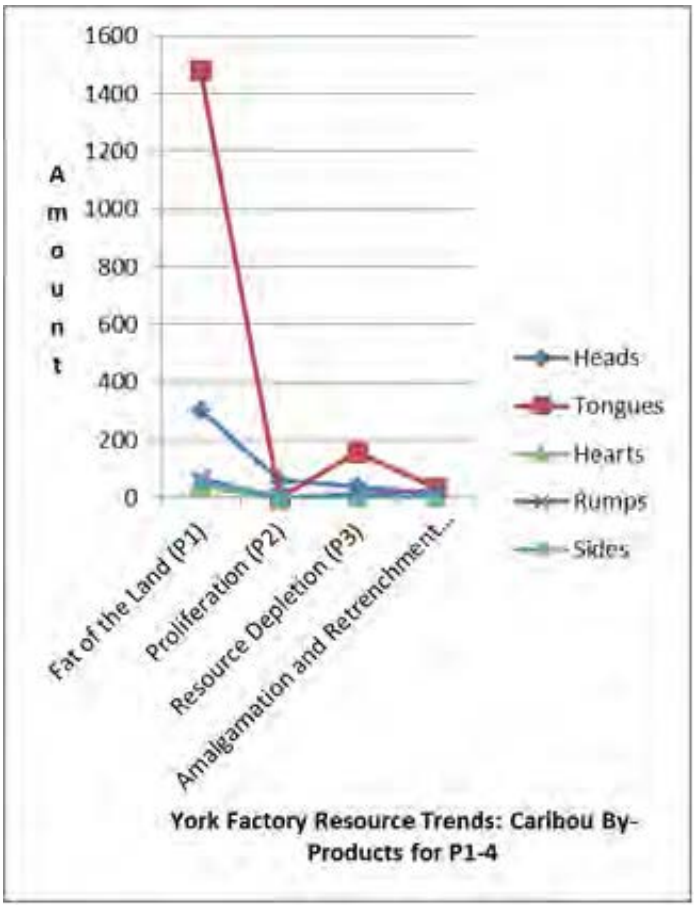

Figure 5.27 Amount of Caribou By-products recorded at York Factory and Gordon House.

5.3.2.3 Fishing

Fish initially did not play a prominent provisioning role at York Factory, but became more important over time; the journal recorded a total of 1446 fish in P1. In P2 fish were quantified differently at York Factory, using weight (lbs) instead of enumeration by carcass numbers. The totals for York Factory were 984 pounds for P2 along with 90 pounds and sixteen individual fish from Gordon House. In P3 the number of fish procured at York Factory increased to 3554, which indicates a growing importance placed on fish as a resource. The number of fish recorded in

P4 increased greatly with 20529 harvested (Figure 5.28). The steady increase in numbers of fish harvested reflects the growing importance of fish as the fur trade expanded.

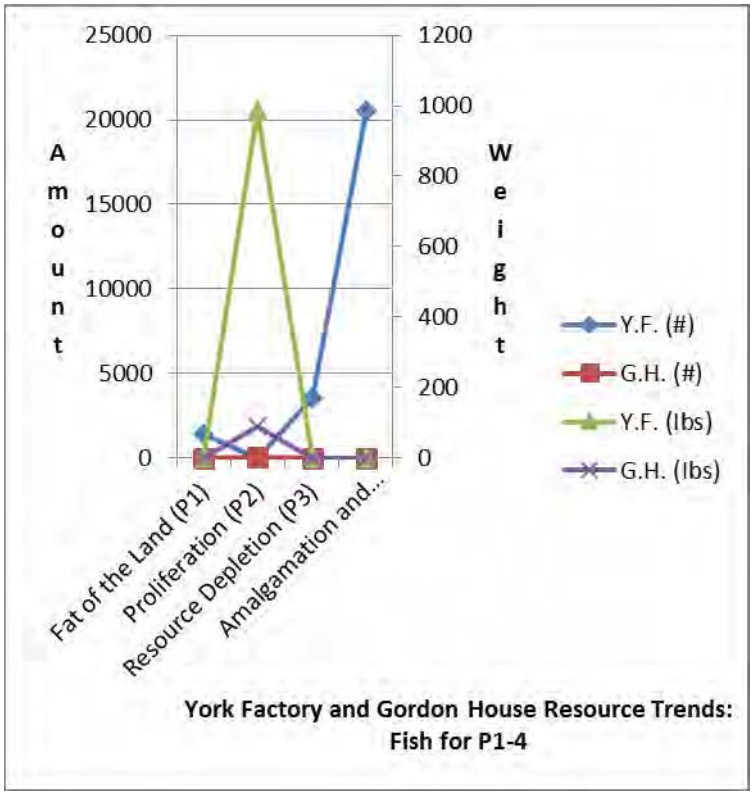

Figure 5.28 Amount of Fish recorded at York Factory and Gordon House.

2.3.2.4 Hare

Hare could be found all over the Lowlands. During P1 York Factory recorded a total of 207 carcasses. This relatively modest return might reflect the importance of ptarmigan during this period. Hare numbers decreased to 24 in P2 at York Factory, however, at Gordon House 219 carcasses with 160 skins were recorded. The data indicates a moderate hare population existed in the hinterland of York Factory. York Factory recorded an increase with 646 hare carcasses with

an additional 63 skins in P3. In P4 the numbers in hares peaked at 816, which is possibly due to the decrease in other furbearers (Figure 5.29).

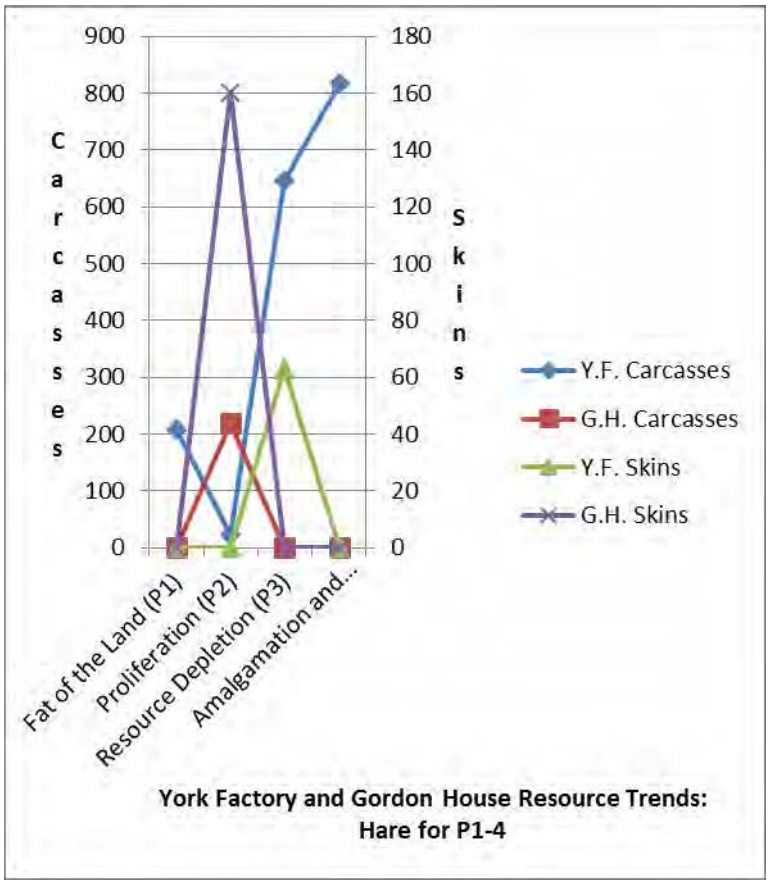

Figure 5.29 Amount of Hare recorded at York Factory and Gordon House.

2.3.2.5 Migratory Water Fowl

Migratory waterfowl played a major role in the subsistence round on the coast, but were not used as an indicator of the harvest practise of Gordon House. Differing methods were used in the quantification of the fowl based on whether they were brought in fresh or salted and stored in barrels at the hunting camps. In P1 York Factory recorded 4643 carcasses and sixteen barrels of salted fowl.

There was a decrease in the harvest of water fowl in P2, with 3012 carcasses recorded along with 107 harvested at Gordon House. Waterfowl harvest increased during P3, with 3556 carcasses and 24 barrels of salted fowl recorded. In P4 water fowl numbers peaked at 4822 carcasses along with 66 barrels of salted fowl recorded (Figure 5.30).

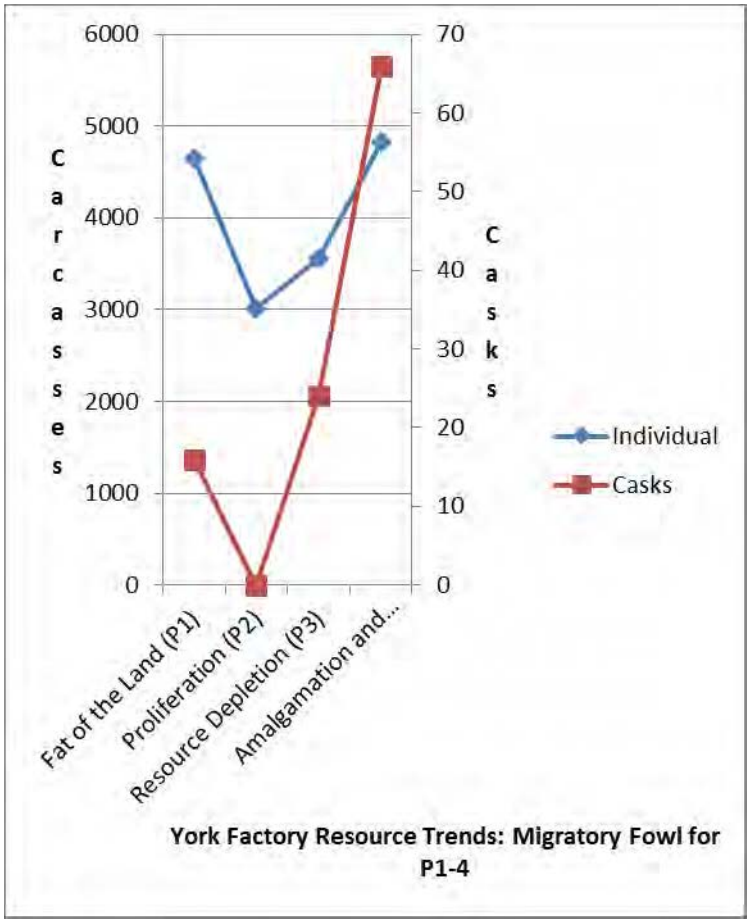

Figure 5.30 Amount of Migratory Waterfowl recorded at York Factory and Gordon House.

5.3.2.6 Ptarmigan

Ptarmigan were an important dietary supplement for York Factory. In P1 there were 12209 recorded. P2 saw a decrease to 2128 in ptarmigan numbers at

York Factory, while Gordon House recorded an additional 146. An increase at York Factory in P3 saw 7888 ptarmigans recorded. There were 5719 ptarmigans recorded in P4, a moderate decrease from P3 (Figure 5.31).

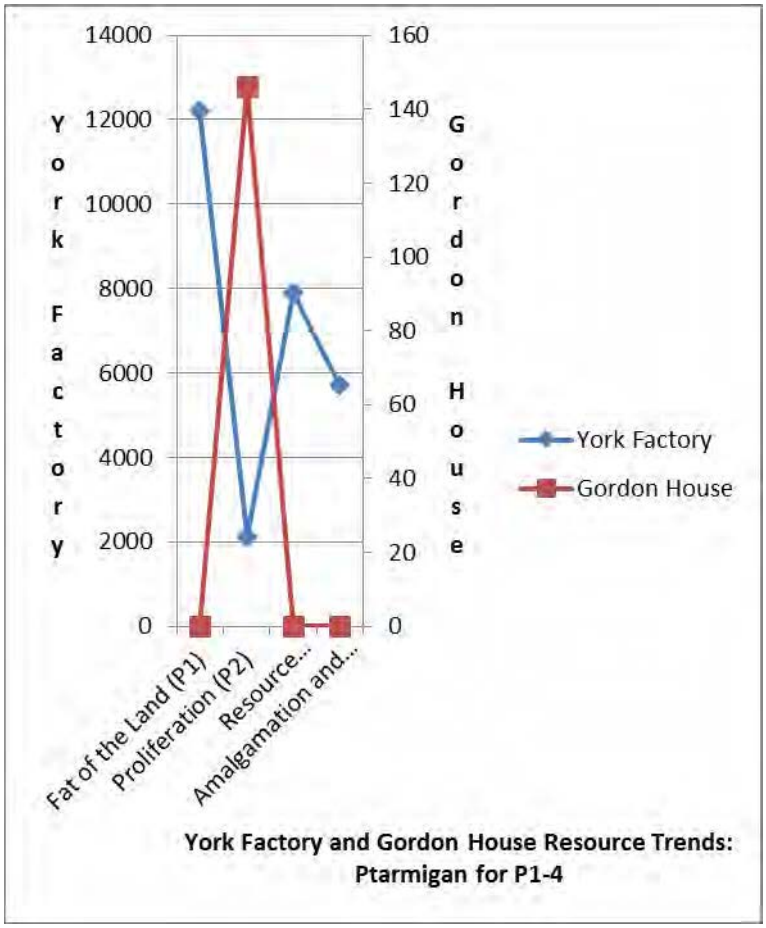

Figure 5.31 Amount of Ptarmigan recorded at York Factory and Gordon House.

5.3.2.7 Pemmican/Fat

In P1 there were 767 bladders of fat recorded at York Factory; this unit of measure indicates that animal bladders (likely large mammals) were used to contain rendered fat. No pemmican was traded. P2 shows no entries of fat or pemmican being traded at York Factory, however, at Gordon House 36 pounds of

fat and 30 pounds of pemmican were traded. There was a tremendous increase in the amount of fat recorded in P3 with 960 pounds traded along with fifteen bags and 5697 pounds of pemmican. The majority of the pemmican was imported from the Red River District as well as the Saskatchewan District. There wasn't any fat recorded in P4, however, there were 163 bags of pemmican, 58 imported from the Red River Settlement and 105 brought in by an Aboriginal hunter associated with York Factory (Figure 5.32) (HBCA B.239/a/148).

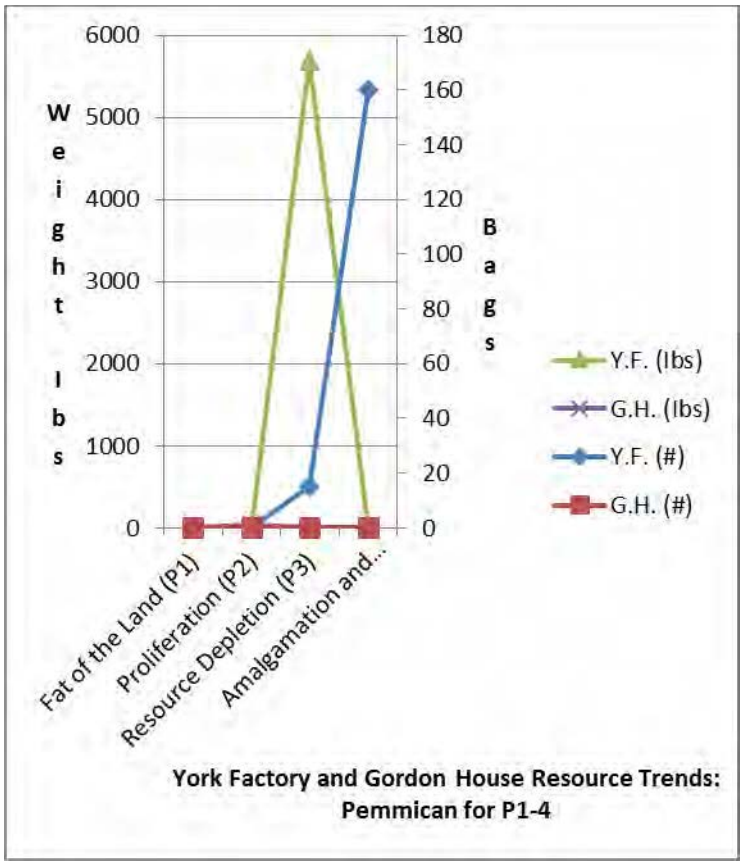

Figure 5.32 Amount of Fat and Pemmican recorded at York Factory and Gordon House.

The journals examined contain considerable data of highly variable quality and comparability. The variability proved problematic for analysis. The thesis offers a general overview, coupled with more detailed consideration of specific types of country produce that were most likely to provide insight into shifts in availability that might reflect fur trade predation pressure. These trends will be interpreted in the next chapter.

CHAPTER 6

DATA INTERPRETATIONS

This chapter summarizes the data collected from journals written at the five trade posts under study operating over a sixty-two year period, beginning in 1773 and ending in 1835. Journals were selected at intervals to reflect general trends over time, and to accommodate document availability. The data is summarized and interpreted in two ways: 1) intra-site analysis that focuses on change through time at each post; and 2) inter-site analysis to offer comparisons among posts in different biomes throughout the study period. Posts located within the same ecozone (and with similar animal resources) will be addressed together, and then compared to those located in different ecozones. The function of each of the posts will be described since this influenced to some degree the resources traded. Analysis of the posts will begin with Cumberland House and proceed northeast down the "middle-track" until it reaches York Factory on the Hudson Bay coast.

For consistency, the same format of the previous chapter is followed. It begins with a description of trends in the data for each of four periods: P1) Fat of the Land (1773-78); P2) Proliferation Period (1793-01); P3) Resource Depletion (1810-21); and P4) Amalgamation and Retrenchment (1827-35). Discussion

focuses on how the records for posts in each eco-region reflect the state of the local ecology, and the adaptive measures required in the face of intensive resource harvest. These adaptations might reflect the trade and provisioning response of the European traders, as well as the behaviour of Aboriginal people who were simultaneously addressing domestic subsistence needs and supplying country goods to European traders.

For clarity of interpretation and analysis, discussion is focused on key species or commodities deemed to be the best indictors of ecosystem health within the trade post hinterland. Keys include animal species targeted as preferred commercial and subsistence commodities, and therefore, offer the best indicators of trade-induced declining availability, and shifts to alternate (less attractive) prey species.

Cumberland House: Boreal Forest/Deciduous Parkland Interface.

Established in 1774, Cumberland House was the first inland post officially sanctioned by the HBC to undertake inland fur trading (Ray 1974). It was situated on Cumberland Lake, part of the Saskatchewan River system, along the ecotone boundary between the boreal forest and the deciduous parkland belt. It was built to counter stiff competition that began after the 1751 establishment of French trade posts upstream from Paskoya (The Pas) (Russell 1982), and especially after 1760 when English-speaking traders took over the French fur trade system (Innis 1930; Klimko 1982).

As the inland fur trade developed, Cumberland House gradually transformed to become a provisioning depot for the canoe brigades plying the

interior. Its strategic location derives from its proximity to major water transportation routes, and to the northern plains with its vast bison herds. The post initially served to procure beaver skins, but over time there was a steady decrease in the value of Made Beaver (MB) recorded as traded (Figure 6.1). MB was the currency standard used in the trade, with all trade goods priced relative to the value of one prime beaver pelt. MB doesn't necessarily mean just beaver furs, but can reflect the value in the MB trade standard of various products. While the quantity of MB decreased through time (Figure 6.1), the total number of skins traded moderately increased during P2, before collapsing during the last two periods under study (Figure 6.1).

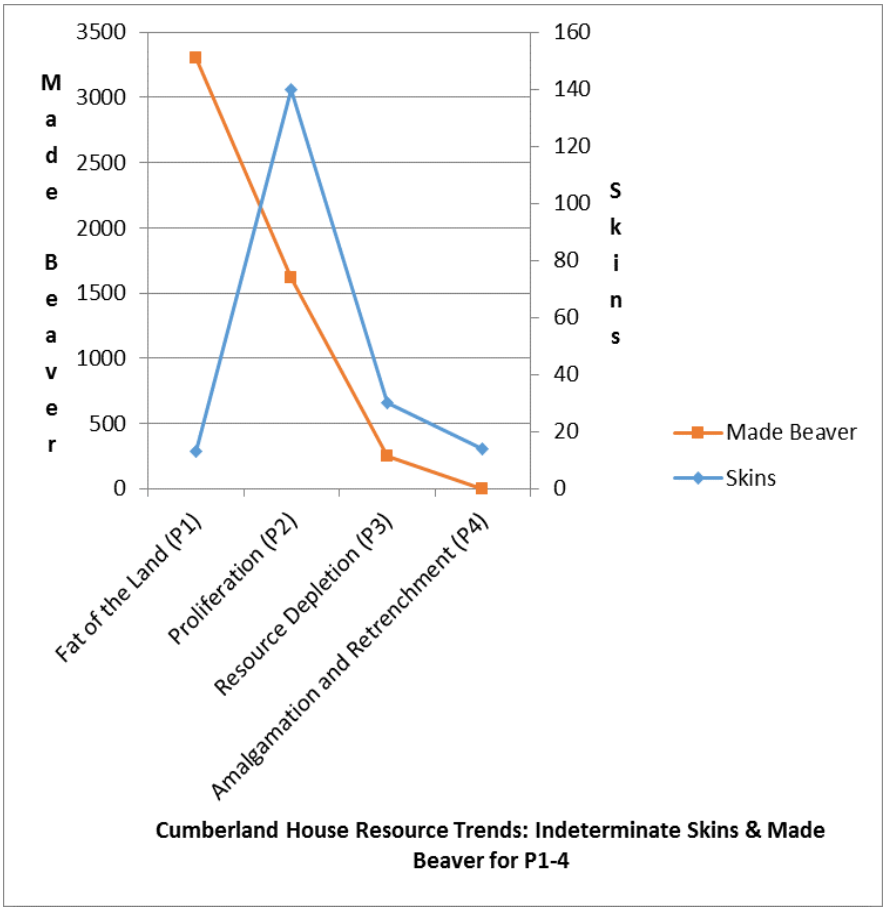

Figure 6.1- Number of Made Beaver and Skins traded at Cumberland House.

Trends Cumberland House reflect its changing role in the HBC trade. P1 witnessed a significant number of MB recorded, but saw a steady decline through time, with only 250 MB recorded in P3 and none in P4 (Figure 6.1). The commercial emphasis appears to have changed from furs to processed meat, the production of pemmican, and importation of pemmican for redistribution along the transportation network. The number of indeterminate skins recorded fluctuates through the four periods, with a peak in P2.

Consistent with the post's initial function to seek furs in direct competition with the Montreal traders, the first period is characterized by high numbers (3302) of MB recorded (Figure 6.1). Only thirteen unidentified skins were recorded from this period, and they may reflect the efforts of hunting parties trading at the post. While the post was established in a region that had been subject to direct trade for at least a quarter century, it likely only faced intense competition after the 1760s, and P1 likely represents a time of comparatively abundant fur and food resources still available from an expansive trade hinterland.

Throughout P1-4 journals reference fur bearer scarcity sixteen times and starvation fifteen times (Figure 6.2), which could reflect what Black-Rogers (1986) terms "Trade Rhetoric," which frames aspects of the bargaining relationship between the trader and the trapper. The data shows a clear correlation between starvation references and low MB numbers. These correlations could be interpreted several different ways: 1) a literal reference to the consequences of depleted stocks of furbearers within the post's immediate hinterland; 2) a rationalization or excuse why more furs were not traded (in face of direct competition from Montreal traders); or 3) Trade Rhetoric. In P1 Aboriginal

trappers report high numbers of MB and frequent starvation and fur scarcity, which may reflect the function of Cumberland House as an inland depot at a time of proliferating competing interests in the Saskatchewan River Delta. The competition for furs might have contributed to resource stress that is reflected in reports of starvation and fur scarcity. However, 3302 MB were recorded as well as 1132 marten, which indicates a healthy population in fur bearers. This contradiction suggests that trade rhetoric was designed to induce Europeans to offer charity or more favourable trade terms. During P2 Cumberland House transformed from a fur depot to a provisioning post, reflected in the decreased number of MB recorded (1620), and reduced references to starvation (2) (Figure 6.2). There was a slight decrease in the references of fur scarcity with four recorded (Figure 6.3). At the same time there was a substantial increase in trade in country produce harvested locally, as well as a large volumes of pemmican imported from the plains. The references to fur scarcity indicates that some fur bearers were depleted or reduced in number, evident in the amount of martens recorded (none), but an increase in the amount of beaver skins traded (110) contradict this possibility. P3 and 4 saw a further reduction in the amount of MB recorded as well a stabilization to references of starvation and fur scarcity (Figures 6.2, 6.3), indicative of the function of the post and the healthy trade in country produce. There was also an increase in the amount of martens traded with 4588 indicating an increase in fur bearer yield.

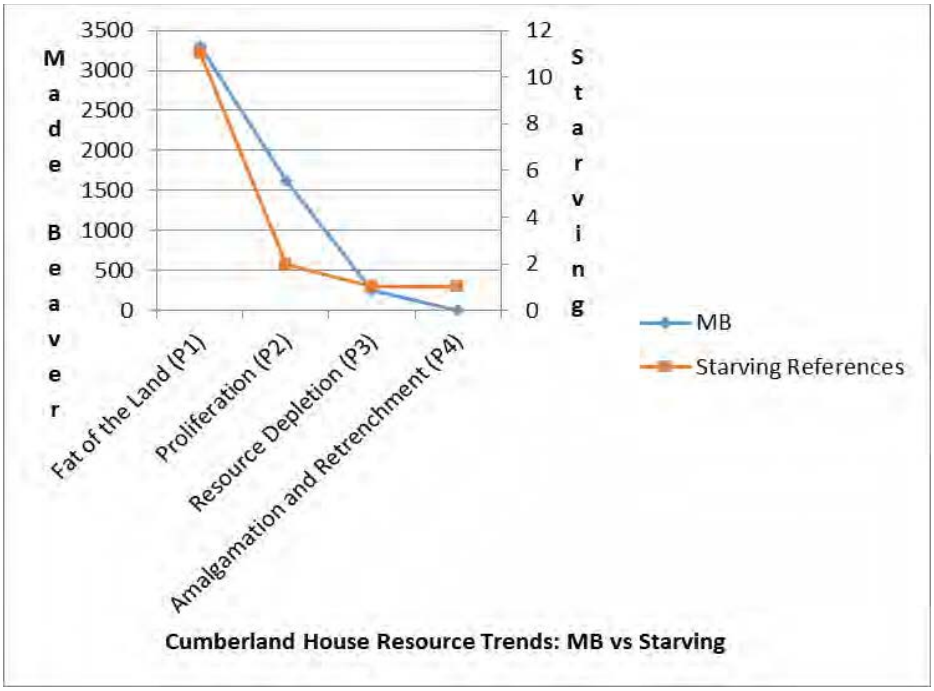

Figure 6.2: Correlation between MB traded and References to Starvation

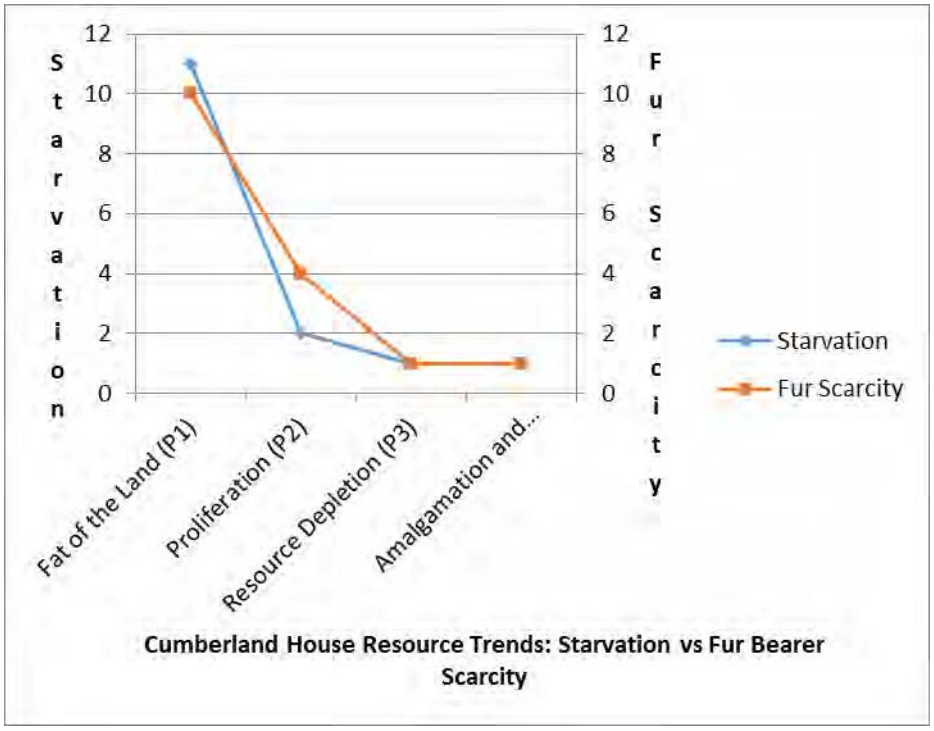

Figure 6.3: Correlation between Cases of Starvation and Cases of Scarcity of Fur Bearers at Cumberland House.

During Period 1, no muskrat are reported as forming part of the Cumberland House trade (Figure 6.4). Given the location of Cumberland House within the Saskatchewan River delta (with its many wetlands), it can be assumed that muskrat were readily available during the earlier time periods, but they do not appear to have been an important trade commodity, which may reflect the preferences in the European fur market that focused on beaver at this time. The minimal trade role of muskrat persisted until the Resource Depletion Period (P3), at which point muskrat sharply increased in importance (6517), and even more dramatically in P4 with 99862 recorded (Figure 6.4). Ray (1990) states that muskrats gained popularity in the late 19th and early 20th centuries as lining for coats. The sudden and significant rise in numbers of muskrat might indicate an early development of this phenomenon that is seen later in time.

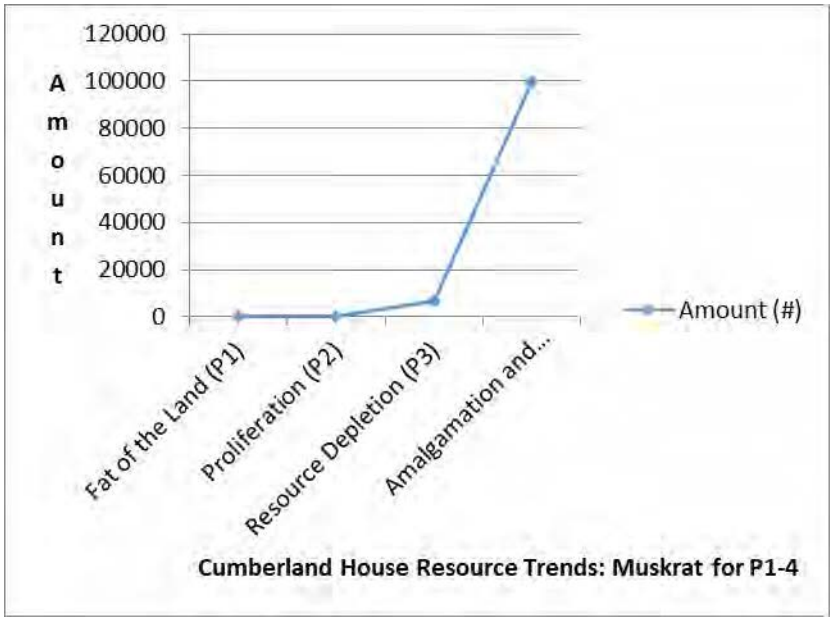

Figure 6.4: Muskrat Traded for Periods 1 to 4 at Cumberland House.

The number of harvested fish recorded in the post journals during P1 (1129) indicates that they were not as important as they would become (Figure 6.5). Cumberland House, located on the shores of Cumberland Lake, had access to a good fishery. Lake sturgeon was the most frequently reported fish in P1, followed by whitefish, northern pike, and unnamed species placed in a general category (Figure 6.6).

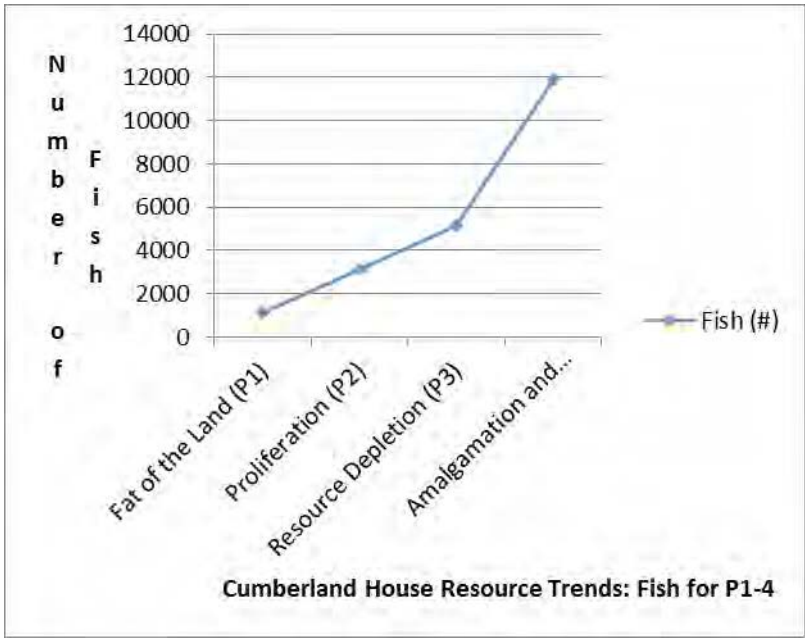

Figure 6.5: Number of fish Recorded for Periods 1 to 4 at Cumberland House.

Fish were available throughout the year, but during the spring and fall spawning runs many fish could be easily procured and stored for later consumption. Lake Sturgeon spawn in the spring, while whitefish spawn in the fall. The data reflects the abundance of lake sturgeon, either harvested as seasonal resource or taken throughout the winter. Lake sturgeon grew to a

substantial size and were rich in fats and vitamin C, making it a very important resource. The majority of the fish harvested were procured by either post employees or local Aboriginals hired temporarily to provision the post (HBCA B.49/a/6). The data from Cumberland House demonstrates that fish grew in importance with the post's provisioning function (Figure 6.5). The numbers of lake sturgeon recorded decreased after peaking in P2, replaced by increases in white fish, northern pike, and indeterminate fish. Lake trout, perch or suckers/burbot were not included because of the small quantity recorded. This increased emphasis on fish might reflect a decrease in large terrestrial mammals such as the moose, particularly after P3, as well as lower valued resources such as hare, which declined after P3 (Figure 6.6).

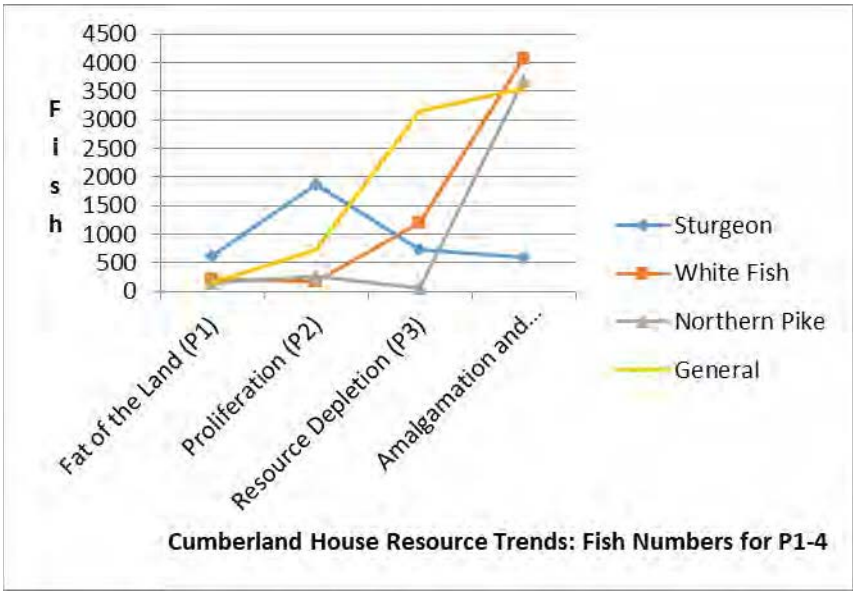

Figure 6.6: Species Frequency for Periods 1 to 4.

Moose Moose played a pivotal economic role in terms of meat, fat and hides in large measure due to the significant yield of edible products, with adult males weighing between 329 and 635 kg and adult females between 227 and

408 kg (Winterhalder 1983). Woodland caribou were another source of highly valued fat-rich tissue and skins that were available in the Cumberland House area. Smaller, yet more gregarious, the caribou were sometimes found in small herds numbering around eight (Hebert 2015). The Cumberland House records show little indication that moose were harvested by the HBC employees (HBCA B.49/a/1-6). Perhaps Europeans lacked the requisite skills needed for finding and stalking moose. Likely the reported moose produce reflects the efforts of local Aboriginal post hunters who were paid on a piece-work basis, or Aboriginal hunters who brought moose products in to trade.

Colpitts (2008) quantified the different measurements in Cumberland House journals between 1775 and 1782 by comparing the amount of meat one canoe could carry (approx 250 lbs) and estimated two sleds equal one canoe and four people carrying between 45 and 80 pounds equal to one canoe. This system was not used here because it was thought that these values are arbitrary.

During P1 a total of 1775 pounds of value-added meat (smoked, pounded/beaten, dried, half dried) was recorded in the Cumberland House journal, as well as thirteen whole carcases and two sides (HBCA B.49/a/1-6). A total of 1229 pounds of green (i.e. fresh) meat was recorded, along with 546 pounds of half dried meat. These data suggest that a stable moose population that was surplus to local Aboriginal needs remained in the area. The thirteen whole carcasses traded in the summer by Aboriginals support the perspective that moose remained in the hinterland and were not yet under stress. The majority of the green meat (884 lbs) was traded during the winter (Figure 6.7), during which time moose are somewhat easier to track and locate (Winterhalder

1983). During the winter the cold weather removed the need to dry or smoke fresh meat to prevent spoilage. In the summer and fall 345 pounds of green meat was traded (Figure 6.7), suggesting that moose was harvested within comparatively easy transportation distance of the post. The post records fail to mention the origin of the Aboriginals trading the meat, but indicate that some of them were post hunters who established a hunting tent close to the post (HBCA B.49/a/1-6), suggesting that they were engaged to hunt on behalf of the post. The journal shows 546 pounds of half-dried moose meat (Figure 6.7), the majority of which (496 lbs) was traded during the spring when drying it would have been necessary to avoid spoilage.

Figure 6.7: Moose Meat seasonality for Period 1

The increase in moose carcasses recorded in P2 (28) as well as 410 pounds of processed green meat (Figure 6.8) indicates increased harvest

intensity, which is indicative of the changing role of Cumberland House from that of a fur depot to a provisioning post. Moose were harvested by an Aboriginal hunter hired on a piece-work basis to supply the post with whole carcasses. An Aboriginal hunter traded 410 pounds of moose meat, but some post employees were sent to his camp to transport the meat back to the post.

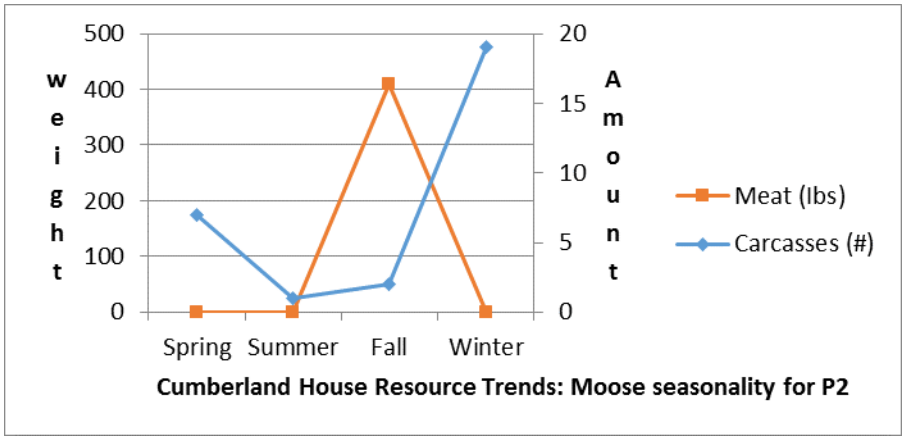

Figure 6.8: Seasonality of Moose for Period 2.

The moose harvest decreased during P3, with eight carcasses recorded, but there was an increase in the amount of processed meat (2240 lbs) and two noses traded (Figure 6.9). The bulk of the meat was recorded during the winter months and was supplied by Aboriginal hunters employed by the post and post servants (HBCA B.49/a/34) (Figure 6.9). Records show a tremendous increase in the amount of moose skins (99) (Figure 6.9), despite Ray's data (1974) indicating a serious moose depletion in this time period. It is possible that the meat from these kills either was traded at competing posts or was consumed domestically. During P4 moose products completely disappear from the records, indicating either a resource collapse or an effort by the Aboriginal inhabitants to let the animal replenish itself (LeBlanc et al. 2011). During this period the woodland

caribou harvest increased to thirteen carcasses and the beaver harvest also increased (see below). Both of these species were high valued fat rich food.

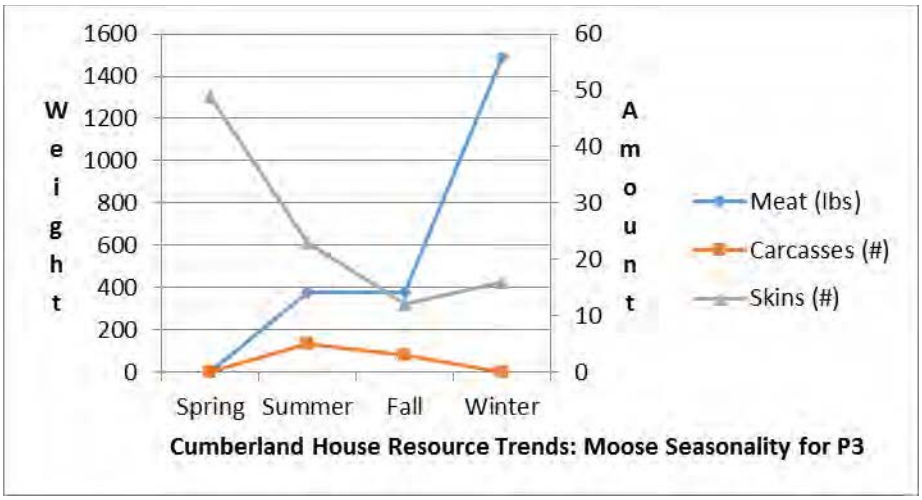

Figure 6.9: Seasonality of Moose for Period 3.

The data indicate a large and stable moose population in the Cumberland House hinterland during the early periods of occupation. We see substantial harvests up until P4 when the yield declined severely to none. This decline was offset by increasing amounts of imported foodstuffs from the plains in the form of pemmican and bison meat, which increased the provisioning capacity of the post and placed greater importance on fish and steady beaver yields. Caribou played a small role in the first three periods at Cumberland House. The amount of moose in the hinterland possibly reduced the need to harvest caribou. There were small harvests in P2 (three carcasses) and P3 (one carcass and 370 lbs meat) recorded, but these played only a secondary role to moose and beaver. However, after moose numbers significantly dropped in P4 (none), the role of caribou as a fat rich resource increased.

Beaver was a staple of the fur trade, not only as a valued trade commodity, but also as a food source. Adult beavers weigh between 24 and 71 pounds with an average of 44 pounds (Helm 1993), and have a high fat content, especially during the winter months. Beavers were prevalent in the Cumberland House area because of the favoured habitat consisting of many small lakes and tributaries. In P1 Cumberland House records show twelve whole beaver carcasses as well as 422 pounds of green meat (HBCA B.49/a/1-6). However, no skins were specifically reported as traded apart from the twelve whole carcasses. The decline is likely is an artefact of the recording system whereby beaver skins were probably quantified using the MB trade standard. The bulk of the green meat (410 lbs) was recorded in the spring, with twelve pounds received in the winter (Figure 6.10). Although the origin of the beaver meat (410 lbs) is unknown, it is safe to assume that it was harvested within the hinterland of Cumberland House since it was traded fresh during the spring. Because of the stable moose population in the region, Aboriginal people could afford to trade twelve beaver carcasses.

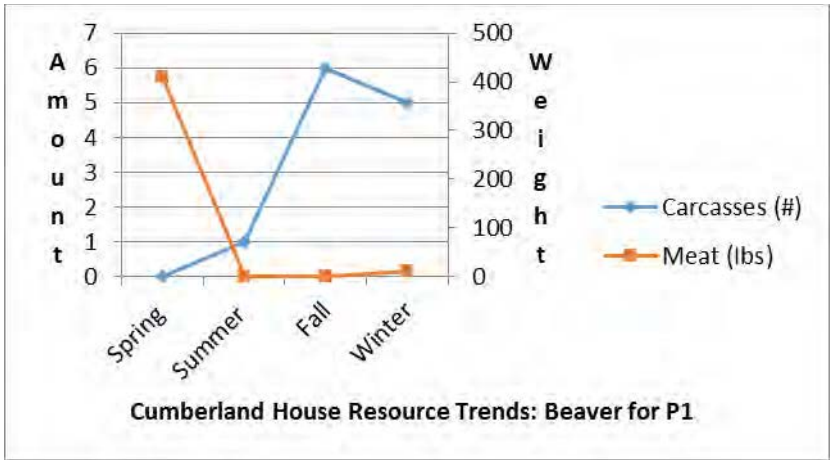

Figure 6.10: Beaver seasonality for Period 1 at Cumberland House

During P2 a sharp increase in the number of whole carcasses was recorded (58) along with 110 skins, but no processed meat. The majority of the beaver skins and carcasses were received during the winter, when the beaver was in its prime condition for fat and fur quality (Figure 6.11), indicating that beaver were harvested within the immediate hinterland of Cumberland House because the travel cost of winter trading was too high to permit long distance trade. There was a substantial increase in P3 with 234 carcasses traded, but with a slight decrease in skins (94). During this period a sizable population of beaver remained within the post hinterland (Figure 6.12). P4 saw a further increase in the amount of whole carcasses traded (388), but with a significant reduction in the amount of skins recorded (24). The comparatively heavy trade in beaver carcasses continued into P4 (388), but the trade in pelts declined to 24 (Figure 6.12). These patterns are contrary to the findings of Ray (1974) and Lytwyn (1981) during this period.

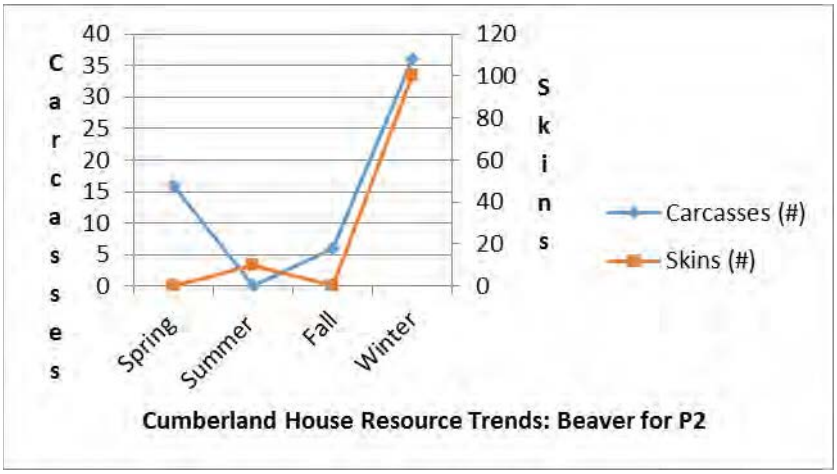

Figure 6.11: Beaver seasonality for Period 2

The substantial number of beaver traded at Cumberland House may be indicative of a healthy population, however, we don't know if it reflected the harvest within the immediate Cumberland House hinterland. Some beaver were traded with Inninew from Sturgeon River and Moose Lake, and others originated in different parts of the Saskatchewan River drainage (HBCA B.49/a/28-30;34). In any case, contrary to expectations, the beaver trade seemed to be sustained through time, with a harvest of beaver carcasses and pelts continuing into P4, after amalgamation and George Simpson's reforms. It is difficult to infer if the beavers traded during the summer necessarily reflect furs taken "out of season." It might indicate trappers returning to the post from far distant regions with their winter harvest to pay debt and to receive their winter outfit. The amount of pelts recorded in P2 is indicative of consistent trapping throughout the winter with a onetime visit to the post in the spring. However, due to the level of competition during this period, some of the beaver could have been harvested out of season or during the warmer months. The market for beaver carcasses was expanding due to the need for fat-rich mammals because the number of moose recorded

was gradually decreasing possibly because of over-hunting. In contrast, Lytwyn (1981), who utilized beaver as his sole indicator of resource stress in the "Little North", or the area to the east of Lake Winnipeg, finds that the post records indicate a rapid decline of beaver numbers during the competition era.

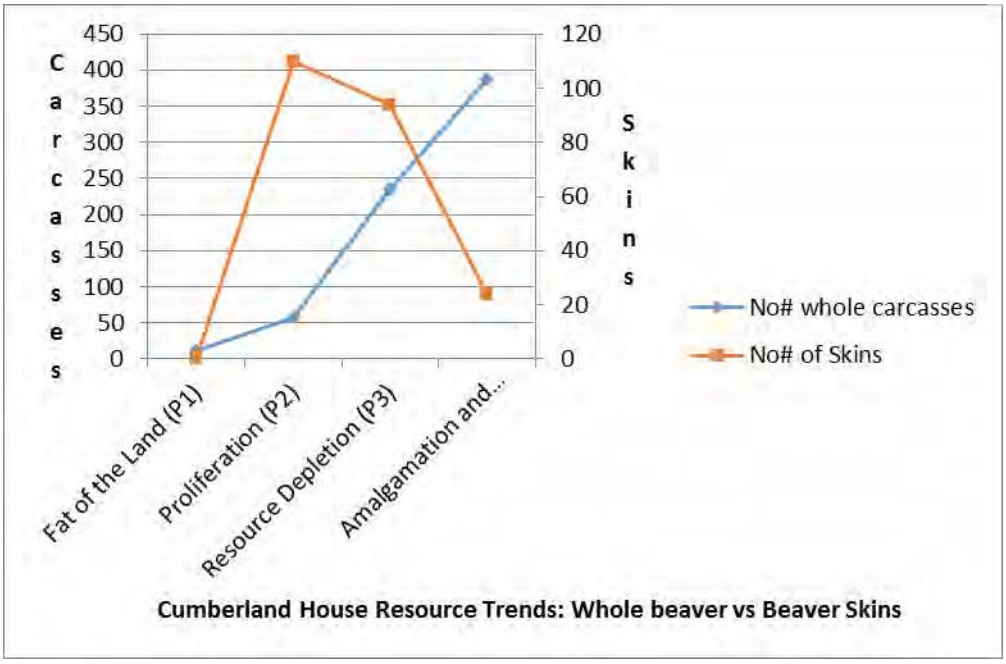

Figure 6.12: Beaver carcasses and skins for Period 1-4.

During P1 the Cumberland House journals indicate only 36 whole hare carcasses were procured, perhaps reflecting a low in the eight-to-ten-year natural cycle in hare productivity. All of these animals were acquired through the efforts of post employees with snare lines (HBCA B.49/a/1-6). No hares were recorded during spring and summer, while 21 were snared in the fall and fifteen in the winter (Figure 6.13). While some hares were clearly available in the surrounding area for Aboriginal harvest, they do not seem to be important trade items. Given the availability of high-value large game animals, this is hardly surprising. Hare yield only a small amount of lean meat, and they likely supplemented the diets of

both trappers and the traders (Ray 1984). Hare were also known as a “starvation” food, which people would ‘fall back’ on only when other economically valued terrestrial resources were scarce (Rogers 1967; Rogers & Black 1976).

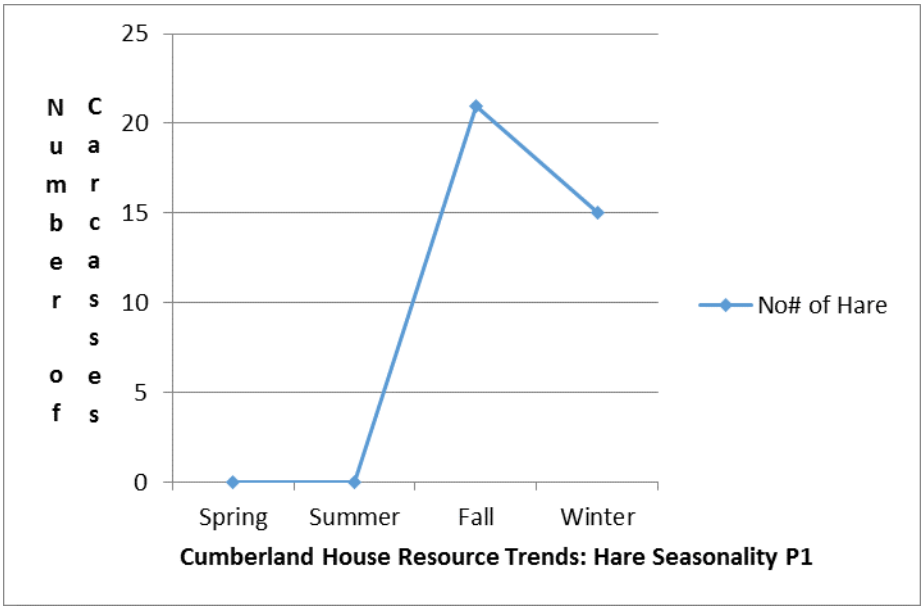

Figure 6.13: Hare seasonality for Period 1 at Cumberland House.

During P2 this situation changed dramatically, with a large increase in the number of hare recorded (720 carcasses, Figure 6.14). These numbers might reflect a greater emphasis on hare as a food staple, given the moderate number of fish harvested in P2. During P3, the number of hare harvested declined to 261 (Figure 6.4). During this time the number of fish reported increased as well as reference to the importation of a substantial amount of bison meat from the plains. This shift in food production may well have reduced the need for local intensive harvest of hare at this time. This trend continued during P4, with no hares recorded for Cumberland House, which might reflect return to a low ebb in the hare population cycle, or a redoubled effort at production of alternative country food such as fish and muskrats (Figures 6.4, 6.5).

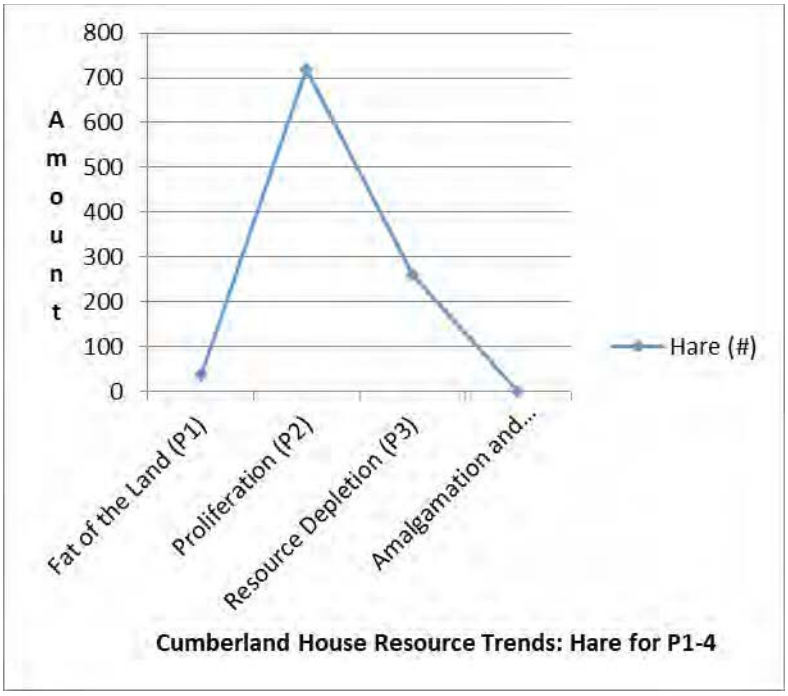

Figure 6.14: Hare numbers for Periods 1-4.

Pemmican became dramatically more important through time as Cumberland House's function switched from a fur depot to a provisioning post. In P1 very little pemmican (100 lbs) and minimal fat (142 lbs) were recorded (Figure 6.15). The journals were not explicit regarding the origins of these foodstuffs, but it is possible that they originated on the northern plains. P2 saw a drastic increase in the amount of pemmican recorded with 34 bags as well as 18 pounds of pemmican (Figure 6.15). There were 24 bags of pemmican imported, most likely from up the Saskatchewan River, and ten bags manufactured at the post. There were 236 pounds of fat on hand as well as an additional two bags of pemmican (HBCA B.49/a/28). This increase coincided with the change in function to provisioning posts. P3 saw a significant drop in the amount of pemmican (none) recorded, but an increase in the amount of fat (630 pounds) (Figure 6.15). However, 16784 pounds of bison meat was imported from the plains, and it is

likely that pemmican was manufactured at the post instead of importing it. Pemmican produced onsite was exported throughout Rupert's Land to facilitate inland travel of the fur brigades, while products like moose and beaver were consumed at the post by the servants. In P4 the importation of provisioned totalled 34 bags of pemmican, 1819 pounds of fat, and 5945 pounds of bison meat (Figure 6.15). The majority of the labour-intensive pemmican production occurred at outposts further up the Saskatchewan River. These outposts also assured sufficient raw materials (fat and bison meat) to permit pemmican production at Cumberland House. The majority of the fat originated up the Saskatchewan River, while 300 pounds were brought in from Aboriginal people trading at the post. Some of the fat originated in the coniferous forest and was very likely moose, elk, or caribou fat.

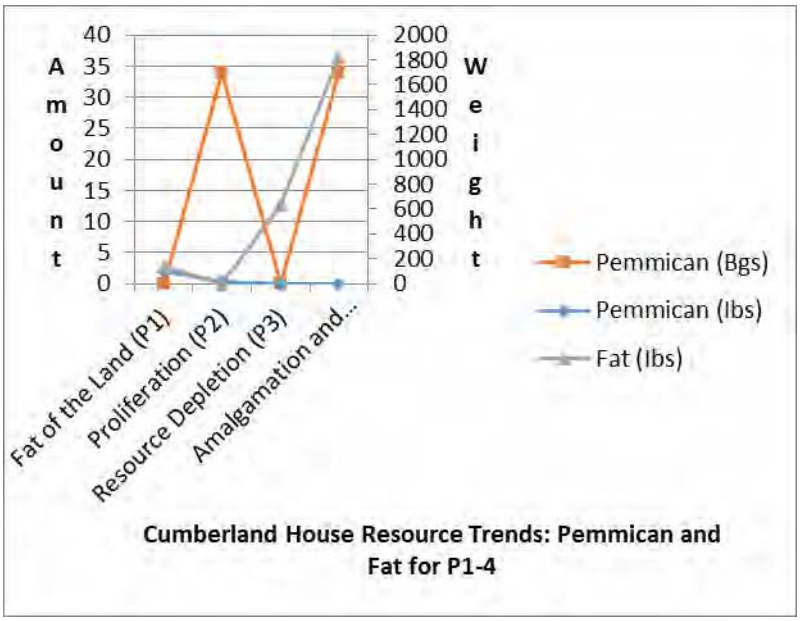

Figure 6.15: Pemmican and Fat for Periods 1-4 at Cumberland House

The patterns in the Cumberland House post journals throughout the four periods reflect a change in function from fur depot/entrepôt to a provisioning post to supply the transportation system. P1 displays greater emphasis on trading commercially valued furs (either recorded in MB, by individual species, or indeterminate species) with less emphasis on the trade in country food. The fishery at this early stage was relatively under-utilized and likely served only internal subsistence needs at the post, and with moose playing a more important dietary role. Beaver carcasses, while secondary to moose, remained an important food staple. No caribou were recorded in P1, perhaps due to the provisioning importance of moose. Concerted efforts to accumulate fat and pemmican were not as important as in later years, no doubt because of the comparatively undeveloped nature of the HBC trade network in the Saskatchewan River basin at this early time. In P2 an emphasis was placed on large bodied terrestrial game animals (more often moose than caribou) as well as fat rich aquatic mammals (beaver). The fishery gained more importance over time.

6.1 Norway House and Oxford House: Coniferous Boreal Forest

The HBC established Norway House along the Jack River in 1796 to compete with the “pedlars” or “Canadians” who were attempting to cut off the flow of furs *en route* from Cumberland House towards York Factory (Enns 1988). Norway House’s occupation only coincides with three out of the four study periods: P2, P3, and P4. Norway House’s initial function was that of a depot, but eventually developed into the HBC’s administrative headquarters for the Northern

Department (Enns 1988; Innis 1930). In 1814 the post was re-located to Warrens Landing at the headwaters of the Nelson River at the northeast corner of Lake Winnipeg, in the 1820's it was once again moved, this time to the Jack River approximately 20 km upriver from its original location (Enns 1988).

P2 was a time of growing demand for high value furs and food resources. The relatively high value of furs traded (1666 MB) (Figure 6.16) reflects both the post's success in this competition, and that the resource hinterland had not yet been severely impacted by intensifying harvesting pressures. Made beaver (MB) was the unit of measurement used in the trade and all trade goods (furs and meat) were priced in comparison to the value of one prime beaver pelt (HBCA B.156/a/1-3; HBCA B.154/a/1-3). At Oxford House a total of 4750 MB was traded (Figure 6.17), suggesting a circumstance similar to Norway House.

During P3 Norway and Oxford House report a combined total 247 MB: 27 for Oxford House and 220 at Norway House (Figures 6.17, 6.16), which reflects a sharp decline from P2, and may reflect a decrease in prime furs traded, or utilization of a different quantification method. During P4 the amount of MB traded slightly increased. A total of 773 MB along with 1400 indeterminate skins were recorded for Oxford (532 MB and 77 skins) and Norway House (241 MB with 1323) (Figures 6.17, 6.16). Again, this appears contrary to expectations deriving from Lytwyn (2002).

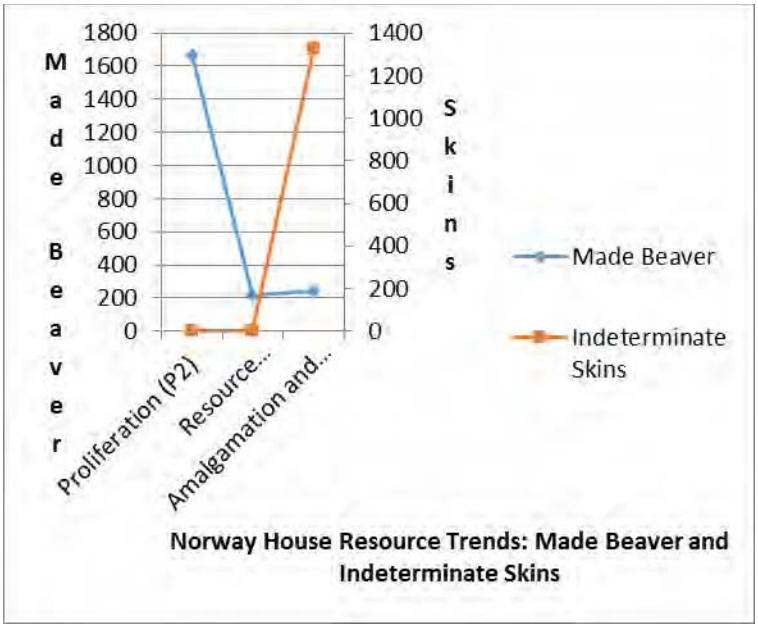

Figure 6.16: Made Beaver and Indeterminate Skins at Norway House for Periods 2-4.

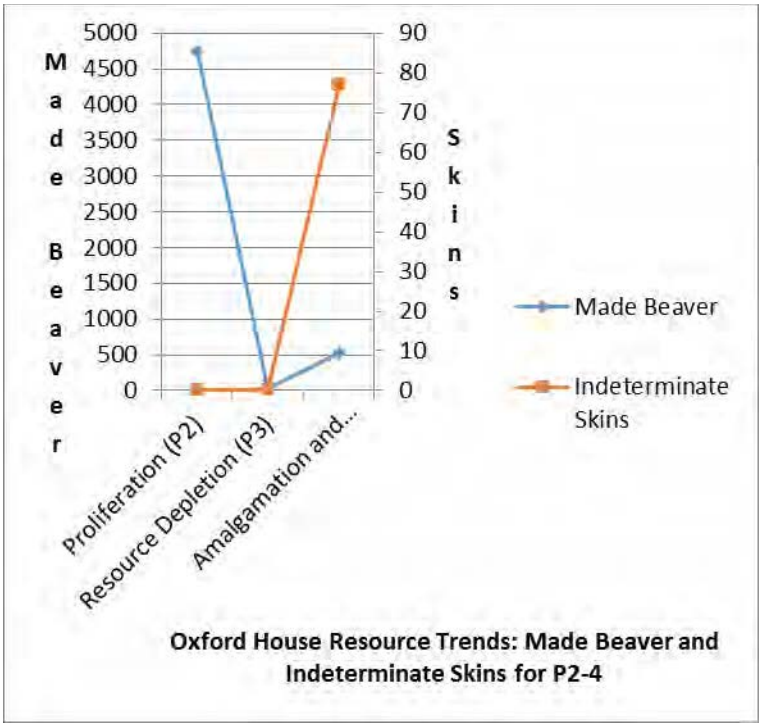

Figure 6.17: Made Beaver and Indeterminate Skins at Oxford House for Periods 2-4.

The The data at Norway and Oxford House differs from Cumberland House in that there is a direct co-occurrence between high amounts of MB and

low references to starvation and high references to starvation and low amounts of MB (Figures 6.18, 6.19). Norway House and Oxford House were established to compete directly with NWC posts and were primarily concerned with the trade in high value skins. The references to starvation are possibly a literal usage of the term indicating that the Inninew were hunting for subsistence instead of trapping for trade. The trade in country provisions indicates that the local resource hinterland had a healthy population of high value food resources.

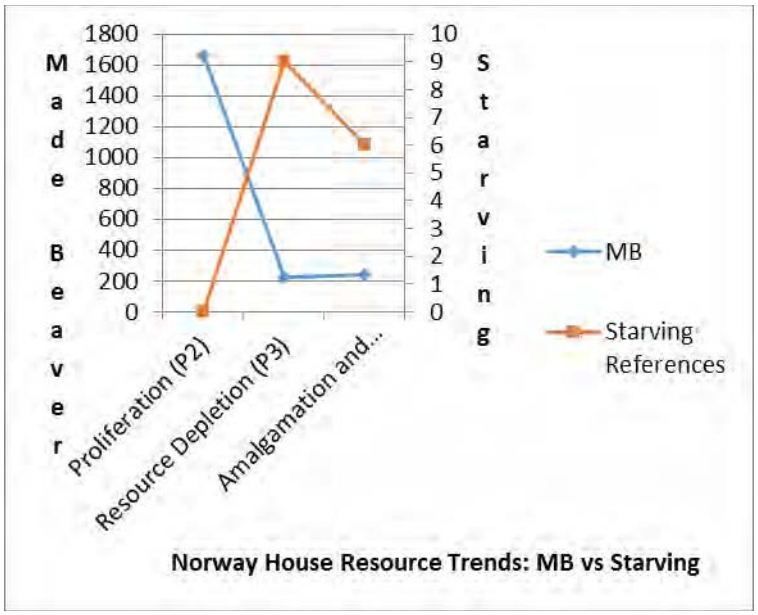

Figure 6.18: Correlation between MB traded and References to Starvation for Norway House for Periods 2-4

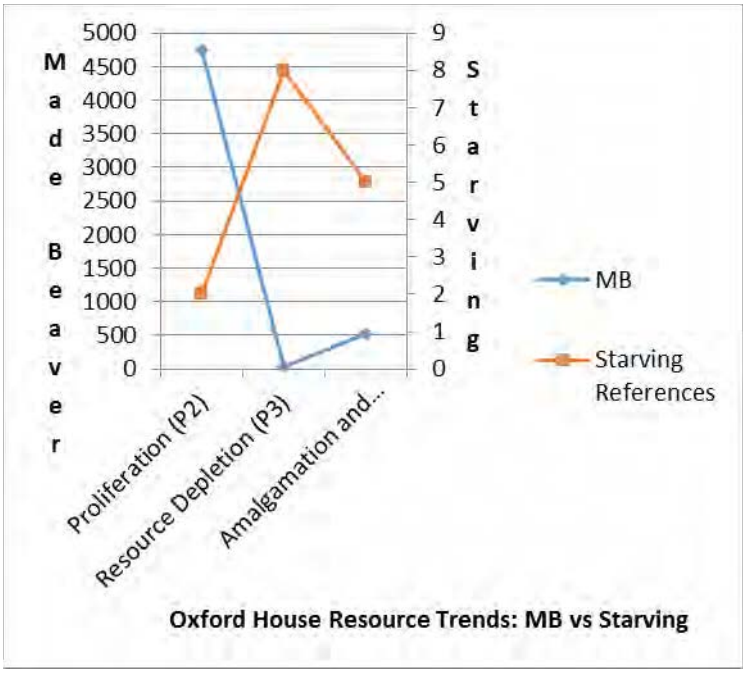

Figure 6.19: Relationship between MB traded and References to Starvation at Oxford House during Periods 2-4.

Fish were harvested either by European servants or local Aboriginal people. The latter were often hired by the post master to undertake provisioning (Ray 1974). During period P2, the combined fishery yield suggests high productivity and harvest (total of 36209 fish of assorted species), with Oxford yielding 18228 and Norway House acquiring 17981 (Figure 6.20). However, during P3 the yield seems to have declined to a total yield of 25866 fish recorded. Oxford House saw the steepest decline with 7570 recorded, while Norway House sustained its yield at 18296 fish. During P4 the reliance on the fishery once again expanded, with a total of 106571 fish harvested (46590 recorded at Oxford and 59981 at Norway House) (Figure 6.20). This substantial increase in fishing intensity may reflect a redoubled effort to compensate for declining harvest of large terrestrial animals (moose) during P4 (Figure 6.23).

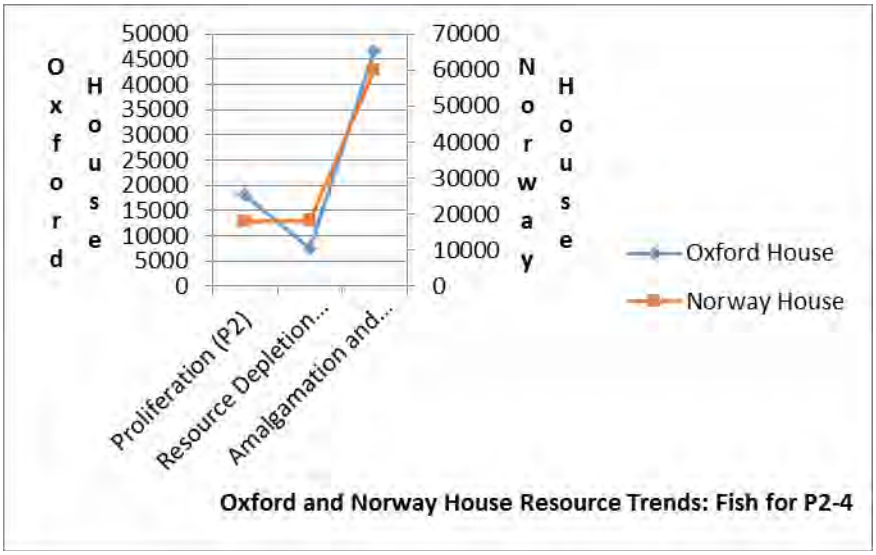

Figure 6.20: Numbers of fish at Oxford and Norway House for Periods 2-4

The records from these two posts illustrate that the region contained beaver, but the nature and amount of beaver products traded differ between the two, which may reflect differences in preferred habitat, or the duration of harvest exposure. During P2 very few beaver were recorded at Norway House (five carcasses) along with no processed meat or skins, while at Oxford House there were seven carcasses, 717 pounds of meat and 22 pounds of castoreum traded. While only modest amounts of beaver foodstuffs were reported, the trade in beaver pelts remained high with 872 beaver skins recorded for P2 (Figure 6.21), indicating that beaver remained comparatively plentiful, but that the beaver meat was either being traded at competing posts, or was being retained by the Aboriginal hunters for their own subsistence.

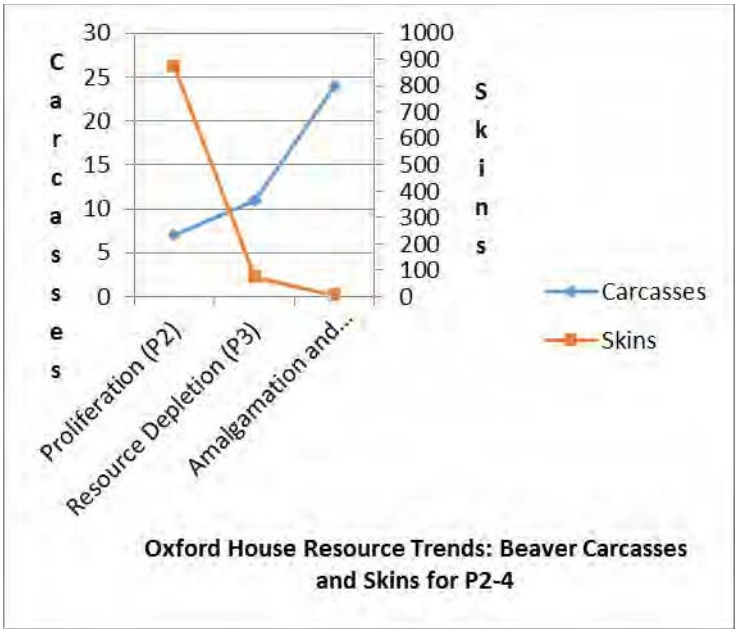

Figure 6.21: Beaver Carcasses and Skins for Periods 2-4

During During P3 at Oxford House the trade in beaver provisions increased to eleven carcasses, but the trade in skins decreased to 71 (Figure 6.21), with no beaver recorded at Norway House. The Oxford House records are indicative of a landscape still endowed with beaver supplied either by trappers who would bring their winter produce in to pay down credits, or laborers sent out to the hunting camps to collect the furs before the competitors did. Because of an increase in moose and a stable harvest in caribou, Norway House's food supply was not likely impacted by the poor returns (none) in beaver. P4 saw a modest increase in beaver at Oxford House with 24 carcasses and three skins recorded (Figure 6.21), while Norway House recorded none. The increased returns at Oxford House in whole carcasses coupled with a substantial increase in the fishery compensated for the low returns in moose (none) (see below). The

hinterland of Oxford House was still productive indicated by all of the beaver collected by trappers or laborers.

Muskrat did not play a prominent role in the trade of Oxford House and Norway House until P3. A total of 479 muskrats were recorded at Norway House, while Oxford House saw none. The moderate number of muskrats recorded at Norway House could be a product of the decreased number of beavers traded. It is possible that the Inninew were either trading beaver at competing posts, or were utilizing the furs and meat for domestic needs. Muskrats increased in P4 with 5445 recorded at Norway House, with an additional 186 at Oxford House (Figure 6.22). Relatively little emphasis was placed on the muskrats within the Oxford House hinterland, possibly because of the healthy beaver population. The trend at Norway House was on the other end of the spectrum: beaver numbers appear to have been depressed since P2, which resulted in an increase in muskrats traded for fur.

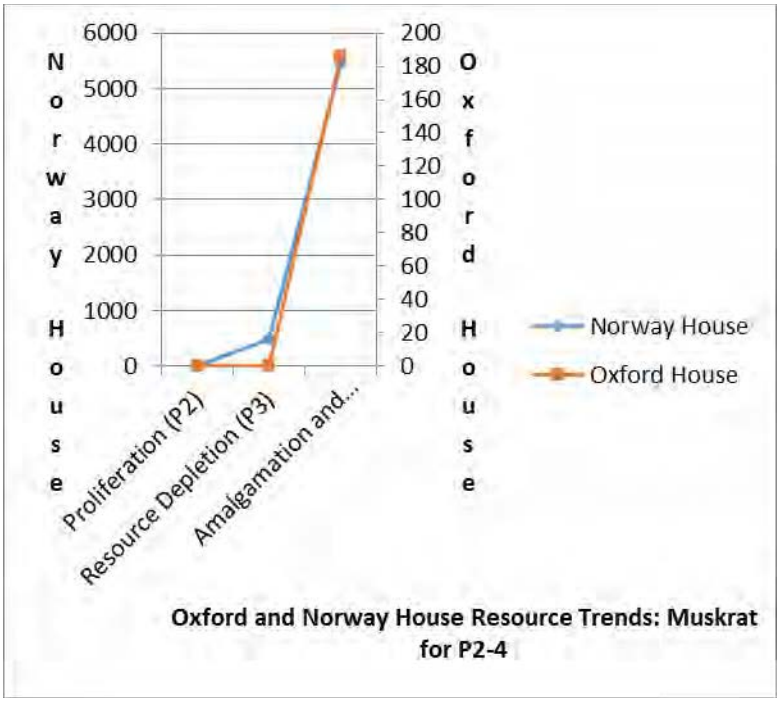

Figure 6.22: Muskrats for Norway and Oxford House for Periods 2-4.

Moose Moose was a high valued game animal because of its size and high fat content, and they were important for provisioning at both Oxford and Norway houses. The other large terrestrial game animal -- woodland caribou -- were not as gregarious as their barren-land cousins, but were found in moderate herds of up to eight animals (Hebert 2015). Both of these species were locally available. In P2 a major emphasis was placed on woodland caribou at Norway House with 34 carcasses recorded as well as 50 pounds of processed meat (Figure 6.24). However, the amount of moose recorded was low with four pounds of meat along with six “rumps” (hind quarters of the animals). At Oxford House moose were an important part of the provisioning (10702 lbs meat, five noses, and seventeen skins) (Figure 6.23), and suggest a stable local population.

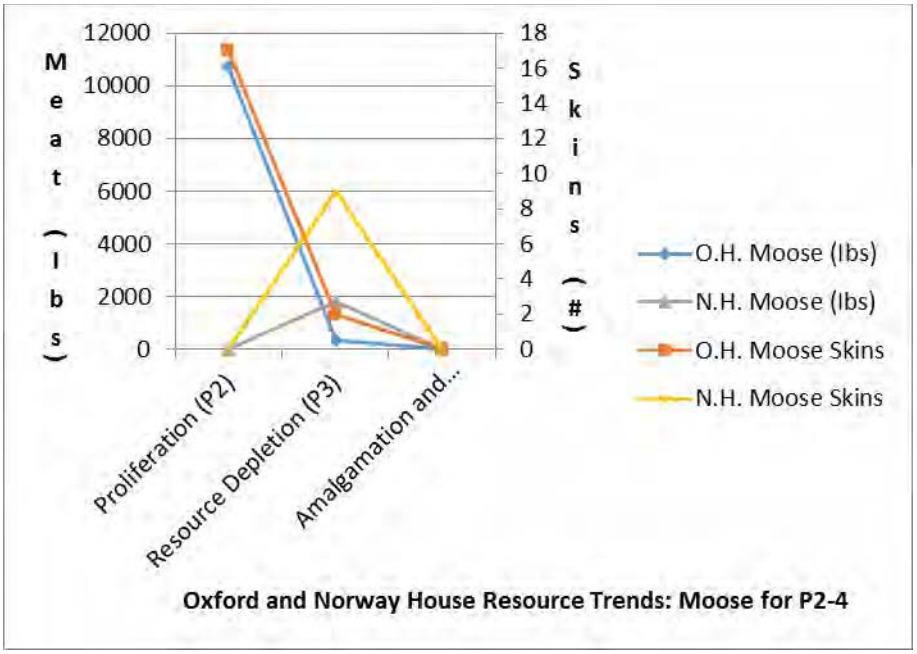

Figure 6.23: Moose at Norway and Oxford House for Periods 2-4.

Caribou were not as numerous (one carcass, 1553 lbs of meat (Figure 6.24), and ten skins), but did supply a good portion of the trade at Oxford House in country produce. During P3 the trade in caribou significantly decreased at Norway House (370 lbs of meat, eight carcasses (Figure 6.24), one rump, and two sides), but the trade in moose products increased (1815 lbs meat, seven carcasses (Figure 6.23), one heart, and nine skins). Oxford House saw an increase in caribou (527 lbs, six carcasses (Figure 6.24), one rump, and seven skins) and a decrease in moose (364 lbs meat, one carcass (Figure 6.23), ten noses, and two skins). P4 saw a drastic drop in moose numbers with three recorded at Norway House, while Oxford House received nothing (Figure 6.23). This drop indicates depletion of the moose population in both the Oxford House and Norway House areas although this might also suggest that the Inninew switched emphasis to caribou to let the moose population replenish itself. The

caribou population remained stable with Norway House receiving 884 pounds of meat along with eight carcasses (Figure 6.24) and two heads, while Oxford House recorded 518 pounds (Figure 6.24) and eight skins. The data suggests that there was a stable population of caribou in the Oxford House and Norway House regions, although they seemed to fluctuate through time between the two posts. Moose numbers declined in the later periods at both posts with a significant drop off at Oxford House.

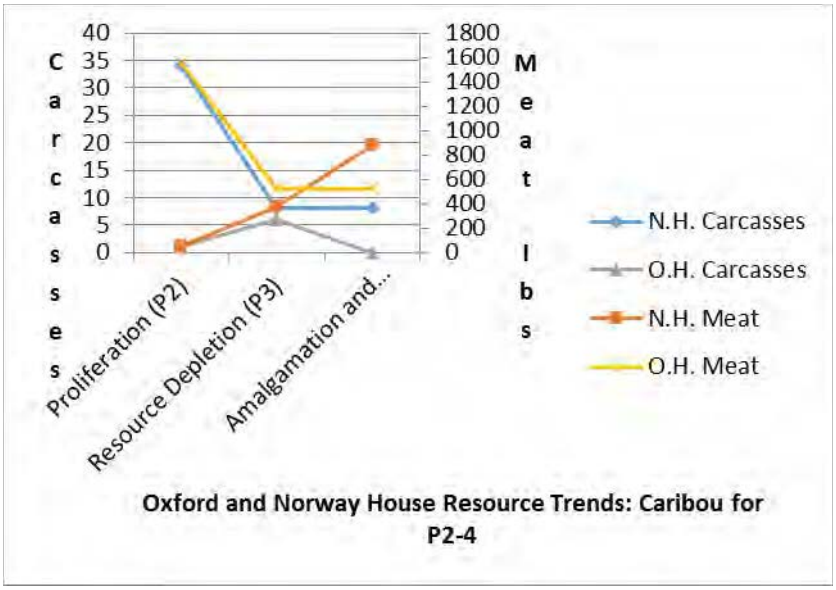

Figure 6.24: Caribou at Norway and Oxford House for Periods 2-4.

During Period P2 eighteen hare were recorded at Norway House and none at Oxford House. These low numbers continued during P3, with sixteen hares at Norway House and none at Oxford House (Figure 6.25). However during P4, a dramatic increase in hare was reported at Oxford House (67), but none at Norway House (Figure 6.25). Apparently in light of the ready availability of high valued food such as moose, caribou, and beaver, coupled with vast quantities of fish available in the region, hare was not actively sought as a trade commodity.

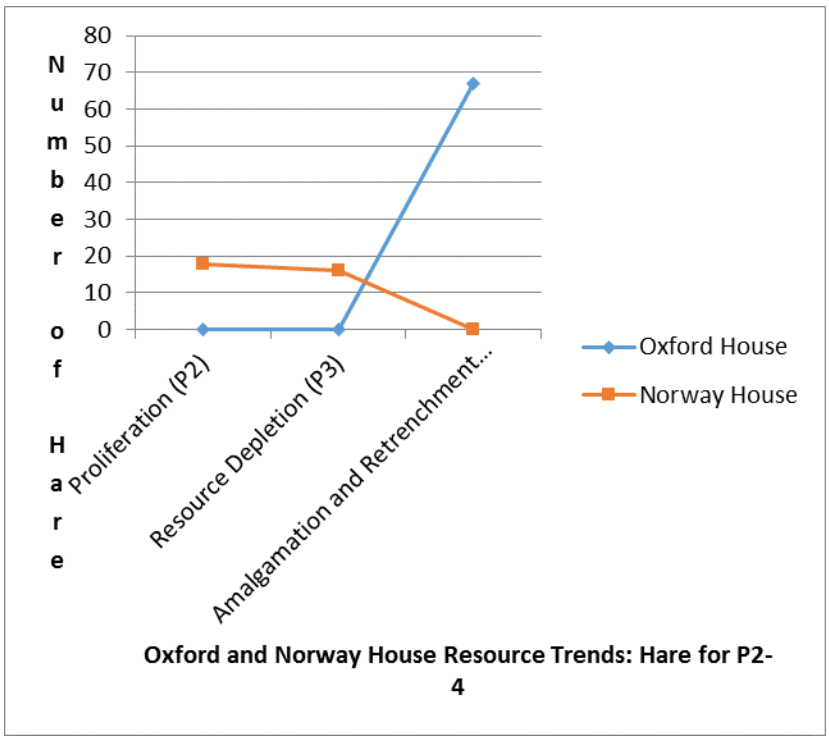

Figure 6.25: Hare for Norway and Oxford House for Periods 2-4.

Pemmican and fat played an important role for provisioning the brigades as they plied the waterways. Pemmican and fat were not used for subsistence at Norway House until P4, possibly due to the successful fishery and the harvest of large terrestrial mammals. Oxford House recorded 683 pounds of fat in P2 along with 66 pounds of pemmican (Figure 6.26). The pemmican was supplied by seven canoes of "Bungee Indians," as well as local hunters, so it is plausible that the pemmican was manufactured from either moose or caribou meat (HBCA B.156/a/1). During P3 at Oxford House the quantity of pemmican decreased (seventeen lbs) in P3, and was supplied by a local hunter, suggesting that it was manufactured from moose or caribou meat.

P4 witnessed a major shift in methods for provisioning both Norway House and Oxford House that relied on foodstuffs imported from outside the post

hinterland. Much more pemmican was supplied. Norway House increased its pemmican consumption to 490 bags from the Saskatchewan and the Red River districts (Figure 6.27) (HBCA B.154/a/17). Norway House also recorded 204 bison robes from the Saskatchewan District and 152 pounds of fat (Figure 6.27). Oxford House recorded 63 bags of pemmican imported from Norway House, Rainey Lake, and Swan River (Figure 6.26) (HBCA B.156/a/13). Oxford House did not record any fat. In P4 the importance of imported preserved food at these posts is also reflected in a change in the quantification method from pounds of pemmican to number of bags of pemmican. Ray (1974) indicates that the bags of pemmican imported from the plains came in 90-pound bundles. If this is correct then 5670 pounds of pemmican were recorded at Oxford House and a staggering 44100 pounds at Norway House. This increase indicates that the rapidly changing logistical organization of the post-1821 HBC trade required the transhipment of vast quantities of provisions from the northern plains and elsewhere to sustain the expanded boat traffic traveling between York Factory and Norway House. With this reorganization, Norway House became a major transhipment and administrative hub that received bison products harvested on the plains for redistribution to boreal forest posts and to supply the boat brigades.

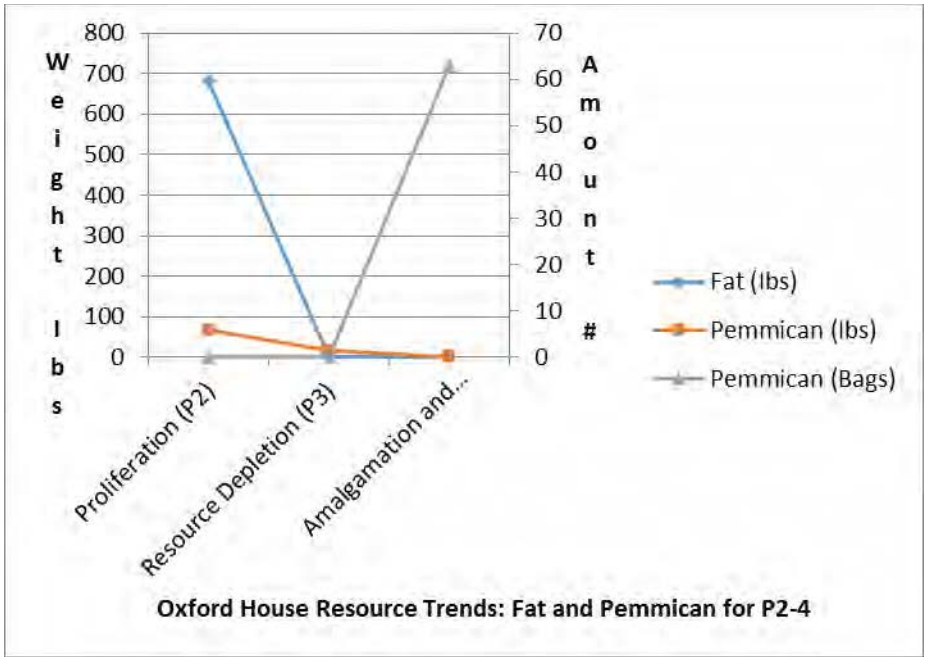

Figure 6.26: Pemmican and Fat at Oxford House for Periods 2-4

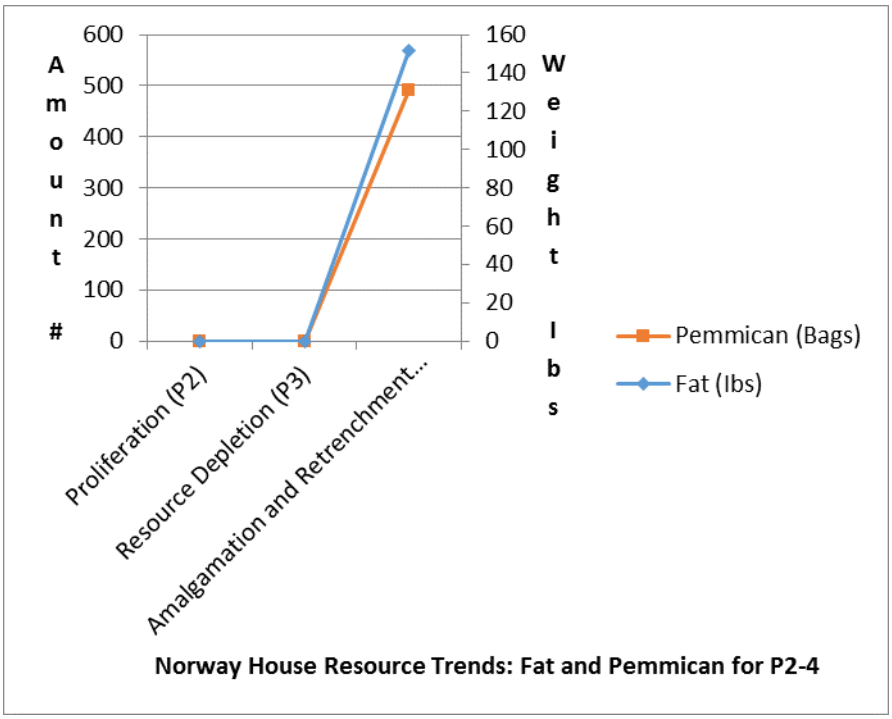

Figure 6.27: Pemmican and Fat for Norway House for Periods 2-4.

The documentary evidence illustrating overall trends in resource use for Oxford House and Norway House journals reflect shifting emphases placed on different species. The one constant between the two posts is the importance of the fishery, even during the early days of post occupation. Large terrestrial mammals played a big role in the provisioning of the area, with moose and caribou as the two key species. Beaver played a significant role in the Oxford House economy, both in terms of furs and food as reflected in the returns for P2. On the other hand, Norway House recorded few beaver products. There was a fluctuation between the moose and caribou numbers between the two posts. Many caribou and very few moose were recorded at Norway House, with the reciprocal distribution apparent at Oxford House. When moose numbers decreased, caribou numbers increased. This trend alternated between the two posts until P4 when no moose were recorded at Oxford House and only three recorded at Norway House. The numbers in MB fluctuated dramatically at Oxford House, while at Norway House they sharply declined in P3 and levelled off between P3-4. The drop in MB coincided with an increase in the amount of muskrat recorded as well as a significant drop in beaver numbers.

Little emphasis was placed on pemmican and fat in P2-3, with 83 pounds of pemmican and 683 of fat recorded at Oxford House and none at Norway House. The pemmican was supplied by local hunters as well as “Bungee Indians”, indicating that the pemmican was possibly derived from moose or caribou meat harvested within the hinterland of Oxford House. Post records show 683 pounds of fat and 10702 pounds of moose in P2, suggesting that the post employees were manufacturing pemmican “in house” to either supply the

brigades or for domestic use. However, in P4 large quantities of pemmican were imported into the region from the plains, quantified as bags as opposed to weight, likely reflecting the sharply increased demand for provisions to supply the transportation route after the 1821 reorganization of the HBC trade. There were a total of 553 bags recorded for the region (490 for Norway House and 63 for Oxford House). The hinterlands of Oxford and Norway House possibly exceeded its carrying capacity to supply the canoe brigades with provisions, thereby creating a situation that needed external foodstuffs. Because of the excellent fisheries at both of the posts the local needs could have been met, but the low fat content in fish prevented it from being an adequate provision for the canoe brigades. In addition, no pemmican was supplied locally by hunters and quantified by weight indicating small-scale trade.

6.2 York Factory and Gordon House: Hudson Bay Lowlands

York Factory, situated at the mouth of the Hayes River system, was a primary HBC bayside factory. In contrast, Gordon House was a short-term transhipment/provisioning depot (1794-99) that was established along the Hayes River near its junction with the Gods River. Gordon House is only represented by one period (Proliferation [P2]), while York Factory was occupied during all four periods considered here. York Factory was located on the tundra taiga transition along the Hudson Bay coastal plain, while Gordon House was located in a somewhat more forested area near the boundary between the Precambrian Shield and the Hudson Bay Lowlands.

York Factory's records are informative in P1. Its journals show substantial amounts of MB (19599), suggesting that fur bearers were plentiful throughout its expansive hinterland. However, the bulk of the furs were brought by Aboriginal middlemen from Basquia in the Saskatchewan River drainage. This arrangement reflects the HBC's minimal inland trade capacity at this time, resulting in an expansive inland trade hinterland controlled by Inninew and Nakota middlemen and their allies. The remainder were harvested within the immediate hinterland of York Factory (HBCA B.239/a/70). During P2, the trade in fur increased significantly to 30000 MB at York Factory, with 1440 MB and 60 indeterminate skins recorded as traded at Gordon House (Figure 6.28). The majority of the MB recorded at Gordon House was traded by the "Bungee Indians," possibly from the east side of Lake Winnipeg. There is some indication that some of the MB represent the value of country produce and furs, while the rest was unnamed (HBCA B.81/a/1-3). P3 saw a significant decline to 605 MB that likely represents both furs and provisions (Figure 6.28). There was a further decline in P4 with 50 MB and 50 indeterminate skins recorded (Figure 6.28). The gradual decline of MB starting in P3 might suggest that the inland expansion of the HBC presented more opportunities for direct trade instead of making the long canoe journey down to the bay, or trading (at an inflated cost) with the Inninew and Nakota middlemen. In regards to local trade, the York Factory area had been subjected to resource harvest for 153 years (1682-1834), as well timber harvest for construction and firewood needs. This span of regular harvesting would affect the carrying capacity and biomass of the local area as would be recorded in the late 18th century (Tough 1996).

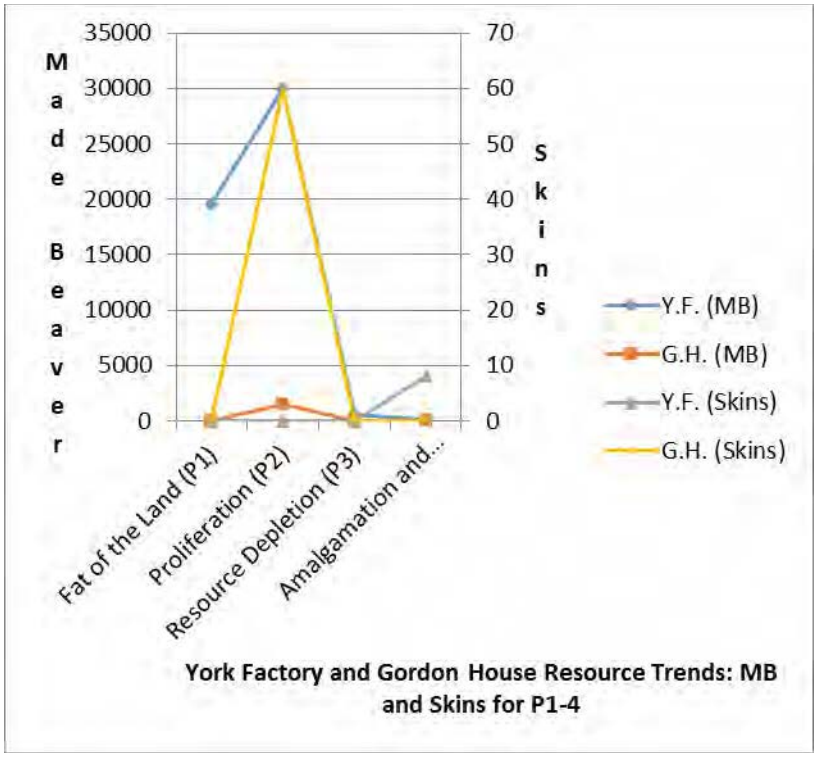

Figure 6.28: Made Beaver and Indeterminate Skins at York Factory and Gordon House for Period 1-4.

The data for York Factory and Gordon House is similar to that of Oxford House and Norway House in that high numbers of MB corresponded with low numbers of references to starvation and vice versa. Gordon House recorded eight cases of “starvation” while recording 1440 MB. There were few references in P1 to starvation and a high amount of MB recorded, which is indicative of the technical usage of starvation as reference to hunters trapping for trade instead of subsistence (Figure 6.29). Yet, P2 saw an increase in the amount of MB recorded and an increase in the amount of starvation cases reported (Figure 6.29), which could reflect a manipulation of the traders by the trappers to receive the highest possible payment for their furs as possible. During this time there was a great increase in the amount of European traders in the interior and the Aboriginal

trappers could use the heightened competition to their advantage (Thistle 1986). P3 saw a very dramatic decrease in MB and an increase in the cases of starvation. The traders were using a technical usage of starvation due to the trappers harvesting for food intake.

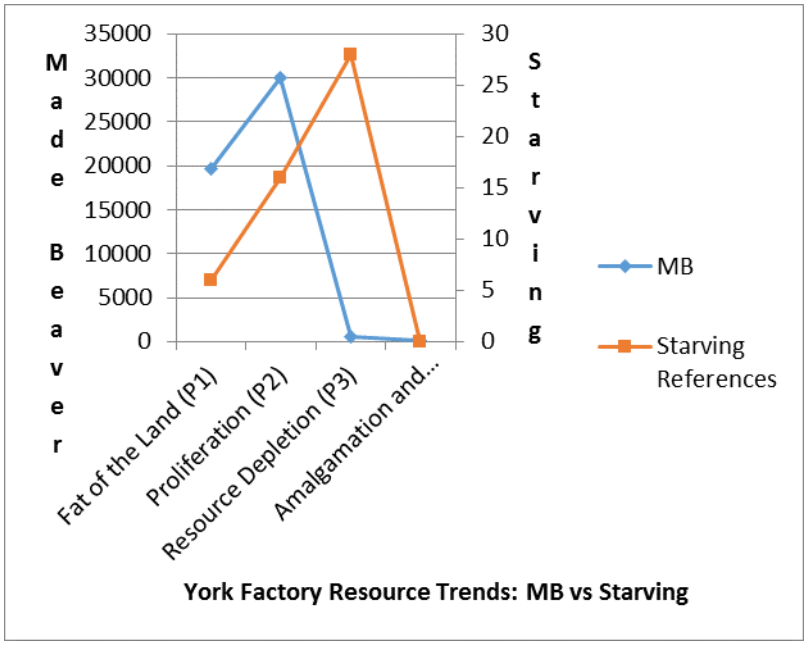

Figure 6.29: Co-Occurrence between MB traded and References to Starvation at York Factory for Periods 1-4.

During During Period P1, fish appear to be comparatively unimportant for provisioning, with only 1446 recorded (Figure 6.30), which also reflects that the best fishing habitats were inland along small tributaries and lakes. The quantity of fish recorded does not adequately address the harvesting practices of the Omushkegowak (Swampy Cree) or the emphasis placed on the fish as a resource. During P2 the quantification of fish was measured in weight (lbs) instead of in numbers. Fish seem equally unimportant at Gordon House with only 90 and 100 carcasses recorded (Figure 6.30). While Gordon House served as a provisioning post/transshipment depot along the water transportation route, the

small number of fish harvested reflects both the importance and abundance of fat-rich terrestrial mammals such as caribou. During P3 fish became more important with 3554 reported as harvested (Figure 6.30), illustrating the increased importance of fish in the diet. This pattern escalated during P4 with 20529 fish harvested (Figure 6.30) at a time when both ptarmigan and beaver harvest reports declined.

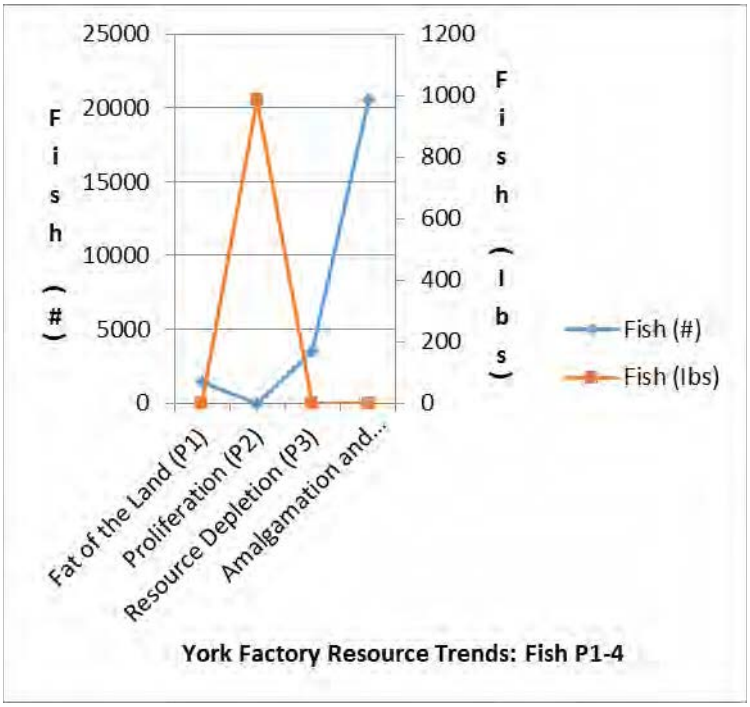

Figure 6.30: Fish at York Factory Periods 1-4.

Moose didn't play an important role in the subsistence at York Factory. During P1 there was one carcass and 116 dried "sides" recorded. This number represents a fairly high amount of animals (approximately 60) and possibly brought to the coast by inland trading parties that harvested the moose earlier in the year and dried for preservation, perhaps due to the high amount of caribou harvested in the spring and fall as well as the limited availability of moose along

the coast. In P2 Gordon House recorded one carcass and nineteen noses of moose. Gordon House, located at the interface of the Precambrian Shield and the Hudson Bay Lowlands, had greater access to moose, owing to its position inland. However, the data indicates that caribou played a larger role in the provisioning. Caribou was central to the subsistence pursuits in the lowland area. The records indicate large numbers of caribou were harvested in the summer and fall. During P1 no processed meat was traded, however large numbers of whole carcasses (474) were traded along with 1480 tongues, 304 heads, 40 hearts, 68 rumps, and 51 sides (Figures 6.31, 6.32) (HBCA B.239/a/70). During P2 the caribou harvest decreased to 156 carcasses along with 60 heads and 2000 pounds of meat (Figures 6.31, 6.32). Gordon House received seven carcasses and 527 pounds of processed meat. The post received whole carcasses during the migration runs in the spring and fall and the processed meat during the winter. During P3 the caribou harvest increased to 312 carcasses, 40 heads, 160 tongues, and eleven rumps along with 23591 pounds of processed meat (Figures 6.31, 6.32). During P4 the caribou harvest decreased to 80 carcasses along with fifteen heads, 35 tongues, 27 rumps, 602 skins, and 7850 pounds of processed meat (Figures 6.31, 6.32). The fluctuation in numbers possibly reflects inclement weather having an effect on migration patterns (Burch Jr 1972; Hebert 2015).

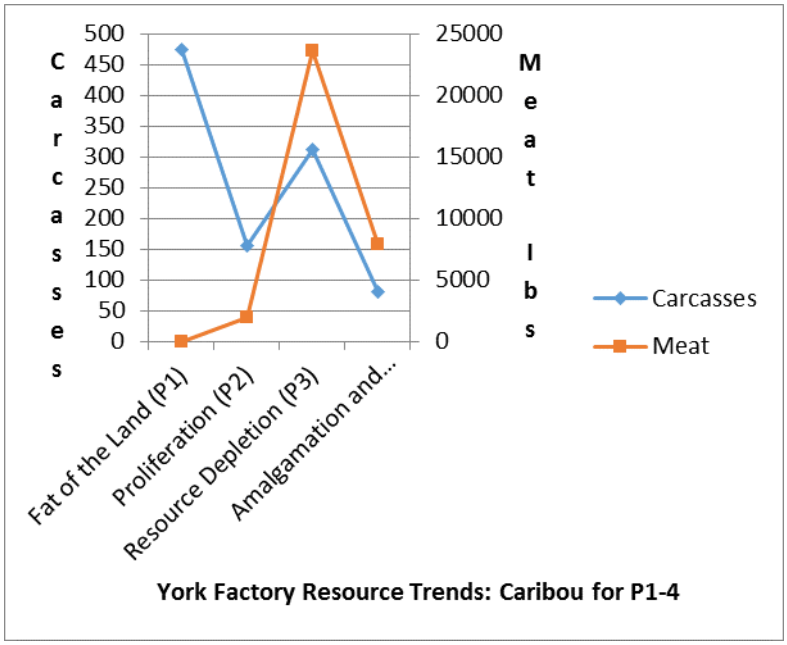

Figure 6.31: Caribou at York Factory for Periods 1-4.

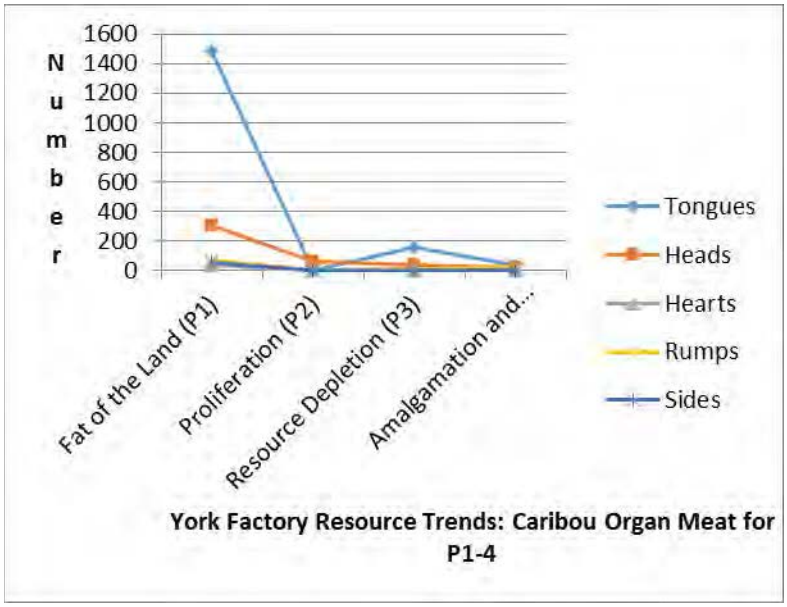

Figure 6.32: Caribou for York Factory for Periods 1-4.

Migratory waterfowl were an important seasonal staple in the diet of the Omushkegowak. York Factory was on one of the major migratory waterfowl flyways (Lytwyn 2002; Payne 1989). During P1 4643 fowl were harvested and

brought in fresh to the post, with an additional sixteen casks of salted fowl from the goose camps (Figure 6.33). During P2 the waterfowl harvest declined to 3012, apparently due to inclement weather that disrupted migration and flooded the eastern marshes, the primary bird staging area (HBCA B.239/a/96-100) (Figure 6.33). During P3 the goose harvest increased to 3556 carcasses along with 24 casks from the goose tents (Figure 6.33). While important for provisioning, these waterfowl were highly variable in their productivity due to the impact of inclement weather (heavy snow fall) that affected the flight patterns of the geese. Such weather-induced impacts on the goose hunt could be remedied by intensifying the caribou hunt. During P4 the waterfowl harvest increased to 4822 carcasses and 66 casks (Figure 6.33). The increase in waterfowl harvest coincides with a decrease in the caribou harvest, which might reflect either a shift in emphasis in harvesting or weather disruptions. Provisioning on the coast was dependent on the seasonal migrations of caribou and geese that frequented the area every spring and fall. Since weather patterns affected the migration paths of the caribou as well as the geese, there was always a chance of a poor harvest (Lytwyn 2002).

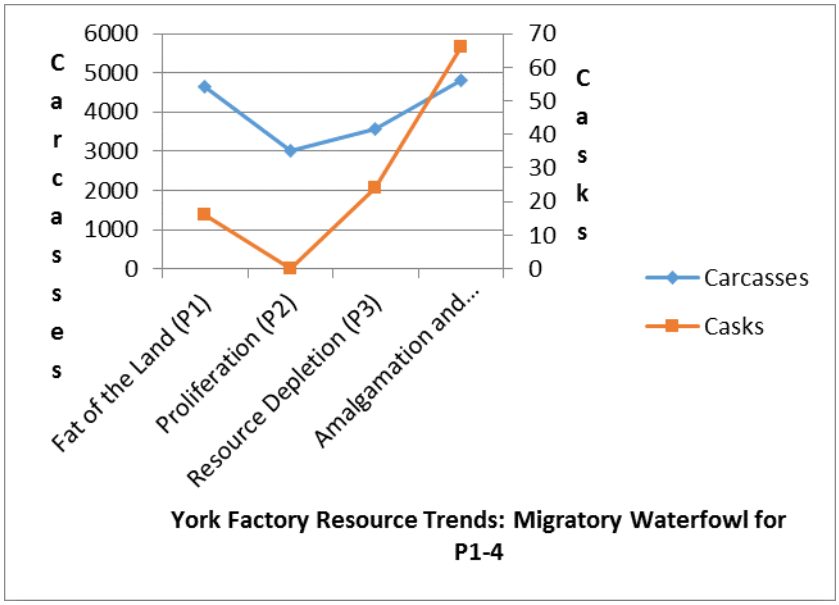

Figure 6.33: Migratory Waterfowl for Periods 1-4.

Ptarmigan were an important seasonal winter food resource, and during P1 12209 were harvested in the immediate York Factory hinterland (Figure 6.34). Ptarmigan were less important as a food staple than caribou and waterfowl, but played an important role as a dietary supplement for both the Omushkegowak and the HBC. The majority of these ptarmigan were harvested by company servants, but some traded by Aboriginal hunters. During P2 the ptarmigan harvest decreased to 2128 at York Factory (Figure 6.34), with another 146 at Gordon House. During P3 the harvest rebounded to 7888, but dropped to 5719 during P4 (Figure 6.34). As with caribou and geese, inclement weather, especially heavy snow fall, could disrupt the feeding patterns of ptarmigan resulting in a reduced harvest (Lytwyn 2002). However, the amount of caribou harvested could have offset the poor showing in ptarmigan.

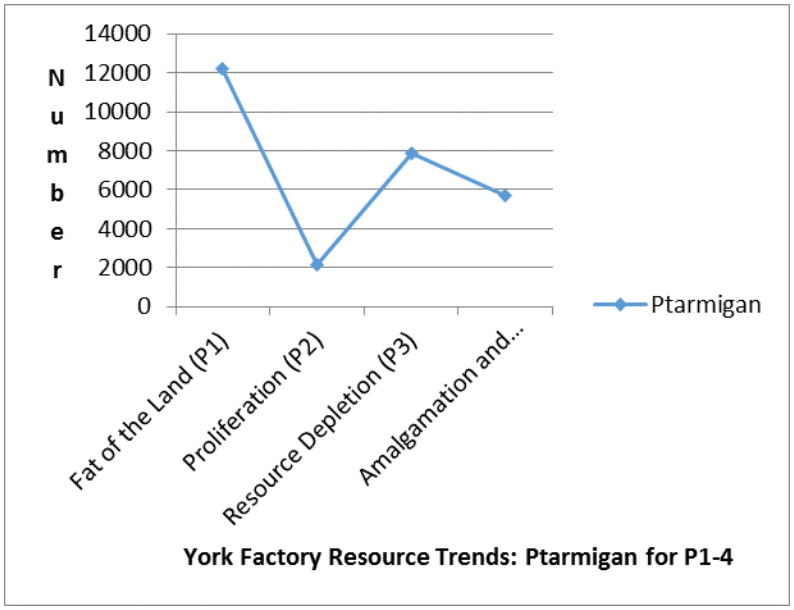

Figure 6.34: Ptarmigan at York Factory for Periods 1-4.

During P1 207 hare were harvested at York Factory, mostly supplied by the Home Guard Cree (Inninew) (HBCA B.239/a/70) (Figure 6.35). It is not clear whether this reflects the low part of the hare cycle, or more likely, more-high value provisions where available (i.e. caribou, geese, and ptarmigan). During P2 the hare harvest declined sharply to only 24 at York Factory (Figure 6.35), while 219 carcasses and 160 skins were traded at Gordon House. This trade in skins only suggests that the meat was consumed by the trappers. During P3 the recorded harvest at York Factory increased sharply to 646 carcasses and 63 skins (Figure 6.35), which may indicate that the more highly valued fur bearers and provision sources were declining. Interestingly, during this time new species appear in the fur inventory traded, including 784 martens and 492 foxes of various types. This new addition might be an outcome of more trappers involved in the trade. In P4 there was another increase in the number of hares recorded

with 816 carcasses, the bulk of which was harvested by the Home Guard, with a few being harvested by post servants (HBCA B.239/a/148) (Figure 6.35).

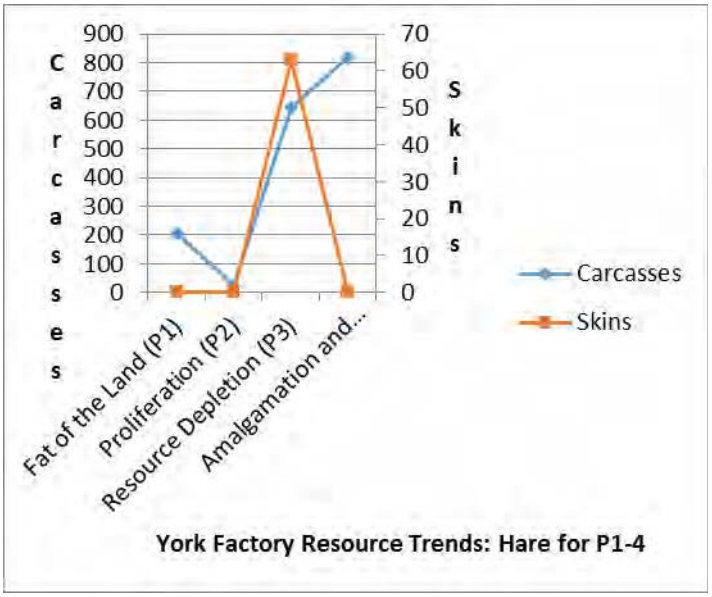

Figure 6.35: Hare for Periods 1-4.

Beaver were never as numerous in the Lowlands as they were inland, and it is likely that many of those traded at York Factory derived from the interior hinterland. During P1 20 whole carcasses (Figure 6.36) were recorded, along with fourteen tails and six skins. The amount of beaver recorded seem modest, however there was an exceptional caribou harvest as well as high numbers of ptarmigan recorded. The data indicates that beavers were recorded during the winter as well as the open water season (HBCA B.239/a/70-71), indicating that some were harvested locally. During P2 the numbers of beaver carcasses and other by-products remained modest, with 23 carcasses recorded (Figure 6.36). Gordon House recorded three carcasses and 112 pounds of meat. During P2 no muskrats were recorded at York Factory or Gordon House. During P3 the beaver harvest increased significantly, with 526 carcasses (Figure 6.36), 32 pounds of

castoreum, 89 skins, and 32 pounds of processed meat. These beaver was traded by the Home Guard (i.e. Lowland Cree or Inninew), some “Bungee Indians” (HBCA B.239/A/124) as well as some unnamed trappers. Apparently some of these beaver were trapped beyond the immediate York Factory hinterland along the east side of Lake Winnipeg, and were transported by the Bungee to York Factory (HBCA B.239/a/124). A further change in the market for furs was noted at this time with receipt of 658 muskrats, the great majority traded by the Bungee. At the other trade posts considered here, an increase in muskrat harvest usually corresponded to a decrease in beaver numbers, but this was not the case at York Factory. However, P4 saw a drastic collapse in beaver numbers with no beaver recorded at York Factory.

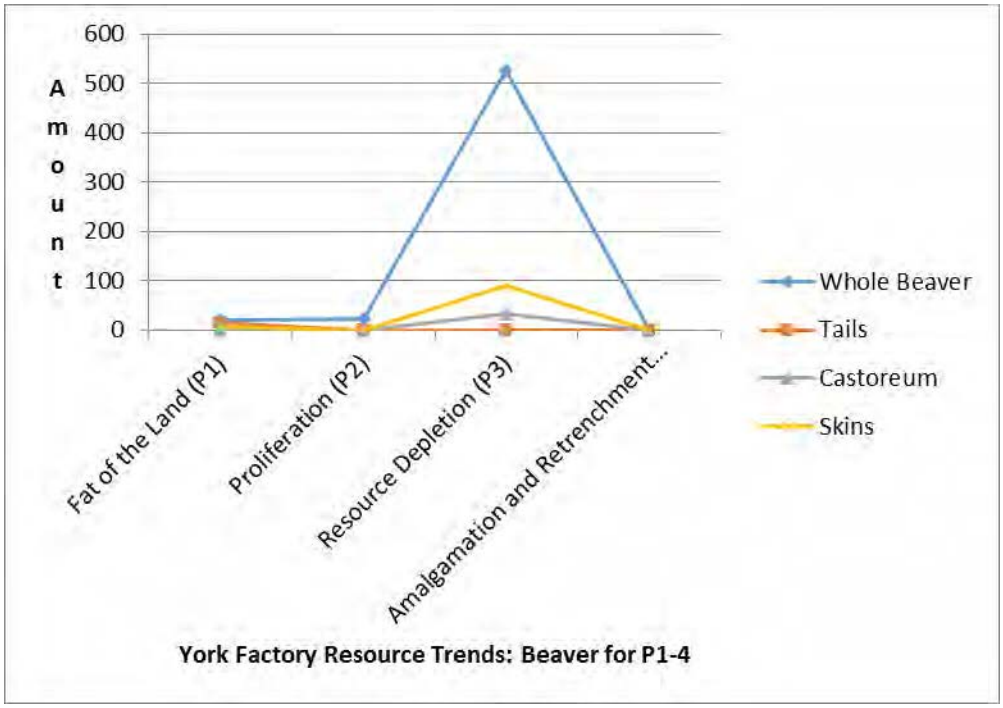

Figure 6.36: Beaver for Periods 1-4.

During P1 760 bladders of fat were recorded as traded at York Factory (Figure 6.37), largely deriving from the seasonal caribou harvest. This fat was usually used in pemmican to feed the brigades, but there was no reference to pemmican production at York Factory at this time. During P2 only 36 pounds of fat was recorded at Gordon House. No fat was recorded at York Factory until P3 when 960 pounds was traded (Figure 6.37). There was no reference to fat during P4, perhaps suggesting that sufficient high quality fat and dried meat was procured from the northern plains for pemmican production to feed the brigades. No pemmican was recorded at York Factory until P3, but at Gordon House there were 30 pounds of pemmican recorded in P2, which was supplied by a local hunter. As with Oxford House, this pemmican might have been manufactured with moose or caribou meat. In P3 York Factory recorded 5697 pounds of pemmican and fifteen bags (Figure 6.37), which would equal 1350 pounds if packed in 90-pound sacks. The pemmican was imported from the Red River District as well as the Saskatchewan District (HBCA B.239/A/124), indicative of York Factory losing its capacity to support its own subsistence needs as well as provisioning the boat brigades, hence the need to import the high energy portable food stuff (pemmican) to offset the imbalance. The differing quantification methods could reflect pemmican manufactured at the post, most likely Ruhiggan (pounded caribou meat). In P4 York Factory increased its pemmican consumption, importing 58 bags from the Red River District and 105 bags brought in by an Aboriginal hunter. The post journal only states that the 105 bags of pemmican were supplied by a “Deer” hunter named Puekiegshoe (HBCA B.239/A/148). The bags were recorded on August 13, which possibly indicates

that the bulk of the animals was harvested in the spring, but the journal is not clear. The amount of pemmican supplied by the hunter is very high (9450 lbs, 90lbs per bag) (Figure 6.37) and might indicate several families were hired by the HBC in the spring to harvest caribou and to manufacture pemmican.

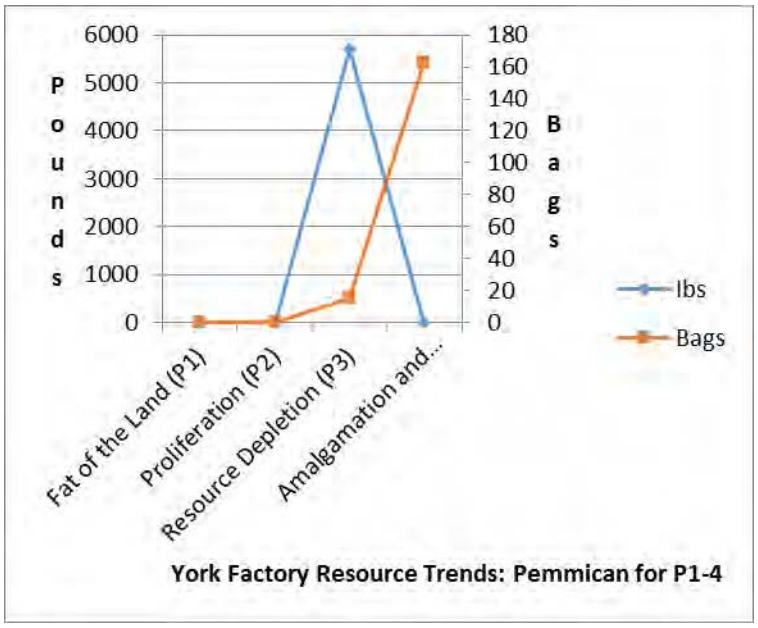

Figure 6.37: Pemmican for Periods 1-4.

The trends in the post journals for York Factory and Gordon House reflect fluctuations in lowered valued resources such as ptarmigan and hare, and relatively consistent high numbers (100+) in high-ranking resources such as caribou and migratory waterfowl. There were marginal decreases in the high valued migratory species such as caribou and water fowl, possibly caused by inclement weather patterns that disrupted migration or flooded staging/nesting areas. The only high ranked food species that rapidly declined was moose (one carcass and 116 “sides”) in P1 to consistent counts of zero in P2-4. There is a

good case to be made that in this period moose were not resident in the lowlands and were traded from groups coming from upriver as indicated by Lytwyn (2002) and Rogers (1967). The reason for the rapid decline in moose recorded might be a by-product of the establishment of inland posts that were more accessible to the earlier providers of moose to the coast in P1, but the data is not explicit.

The amount of MB drastically decreased in P3 from 30000 in P2 to 605. This decline was possibly caused by the increase in interior posts where a significant part of the trade was siphoned off by other HBC post as well as competitors. The decrease in MB was possibly offset by an increased effort on the part of the Omushkego hunters to harvest seasonally available species such as caribou and waterfowl and an increased harvest in resident species such as hare and ptarmigan. There was a steady increase in fish from P1 to 4, however in P2 fish was quantified using weight. Fish came from camps up the Hayes River in tributaries such as Ten Shilling Creek, French Creek, and the Pennycuttaway River. The post journal fails to mention the reasoning behind the change in quantification. An increase in fish, which was considered a second tier resource, should indicate a resource collapse in higher ranked resources such as terrestrial mammals (caribou) and aquatic fur bearers (beaver), but the data indicates no such collapse in primary ranked resources.

The data shows that there was no perceivable resource collapse in the Hudson Bay Lowlands during the study period. A very large importance was placed on seasonal migratory species such as caribou and waterfowl, which supplied the post with high amounts of fatty edible tissue as well as a stable community of second tiered resources such as ptarmigan and hare. Starting in

P3, a greater emphasis placed on fish, which could indicate a greater reliance on the resource for domestic use. There were high amounts of caribou, hare, ptarmigan water fowl, and beaver recorded, which increased the post's resilience due to the increased spectrum of resource harvest.

6.3 Inter-site analysis

This section summarizes the trends observed in the data across the whole study area, and how it changed throughout the four periods. During P1 only York Factory and Cumberland House were in operation. Cumberland House represents the HBC's first concerted effort to establish inland trade. It was ideally situated in the boreal forest/deciduous parkland interface, and was in close proximity to the plains. Consequently, the surrounding hinterland was well-stocked with animals valued for fur and provisions. It straddled the primary east-west transportation corridor, and also the major route northwest towards Athabasca and northeast to Hudson Bay. It was established to win back some of the trade that was lost to "pedlars" from Montreal that were situated further up the Saskatchewan River. The early Cumberland House records suggest that preferred terrestrial mammals (i.e. moose) were prominent, coupled with large quantities of furs often quantified using the MB accounting standard. A trade in beaver carcasses is evident, but comparatively few fish, waterfowl, or hare were reported, which is consistent with expectations of a newly established trade post operation in an area where preferred fat-rich and large-bodied terrestrial game and the most commercially valued furs were still readily available.

York Factory was located on the coast of Hudson Bay at the mouth of the Hayes River, a key outlet for an enormous drainage basin. It was the primary HBC landfall depot for receiving trade goods from Europe and also dispatching furs to their final market. York Factory operations date back to 1682. Thus, resource harvest from its hinterland long predates this study. In some circumstances, environmental transformation was well underway before the late 18th century inception of this study. For example, forest harvest for both firewood and building material had already impacted the area surrounding the depot. Consequently, the post operated using numerous "resource patches" that included inland fishing camps and hunting tents. Throughout much of its early operation, it received furs from an enormous interior hinterland by means of large canoe "flotillas" operated by Inninew and Nakota middlemen travelling down to the bayside to trade every spring. The continued operation of the middleman system suggests that the level of inland competition was still sufficiently modest to make it viable, and we can assume that the ecological consequences of the fur trade were not yet strongly felt within this interior hinterland. Provisioning was manageable since subsistence needs were limited to that required to maintain the complement of men stationed at the York Factory depot, with virtually no provisioning required to sustain inland transportation networks. Much of this food derived from large caribou herds as well as the spring/fall migratory waterfowl harvest. Large numbers of ptarmigan were harvested as well as beaver, hare, and moose. There was a very high number of MB recorded as traded, but no pemmican was reported. Interestingly, 767 bladders of fat were recorded. As with Cumberland House, the fishery had little importance placed upon it, partially due

to the large seasonal harvests of caribou and waterfowl as well as the large amount of ptarmigan brought in.

As the number of European fur traders in the interior increased during P2, the logistical demands on the environment also grew more intense. Most evident in the records was the growing provisioning needs of the fur trade, specifically involving intensive harvest of bison to generate dried meat, pemmican, and fat. As a consequence of its strategic ecological and transportation position, Cumberland House shifted its economic function away from fur trading in favour of provisioning. The records reflect a sharp decline in furs (measured by the MB standard), the importance of the fishery grew, and the amount of imported pemmican and fat also increased. As a consequence of the logistical demands of the transportation system, harvest of high value large game animals such as moose and caribou, as well as beaver, continued to increase. Even lower ranked resources such as hare were more frequently harvested.

During P2, with rapid growth of inland competitive trade, the number of posts and the logistical complexity of the HBC system sharply escalated, resulting in the establishment of Norway House and Oxford House within the coniferous boreal forest along the primary lower track transportation route. These posts were established to support HBC competition with the Montreal 'Pedlers' and served as both fur trade posts and provisioning depots. They had very prolific fisheries and their harvest hinterlands contained substantial numbers of large fatty terrestrial game animals such as moose and caribou. In P2 there was a very large number of moose and caribou recorded for Norway House and Oxford House. Beaver were not as important at Norway House as they were at Oxford

House where large numbers were still recorded. The general pattern suggests that during this early era of competition, local resources remained comparatively abundant, but fishing was already important for provisioning the posts.

Gordon House at the junction of the Hayes and Fox rivers was only in operation during P2. It also enjoyed a good harvest in moose, caribou, beaver, and hare as well as 1440 MB. It was a small and temporary post that served as a provisioning depot as well as a transshipment depot for York Factory. Probably as a consequence of the provisioning needs of the boat brigades required to sustain the developing inland trade network, during P2 the coastal zone near York Factory experienced a decrease in waterfowl and caribou and a complete disappearance in moose. While the migratory animals were somewhat more resilient as they become seasonally available within the York Factory hinterland from a much larger migratory catchment area, they were affected by weather conditions, sometimes resulting in shortages. However, moose, that were less abundant in the Hudson Bay Lowlands, disappeared from the records, likely because of the hunting pressure. There was an increase in the amount of furs (measured in MB) and beaver carcasses recorded, but this might reflect the large harvest hinterland of the post. Fewer ptarmigan, hare, and fish and very little fat or pemmican were recorded.

During P3 moose continue to be harvested in the Cumberland House hinterland, but a decrease in caribou was recorded. Moose harvest increased at Norway House but declined slightly at Oxford House. In contrast fewer caribou were reported at Norway House, but they became more important at Oxford House. There was an increase in the amount of caribou recorded but a decrease

at Norway House. More beaver were recorded at Cumberland House, but they declined at Oxford House, and disappeared from the Norway House records. Hare declined in numbers, but the importance of muskrat fur increased. Harvests at York Factory (coastal tundra zone) reveal increased reliance on seasonally migratory resources such as caribou and waterfowl as well as an increase in locally resident ptarmigans, fish, hare, and muskrats. Significantly, during P3 many posts reported a significant increase in the amount of pemmican imported from the Saskatchewan District well as fifteen bags of pemmican deriving from an unknown origin. While some of this preserved food might reflect local production, it is clear that the HBC was reorganizing its logistical operation to generate pemmican and other provisions from trade posts in the bison-rich northern plains, and redistributing it along the transportation network. Also of significance, a decline in the volume of furs (reported using the MB standard) is recorded at all of the posts, which may partially reflect a shift in accounting procedures, but the decline in the trade of beaver carcasses suggests a growing shortage of the most commercially valued furs-bearers.

During P4 there was a sharp decrease in moose reported, with only Norway House reporting a modest yield. To a certain extent moose was replaced with caribou at Cumberland House and Norway House and York Factory, but caribou slightly declined at Oxford House. These declines of favoured terrestrial foods appear to be countered by increased yields in fish and muskrats at Cumberland House, Norway House, and Oxford House. Notably, no muskrat were reported at York Factory at this time. Contrary to initial expectations there was an increase in beaver numbers at Cumberland House and Oxford House,

while they were unimportant at Norway House and York Factory. At York Factory the waterfowl harvest grew but there was a decline in the yield of ptarmigan. In keeping with the general pattern of resource decline, less highly valued food sources such as hare increased at both York Factory and Oxford House. Particularly telling was sustained volume of pemmican reported at the Cumberland House depot, and also the widespread increase in its utilization at Norway House, Oxford House, and York Factory, far removed from the northern plains bison herds.

In summary, the data does not support the generalization that widespread ecological collapse occurred throughout the study area as the inland fur trade intensified. It does demonstrate general declines in the value of furs traded (as measured using the MB standard). This decline likely reflects both an overall decrease in furs collected at the posts studied, and the implementation of different quantification methods. It also reflects the rapid logistical transformation of the posts in question as the HBC continued to expand its operations inland along the lower track transportation route. With more posts distributed throughout a much larger interior resource hinterland, posts along that primary transportation route shifted in economic function from being centres for trade of commercially valued furs to become depots where preserved food was traded and transported to supply the men working in the boat brigades. This shift is particularly evident with Cumberland House and its changing function during P2 and also at Norway House somewhat later. Moose seem to be a particularly useful indicator of predation-driven resource stress within trade post hinterlands, which reflects the strong dietary preference for fatty, large bodied terrestrial mammals and the

vulnerability of such solitary animals that reproduce at relatively modest rates. Interestingly, the response within the interior forest zones (Cumberland, Norway, and Oxford houses) seems to be to shift predation effort to caribou. However, it is notable that in the middle periods under study, there was a significant trade in beaver carcasses at the post to supplement provisioning needs. At most of the posts, as the preferred foodstuffs became harder to procure, provisioning attention shifted to waterfowl, fish, ptarmigan, hare, and other smaller-bodied and less fatty game animals. Most telling of all, as the intensity of harvest increased (triggering local shortages of preferred foods), and as a consequence of the escalating logistical complexity of HBC operations, there was a universal increase in the amount of pemmican recorded at all posts. While local harvest of fish and other more resilient and rapidly reproducing species might have supplemented and sustained local day-to-day subsistence needs within the trade posts, the huge provisioning demands of the transportation network could only likely be fulfilled by the systematic and large-scale importation of pemmican and dried meat from provisioning posts distributed throughout the northern plains.

CHAPTER 7

CONCLUSIONS

This thesis addresses the timing and detail of the ecological transformation caused by fur trade predation. It begins by determining how HBC post journals portrayed ecological transformations, comparing these in in different biotic regions, and measuring the transformations over time. It also traces how harvest and trade operations at these posts changed to cope with resource decline. This evaluative research may offer means by which future research can contribute to exploring how Aboriginal residents of the study region responded and adapted to the changing circumstances. The ethnohistorical literature on the fur trade has long addressed the ecological collapse and its socio-economic implications (Bishop 1974; Ray 1974, 1978; Lytwyn 2002). What is less clear is how quickly it occurred, and if its impact was uniform within the various biomes that were the scenes of intensive harvest during the period of intense fur trade competition.

Posts were selected to represent three different ecozones (Hudson Bay Lowland, Precambrian Shield, and Manitoba Lowlands), each with a different range of harvestable species, and each responding differently to ecological

change. The four time periods used in this study represent different phases in fur trade history that are characterized by differing levels of trade predation intensity based on the numbers of European fur traders present. Period one (Fat of the Land [1773-1778]) falls within the early HBC monopoly, where the only competition was several independent operators originating from the St. Lawrence valley, but before the integrated effort represented by the development of the NWC. Period 2 (Proliferation Period [1793-1801]) falls within the height of heavy company competition, characterized by rapid expansion of European traders (in particular the NWC) throughout much of Rupert's Land (between Rocky Mountains and Hudson Bay). The harvest intensity of prime fur bearers and high valued game species was at its peak. Period 3 (Resource Depletion [1810-1821]) falls in the later stages of the time of intense competition, just before amalgamation occurred. The two major fur trading interests (HBC, NWC) were experiencing financial difficulties and a declining resource base. Period 4 (Amalgamation and Retrenchment [1827-1835]) is after the HBC and NWC merged under the banner of the HBC and a monopoly was restored. The HBC implemented numerous reforms to financial stabilize operations.

After the 1670 charter of the HBC and the 1682 establishment of a permanent post at the mouth of the Nelson and Hayes Rivers, local Aboriginal inhabitants had direct access to European trade goods. These goods likely were integrated into Aboriginal trade and exchange networks, but probably the early trade did not severely impact resource availability. Change in ecology began likely after the mid-18th century when the French penetrated the Saskatchewan River delta, offering more frequent and direct trade opportunities. Since the

French trade logistical network was very long and complex (and thus expensive), they appear to have focused on diverting the most valuable furs towards the St Lawrence valley, and the Indigenous-controlled Middlemen trade to York Factory remained sufficiently profitable for the HBC to persist in their bayside operations. This situation began to rapidly change after the 1760 Conquest of New France and the establishment of better-capitalized trade merchants in Montreal. These traders rapidly expanded operations of the former French trade network and by the early 1770s forced the HBC to begin inland expansion to trade directly with trappers within the distant interior hinterlands. By the late 18th century this inland trade competition expanded rapidly both in terms of the geographic extent of direct trade operations, and also in intensity of harvest and trade. This intensification of competition became particularly acute with the coalescence of Montreal trade ventures into increasingly large and well-organized partnerships. The most important was the NWC.

The period from the late 1760s through to 1821 saw a rapid expansion of fur traders into the hinterland of Rupert's Land, which escalated the demand for furs and provisions to supply the expanding system. The early ethnohistorical literature offered several generalizations regarding the ecological outcomes of increased European presence and the impacts on the Aboriginal population of the region (Bishop 1974; Ray 1974). The most common theme in the early literature was that of total ecological collapse, brought on by increased predation by Aboriginal hunters to supply European demand. The subarctic environment was thought of as a homogenous, static entity that was easily depleted. When this depletion occurred, it triggered widespread hardship for the Aboriginal

inhabitants who became dependent on the trade posts to supply them with provisions to stave off starvation. This dependence deepened from the need to continue trapping to pay debts and ensure continued access to now essential European trade goods. Charles Bishop (1974) stated that due to the constant use and the superiority of the European flintlock musket, the Aboriginal hunters lost their ability to hunt with their own technology, such as the bow and arrow, which led to complete dependency on the Europeans for shot, gun powder, and the flintlock musket. The data presented in this study is too sparse to infer local Aboriginal adaptive strategies, however, it does not support the proposition of widespread ecological collapse suggested in the earlier literature (Bishop 1974; Ray 1974). Highly valued species such as moose and beaver proved more resilient in some areas compared to others, while migratory species, such as caribou and geese, proved a predictable resource for the coastal area. All four posts (not including Gordon House, which is only represented by 1 period), show an increasing dependence over time on fish as a predictable resource.

The data from the five posts -- Cumberland House, Norway House, Oxford House, Gordon House, and York Factory -- suggest that there was not a widespread ecological collapse of the scale suggested in the early literature. The five posts represent three different ecological areas: tundra/taiga, boreal forest, and boreal forest/aspen parkland interface. The data was gathered from the daily occurrences at the posts as recorded by the European chief traders/factors in the post journals.

The data reveals that the ecological transformation was more complex than first suggested. The data shows declines in prey species that were highly

favoured, primarily large terrestrial game and primary fur bearers, but at a much slower pace than originally postulated by Bishop (1974) and Lytwyn (1981). There was a consistent decrease in the amount of MB recorded in the journals, but no noticeable depletion in specific animal furs or furs that were indeterminate or unnamed. The data is not robust enough to infer adaptive measures implemented by the Aboriginal populations that participated within the fur trade economy. There was a gradual geographic expansion in the size of the hinterlands with the importation of foodstuffs, such as pemmican, from the plains as well as an increase in the number of regional “resource patches” that were attached to an individual post. There was a greater emphasis placed on fish through space and time at all the posts as well as an increase in less preferred foodstuffs and furs. There were fluctuations in animal numbers, but not the wholesale collapse that has been previously described. The fur trade gradually impacted the ecology, as well as certain species, but the effects were not as prevalent and uniform as once thought. The trappers and hunters employed differing alternate resource harvest strategies depending on the circumstances they experienced.

By utilizing Optimal Foraging Theory (OFT) (Winterhalder 1983) as heuristic devices we see the environment as a patchwork of vegetation mosaics that were constantly in flux thereby creating a highly dynamic and varied ecological system. The different successional stages of the boreal forest present ideal habitat for certain species of economically valuable animals. An example is that moose prefer old burns or early successional stages of forest development where they have access to herbs and deciduous shrubs to graze on. Woodland

caribou prefer mature open forests or late successional stages where they have access to lichens (Malasiuk 1999). These different successional stages that create the varied mosaics would shift throughout time and space creating a heterogeneous landscape.

This patchwork of differing vegetation regiments created ecological "boundaries" at their points of interaction. Turner's, Davidson-Hunt's, and O'Flaherty's (2003) ecological/cultural edge zones, which are a result of differing mosaics, create productive and diverse areas that are resilient. The edge zones have a varied range of differing resources available for harvest such as the interface of the boreal forest and the parkland as well as a juncture between a body of water and a wooded area. Rogers's and Black's (1976) model of the "Fish and Hare" period in northwestern Ontario incorporates aspects of the "edge zone" model.

There was a switch in the number of certain species harvested at the expense of more valuable species, which should indicate slight ecological shifts taking place within the hinterland of the posts. During P1 at Cumberland House, very few fish or hares were harvested, with moderate numbers of moose and beaver recorded, which is indicative of a comparatively unaltered ecosystem. A similar pattern is apparent at York Factory, with very high numbers of migratory terrestrial game as well as waterfowl, and a low number in fish and hare being harvested. The post records indicate a depressed resource harvest at York Factory during P2, with decreased numbers harvested with every species except beaver (a very small increase of three carcasses). The two most important "clumped" resources, migratory caribou and waterfowl, were susceptible to

inclement weather so there were poor harvests when the weather was bad. The posts situated within the Precambrian Shield were very dependent on fish that became quite important as the most-favoured resources (beaver and moose) declined in availability. Oxford House and Norway House had access to certain "clumped" resources such as annual seasonal fish spawns, but were limited regarding other migratory animals such as barren-land caribou. The total migratory water fowl harvest for the two posts for P2-4 was only 1257, not an impressive number. Woodland caribou did play a significant role in the provisioning, but they were not very gregarious as compared to their barren-land cousins. P4 saw increased amounts of foodstuffs imported from districts situated in the plains, or close to them. The bison herds played a very significant role provisioning the transportation system with pemmican possibly indicating that the post hinterland simply could not provide subsistence to the post servants as well as the brigades.

Future work is required to make this study more robust. First, an emic view could be incorporated by adding an Aboriginal Traditional Knowledge (ATK) component similar to Rogers's and Black's (1976) study, which focuses on the changing lifeways of the Weagamow Anishinabe in the late 19th and early 20th centuries and utilizes traditional knowledge from participants. Second, the observations in this study could be enriched by incorporating archaeological analysis of material culture systematically excavated from fur trade posts to utilize the faunal assemblage to ascertain frequency of certain species of animals. Despite these limitations, this study demonstrates that valuable data on ecological change in

the diverse eco-regions of the fur trade can be gleaned from the records kept by fur traders, especially from reports of animals hunted and traded for both their furs and meat. Gathering data from a variety of places over long periods of time shows that ecological change from the stresses of the fur trade occurred in a heterogeneous fashion, depending on local circumstances.

REFERENCES CITED

I. Primary Sources

Hudson Bay Company Archives (HBCA)

Cumberland House

HBCA B.49/a/1, Reel 1M38. Cumberland House Post Journal, 1774-1775, Archives of Manitoba.

HBCA B.49/a/3, Reel 1M38. Cumberland House Post Journal, 1775-1776, Archives of Manitoba.

HBCA B.49/a/4, Reel 1M38. Cumberland House Post Journal, 1776-1777, Archives of Manitoba.

HBCA B.49/a/5, Reel 1M38. Cumberland House Post Journal, 1777-1778, Archives of Manitoba.

HBCA B.49/a/28, Reel 1M40. Cumberland House Post Journal, 1797-1798, Archives of Manitoba.

HBCA B.49/a/29, Reel 1M40. Cumberland House Post Journal, 1798-1799, Archives of Manitoba.

HBCA B.49/a/30, Reel 1M40. Cumberland House Post Journals, 1800-1801, Archives of Manitoba.

HBCA B.49/a/34, Reel 1M40. Cumberland House Post Journal, 1818-1819, Archives of Manitoba.

HBCA B.49/a/44, Reel 1M41. Cumberland House Post Journal, 1828-1829, Archives of Manitoba.

Gordon House

HBCA B.81/a/1, Reel 1M59. Gordon House Post Journal, 1794-1795, Archives of Manitoba.

HBCA B.81/a/2, Reel 1M59. Gordon House Post Journal, 1796-1797, Archives of Manitoba.

HBCA B.81/a/3, Reel 1M59. Gordon House Post Journal, 1797-1798, Archives of Manitoba.

Norway House

HBCA B.154/a/1, Reel 1M106. Norway House Post Journal, 1796-1797, Archives of Manitoba.

HBCA B.154/a/2, Reel 1M106. Norway House Post Journal, 1797-1798, Archives of Manitoba.

HBCA B.154/a/3, Reel 1M106. Norway House Post Journal 1798-1799, Archives of Manitoba.

HBCA B.154/a/5, Reel 1M106. Norway House Post Journal, 1812-1813, Archives of Manitoba.

HBCA B.154/a/9, Reel 1M106. Norway House Post Journal, 1820-1821, Archives of Manitoba.

HBCA B.154/a/17, Reel 1M107. Norway House Post Journal, 1828-1829, Archives of Manitoba.

HBCA B.154/a/21, Reel 1M107. Norway House Post Journal, 1832-1833, Archives of Manitoba.

Oxford House

HBCA B.156/a/1, Reel 1M115. Oxford House Post Journal, 1798-1799, Archives of
Manitoba.

HBCA B.156/a/2, Reel 1M115. Oxford House Post Journal, 1799-1800, Archives of
Manitoba.

HBCA B.156/a/3, Reel 1M115. Oxford House Post Journal, 1800-1801, Archives of
Manitoba.

HBCA B.156/a/4, Reel 1M115. Oxford House Post Journal, 1810-1811, Archives of
Manitoba.

HBCA B.156/a/7, Reel 1M115. Oxford House Post Journal, 1818-1819, Archives of
Manitoba.

HBCA B.156/a/10, Reel 1M115. Oxford House Post Journal, 1827-1828, Archives of
Manitoba.

HBCA B.156/a/13, Reel 1M115. Oxford House Post Journal, 1832-1833, Archives of
Manitoba.

York Factory

HBCA B.239/a/70, Reel 1M159. York Factory Post Journal, 1773-1774, Archives of
Manitoba.

HBCA B.239/a/71, Reel 1M159. York Factory Post Journal, 1774-1775, Archives of
Manitoba.
HBCA B.239/a/96, Reel 1M161. York Factory Post Journal, 1793-1794, Archives of
Manitoba.

HBCA B.239/a/97, Reel 1M161. York Factory Post Journal, 1794-1795, Archives of
Manitoba.

HBCA B. 239/a/100, Reel 1M161. York Factory Post Journal 1796-1797, Archives of
Manitoba.

HBCA B.239/a/124, Reel 1M162. York Factory Post Journal 1812-1815, Archives of
Manitoba.

HBCA B. 239/a/148, Reel 1M164. York Factory Post Journal 1834-1835, Archives of
Manitoba.

II. Other Sources

Abel, T.
1998 Complex Adaptive Systems, Evolutionism, and Ecology within Anthropology: Interdisciplinary Research for Understanding Cultural and Ecological Dynamics. Georgia *Journal of Ecological Anthropology* 2, 6-29.

Axtell, J.
1979 Ethnohistory: An Historians Viewpoint. *Ethnohistory* 26 (1), 1-13.

Ball, T.F.
1983 The Migration of Geese as an Indicator of Climate Change in the Southern Hudson Bay Region Between 1715 and 1851. *Climatic Change* 5, 85-93.

1986 Historical Evidence and Climatic Implications of a Shift in the Boreal Forest Tundra Transition in Central Canada. *Climatic Change* 8, 121-134.

Ball, T.F. and Kingsley, R.A.
1984 Instrumental Temperature Records at Two Sites in Central Canada: 1768 to 1910. *Climatic Change* 6 39-56.

Banci, V. and Proulx, G.
1999 Resiliency of Furbearers to Trapping in Canada. In: Proulz, G. (ed.), *Mammal Trapping*, pp, 175-203. Alpha Wildlife Research and Management Ltd.: Sherwood Park, Alberta.

Belyea, B.
2000 *A Year Inland: The Journal of a Hudson's Bay Company Winterer*. Wilfred Laurier University Press: Waterloo, Ontario.

Berkes, Fikret.
2013 *Sacred Ecology*. London: Routledge.

Berkes, F. And Turner, N.J.
2006 Knowledge, Learning and the Evolution of Conservation Practice for Social-Ecological System Resilience. *Human Ecology* 34 (4), 479-494.

Bird, L.
2005 *Telling Our Stories: Omushkego Legends & Histories from Hudson Bay*. Broadview Press: Peterborough, Ontario.

Bishop, C.A.
1970 The Emergence of Hunting Territories among the Northern Ojibwa. *Ethnology* 9, 1-15.

Bishop, C.A.
1974 *The Northern Ojibwa and the Fur Trade: An Historical and Ecological Study.* Toronto ON: Holt, Rinehart, Winston.

Bishop, C.A.
1984 The First Century: Adaptive Changes among the Western James Bay Cree between the Early Seventeenth and Early Eighteenth Centuries. In: Shepard Krech III (ed.), *The Subarctic Fur Trade: Native Social and Economic Adaptations,* pp, 21-53. Vancouver BC: University of British Columbia Press.

Bishop, C.A.
1986 Territoriality among Northeastern Algonquians. *Anthropologica* 28 (1/2), 37-63.

Bishop, C.A.
1994a Northern Algonquians, 1550-1760. In: Edward S. Rogers and Donald B. Smith (eds.), *Aboriginal Ontario: Historical Perspectives on the First Nations*, pp. 275-288. Toronto ON and Oxford UK: Dundum Press.

1994b Northern Algonquians, 1760-1821. In: Edward S. Rogers and Donald B. Smith (eds.), *Aboriginal Ontario: Historical Perspectives on the First Nations*, pp. 289-306. Toronto ON and Oxford UK: Dundum Press.

Bishop, C.A. and Ray, A.J.
1970 Ethnohistoric Research in the Central Subarctic: Some Conceptual and Methodological Problems. *Western Canadian Journal of Anthropology* 4, 116-144.

Bishop, C.A and Smith, M.S.
1975 Early Historic Populations in Northwestern Ontario: *Archaeological and Ethnohistorical Interpretations. American Antiquity* 40 (1), 54-63.

Black-Rogers, M.
1986 *Varieties of "Starving", Semantics and Survival in the Subarctic Fur Trade 1750-1850*. Ethnohistory 33 (4), 353-383.

Blair, D.
1997 The Climate of Manitoba. In: John Welsted, John Everitt and Christoph Stadel (eds.), *The Geography of Manitoba: Its Land and Its People*, pp, 31-42. Winnipeg MB: University of Manitoba Press.

Bohr, R.
2005 *Aboriginal Archery and European Firearms on the Northern Great Plains and in the Central Subarctic: Survival and Adaptation, 1670-1870.* Postdoctoral Dissertation. University of Manitoba: Winnipeg, Manitoba.

Brightman, R.
1987 Conservation and Resource Depletion: The Case of the Boreal Forest Algonquians. In: McCay, B.J. and Acheson, J.M. (eds.), *The Question of the Commons: The Culture and Ecology of Communal Resources*, pp, 121-141. University of Arizona Press: Tuscan, Arizona.

Brightman, R.
1993 *Grateful Prey: Rock Cree Human-Animal Relationships*. Berkeley: University of California Press.

Brinkley, E.S.
2008 *Field Guide to Birds of North America*. Sterling Publishing Company: New York, New York.

Brown, J.S.H.
2007 Rupert's Land, Nituskeenan, Our Land: Cree and English Naming and Claiming around the Dirty Sea. In: Ted Binnema and Susan Neylan (eds.), *New Histories for Old: Changing Perspectives on Canada's Native Pasts*, pp, 18-40. Vancouver BC: UBC Press.

Brownlee, K. and Syms, E.L.
1999 *Kayasoschi Kikawenow: Our Mother from Long Ago. An Early Cree Woman and Her Personal Belongings from Nagami Bay, Southern Indian Lake*. Manitoba Museum of Man and Nature.

Bumsted, J.M.
1999 *Fur Trade Wars: The Founding of Western Canada*. Great Plains Publications: Winnipeg, Manitoba.

Burch Jr, E.S.
1972 The Caribou/Wild Reindeer as a Human Resource. *American Antiquity* 37 (3), 339-368.

Burley, D. and Hamilton, S.
1991 *Rocky Mountain Fort: Archaeological Research and the Late Eighteenth-century North West Company Expansion into British Columbia.* BC Studies 88, 3-20.

Carlos, A.M. and Lewis, F.D.
1993 Indians, the Beaver and the Bay: The Economics of Depletion in the Lands of the Hudson's Bay Company, 1700-1763. *The Journal of Economic History* 53 (3), 465-494.

2001 Trade, Consumption, and the Native Economy: Lessons from York Factory, Hudson Bay. *The Journal of Economic History* 61 (4), 1037-1064.

2010 *Commerce by the Frozen Sea: Native Americans and the European Fur Trade.* University of Pennsylvania Press: Philadelphia, Pennsylvania.

Cleland, C.E.
1982 The Inland Shore Fishery of the Northern Great Lakes: Its Development and Importance in Prehistory. *American Antiquity,* 47 (4), 761-784.

Colpitts, George.
2006 Accounting for Environmental Degradation in Hudson's Bay Company Fur Trade Journals and Account Books. *British Journal of Canadian Studies* 19 (1), 1-32.

2008 "Victuals to Put into our Mouths": Environmental Perspectives on the Fur TradeProvisioning Activities at Cumberland House, 1775-1782. In: Gregory P. Marchildon (ed.), *The Early Northwest,* pp, 125-146. Regina Saskatchewan: University of Regina Press.

Corkery, M.T.
1997 Geology and Landforms of Manitoba. In: John Welsted, John Everitt and Christoph Stadel (eds.), *The Geography of Manitoba: Its Land and Its People,* pp, 11-30. Winnipeg MB: University of Manitoba Press.

Cox, B.
1973 *Cultural Ecology*. McClelland and Stewart Limited: Toronto, Ontario.

Creed, W.
2001 Manitoba's Natural Regions. [Map] Accessed November 15, 2015. Source http://manitobawildlands.org/pdfs/natural_regions.pdf

Dalton, G.
1961 Economic Theory and Primitive Society. *American Anthropologist* 63 (1), 1-25.

Dalton, G.
1969 Theoretical Issues in Economic Anthropology. *Current Anthropology* 10 (1), 63-102.

Dunning, R.W.
1959 *Social and Economic Change among the Northern Ojibwa*. University of Toronto Press: Toronto, Ontario.

Enns, R.A.
1988. The Fur Trade at Norway House 1796-1875: Preliminary Considerations in the Discussion of Treaty 5. Master's Thesis. Winnipeg MB: University of Manitoba.

Erickson, P.A. and Murphy, L.D.
2003 *A History of Anthropological Theory*. Peterborough: Broadview Press.

Feit, H.A.
2002 Waswanipi Cree Management of Land and Wildlife: Cree Ethno-Ecology Revisited. In: Bruce Alden Cox (ed), *Native Peoples, Native Lands: Canadian Indians, Inuit and Metis*, pp, 75-91. Montreal Kingston: McGill-Queen's University Press.

Flannery, R. And Chambers, M.E.
1986 John M. Cooper's Investigation of James Bay Family Hunting Grounds, 1927-1934. *Anthropologica* 28, 108-144.

Francis, D. and Morantz, T.
1983 *Partners in Furs: A History of the Fur Trade in Eastern James Bay 1600-1870.* McGill-Queen's University Press: Montreal, Quebec.

Gale, R.R.
2009 *The Great Northwest Fur Trade: A Material Culture 1763-1850.* Track of the Wolf Ltd.: Elk River, Minnesota.

Gilman, C.
1982 *Where Two Worlds Meet: The Great Lakes Fur Trade*. Minnesota Historical Society: St. Paul, Minnesota.

Grabowski, J. and St-Onge, N.
2001 Montreal Iroquois engages in the Western Fur Trade, 1800-1821. In Binnema, T., Ens, G.J. & Macleod, R.C. (eds.), *From Rupert's Land to Canada*, pp, 23-58. University of Alberta Press: Edmonton, Alberta.

Gray, D.E.
2009 *Doing Research in the Real World*. SAGE Publications Limited: Thousand Oaks, California.

Grimstead, D.N.
2010 Ethnographic and Modeled Costs of Long-Distance, Big-Game Hunting. *American Antiquity* 75 (1), 61-80.

Grove, M.
2009 Hunter-gatherer movement patterns: Causes and constraints. *Journal of Anthropological Archaeology* 28, 222-233.

Hamas, R.B. and Vickers, W.T.
1982 Optimal Diet Breadth Theory as a Model to Explain Variability in Amazonian Hunting. *American Ethnologist* 9 (2), 358-378.

Hamilton, S.
1991 *Western Canadian Fur Trade History and Archaeology: The Illumination of the Invisible in Fur Trade Society.* Journal of Saskatchewan Archaeology 11&12, 3-24.

Hamilton, S.
1993 Over-Hunting and Local Extinctions: Socio-Economic Implications of Fur Trade Subsistence. In Jamieson, R.W., Abonyi, S. and Mirau, N. eds. *Culture and Environment: A Fragile Coexistence. Calgary: Proceedings of the 24th Annual Conference of the Archaeological Association of the University of Calgary.*

Hamilton, S. and Nicholson, B.A.
2007 The Middleman Fur Trade and Slot Knives: Selective Integration of European Technology at the Mortlach Twin Fawns Site (DiMe-23). *Canadian Journal of Archaeology* 31 (3), 137-162.

Hanks, C.
1982 The Swampy Cree and the Hudson's Bay Company at Oxford House. *Ethnohistory* 29 (2), 103-115.

Helm, J.
1993 "Always with Them Either Feast or a Famine": Living of the Land with Chipewyan Indians, 1791-92. *Arctic Anthropology* 30 (2), 46-60.

Helm, J., Rogers, E.S. and Smith, J.G.E.
1981 Intercultural Relations and Cultural Change in the Shield and Mackenzie Borderlands. In: W.C. Sturtevant and June Helm (eds.), *Handbook of North American Indians Vol 6 Subarctic*, pp, 145-157. Washington D.C.: Smithsonian Institute.

Hickerson, H.
1988 *The Chippewa and Their Neighbors: A Study in Ethnohistory.* Waveland Press Ltd.: Prospect Heights, Illinois.

Hollings, C.S.
2001 Understanding the Complexity of Economic, Ecological and Social Systems. *Ecosystems* 4 (5), 390-405.

Holly Jr, D.H.
2002 Subarctic "Prehistory" in the Anthropological Imagination. *Arctic Anthropology* 39 (1), 10-26.

Honigmann, J.J.
1981 West Main Cree. In: W.C. Sturtevant and June Helm (eds.), *Handbook of North American Indians Vol 6 Subarctic*, pp, 217-230. Washington D.C.: Smithsonian Institute.

Huck, B. et al.
2002 *Exploring the Fur Trade Routes of North America*. Heartland Printing: Winnipeg, Manitoba.

Innis, H.A.
1930 *The Fur Trade in Canada*. University of Toronto Press: Toronto, Ontario.

Jarvenpa, R. And Brumbach, B.J.
1983 Ethnoarchaeological Perspectives on an Athapaskan Moose Kill. *Arctic* 36 (2), 174-184.

Johnson, D.F.
2006 *York Boats of the Hudson's Bay Company: Canada's Inland Armada*. Fifth House Limited: Calgary, Alberta.

Kelly, M.E. and Connell, B.E.
1978 *Survey and Excavations of The Pas Moraine: The 1976 Field Season*. Department of Tourism, Recreation and Cultural Affairs: Winnipeg, Manitoba.

Kelly, R.L.
1983 Hunter-Gatherer Mobility Strategies. *Journal of Anthropological Research* 39 (3), 277-306.

Kershner, B. et al.
2008 *Field Guide to Trees of North America.* Sterling Publishing Company: New York, New York.

Klimko, O.
1982 Fur Trade History of the Saskatchewan River 1760-1850. In Burley, D. and Meyer, D (eds.), *Nipiwan Reservoir Heritage Study Vol.3: Regional Overview and Research Considerations*, pp, 116-149. Saskatchewan Research Council: Saskatoon, Saskatchewan.

Krech III, S.
1991 The State of Ethnohistory. *Annual Review of Anthropology* 20, 345-375.

Kroeker, S.
1990 *Archaeology and Hydro-Electric Development in Northern Manitoba: A Retrospective on the Churchill River Diversion and Nelson River Power Development.* The Manitoba Archaeological Society: Winnipeg, Manitoba.

LeBlanc, J.W. et al.
2011 First Nations Moose Hunt in Ontario: A Community's Perspectives and Reflections. *Alces* 47, 163-174.

Liboiron, H. And St-Cyr, B.
1988 *Experiments in Pemmican Production.* Saskatchewan Archaeology Journal 9, 43-45.

Lytwyn, V.P.
2002 *Muskekowuck Athinuwick: Original People of the Great Swampy Land.* Winnipeg: University of Manitoba Press.

Malasiuk, J.A.
1999 *Aboriginal Land Use Patterns in the Boreal Forest of North-Central Manitoba: Applications for Archaeology*. Master's Thesis. University of Manitoba: Winnipeg, Manitoba.

Martin, C.
1974 The European Impact on the Culture of a Northeastern Algonquian Tribe: An Ecological Interpretation. *The William and Mary Quarterly* 31 (1), 3-26.

Martin, C.
1978 *Keepers of the Game: Indian-Animal Relationships and the Fur Trade.* University of California Press: Los Angeles, California.

McCloskey, E.
2008 Bear Attacks in Canada. Lone Pine Publishing: Edmonton, Alberta.

McManus, J.C.
1972 An Economic Analysis of Indian Behavior in the North American Fur Trade. *Journal of Economic History* 32 (1), 36-53.

Metcalfe, D. and Barlow, K.R.
1992 A Model for Exploring the Optimal Trade-off between Field Processing and Transport. *American Anthropologist* 94 (2), 340-356.

Meyer, D.
1973 *The Red Deer River Grave: An Historic Burial.* Saskatchewan Anthropological Journal 4 (1), 3-28.

Meyer, D. and Thistle, P.C.
1995 Saskatchewan River Rendezvous Centers and Trading Posts: Continuity in a Social Geography. *Ethnohistory* 42 (3), 403-444.

Miller, J.R.
2009 *Compact, Contract, Covenant: Aboriginal Treaty-Making in Canada*. University of Toronto Press: Toronto, Ontario.

Mithen, S.J.
1989 Modeling Hunter-Gatherer Decision Making: Complementing Optimal Foraging Theory. *Human Ecology* 17 (1), 59-83.

Morantz, T.
1984 Economic and Social Accommodations of the James Bay Inlanders. In: Shepard Krech III (ed.), *The Subarctic Fur Trade: Native Social and Economic Adaptations*, pp, 55-79. Vancouver BC: University of British Columbia Press.

Morantz, T.
1986 Historical Perspectives on Family Hunting Territories in Eastern James Bay. *Anthropologica* 28, 64-91.

2001 Plunder or Harmony? On Merging European and Native Views of Early Contact. In Warkentin, G. and Podruchny, C. eds. *Decentring the Renaissance: Canada and Europe in Multidisciplinary Perspective 1500-1700*. Toronto: University of Toronto Press.

Morse, E.W.
1971 *Fur Trade Canoe Routes of Canada: Then and Now*. University of Toronto Press: Toronto, Ontario.

Murphy, R.F. and Steward, J.H.
1956 Tappers and Trappers: Parallel Processes in Acculturation. *Economic Development and Cultural Change 4* (4), 335-355.

Payne, Michael.
1989 *The Most Respectable Place in the Territory: Everyday Life in Hudson's Bay Company Service York Factory, 1788-1870*. Ottawa: Department of Canadian Heritage.

Peloquin, C. and Berkes, F.
2009 Local Knowledge, Subsistence Harvests, and Social-Ecological Complexity in James Bay. *Human Ecology* 37, 533-545.

Perry, D.A.
1994 *Forest Ecosystems.* The Johns Hopkins University Press: Baltimore, Maryland.

Petch, V.
1987 The Hayes River: A Site Specific Land Use History. Winnipeg, Manitoba.

Pettipas, K.
1980 The Ethnohistory of the Pas Area, Prehistoric-1875: A Study in Cree Adaptation. In Leo Pettipas (ed.), Directions in *Manitoba Prehistory: Papers in Honour of Chris Vickers,* pp, 169-232. The Manitoba Archaeological Society: Winnipeg, Manitoba.

Pilon, J-C.
1987 *Washahoe Inninou Dahtsuounoaou: Ecological and Cultural Adaptation Along the Severn River in the Hudson Bay Lowlands of Ontario. Conservation Archaeology Report, Northwest Region, Report No.10*. Ministry of Citizenship and Culture: Toronto, Ontario.

Pilon, J-C.
1990 Historic Native Archaeology Along the Lower Severn River, Ontario. *Canadian Journal of Archaeology* 14, 123-141.

Pyszczyk, H.W.
1997 The Use of Fur Trade Goods by the Plains Indians, Central and Southern Alberta, Canada. *Journal of Canadian Archaeology* 21, 45-84.

Ray, A.J.
1974 *Indian in the Fur Trade: Their Role as Trappers, Hunters, and Middlemen in the Lands Southwest of Hudson's Bay, 1660-1870*. Toronto: University of Toronto Press.

1975 Some conservation schemes of the Hudson's Bay Company, 1821-1850: An examination of the problems of resource management in the fur trade. *Journal of Historic Geography* 1 (1), 49-68.

1978a History and Archaeology of the Northern Fur Trade. *American Antiquity* 43 (1), 26-34.

1978b Competition and Conservation in the Early Subarctic Fur Trade. *Ethnohistory* 25 (4), 347-357.

1981 The Hudson's Bay Company and Native People. In: W.C. Sturtevant and June Helm (eds.), *Handbook of North American Indians Vol 6 Subarctic,* pp, 335-350. Washington D.C.: Smithsonian Institute.

1984 Periodic Shortages, Native Welfare, and the Hudson's Bay Company 1670-1930. In: Shepard Krech III (ed.), *The Subarctic Fur Trade: Native Social and Economic Adaptations*, pp, 1-20. Vancouver BC: University of British Columbia Press.

1990 *The Canadian Fur Trade in the Industrial Age*. Toronto: University of Toronto Press.

2008 The Northern Great Plains: Pantry of the Northwestern Fur Trade, 1774-1885. In: Gregory P. Marchildon (ed.), *The Early Northwest*, pp, 85-104. Regina Saskatchewan: University of Regina Press.

Ray, A.J. and Heidenreich, E.
1976 *The Early Fur Trades: A Study in Cultural Interaction*. Toronto: McClelland and Stewart Limited.

Redman, C.L.
2005 Resilience Theory in Archaeology. *American Anthropologist* 107 (1), 70-77.

Reid, F.A.
2006 *Mammals of North America*. Houghton Mifflin Company: New York, New York.

Rich, E.E.
1958 *Hudson's Bay Company 1670-1870 Vols.1-3.* McClelland and Stewart Limited: Toronto, Ontario.

Rich, E.E.
1960 Trade Habits and Economic Motivation among the Indians of North America. *The Canadian Journal of Economics and Political Science* 26 (1), 35-53.

Rogers, E.S.
1963 Changing Settlement Patterns of the Cree-Ojibwa of Northern Ontario. *Southwestern Journal of Anthropology* 19 (1), 64-88.

1967 *Subsistence Areas of Cree-Ojibwa of the Eastern Subarctic: A Preliminary Study*. Ottawa: National Museum of Canada.

Rogers, E.S. and Black, M.B.
1976 Subsistence Strategy in the Fish and Hare Period, Northern Ontario: The Weagamow Ojibwa, 1880-1920. *Journal of Anthropological Research* 32 (1), 1-43.

Rogers, E.S.
1994 Northern Algonquians and the Hudson's Bay Company, 1821-1890. In: Edward S. Rogers and Donald B. Smith (eds.), *Aboriginal Ontario: Historical Perspectives on the First Nations*, pp. 307-347. Toronto ON and Oxford UK: Dundum Press.

Rogers, E.S. and Smith, J.G.E.
1981 In: W.C. Sturtevant and June Helm (eds.), *Handbook of North American Indians Vol 6 Subarctic*, pp, 130-145. Washington D.C.: Smithsonian Institute.

Rogers, E.S. and Taylor, J.G.
1981 Northern Ojibwa. In: W.C. Sturtevant and June Helm (eds.), *Handbook of North American Indians Vol 6 Subarctic,* pp, 231-243. Washington D.C.: Smithsonian Institute.

Rowe, J.S.
1972 *Forest Regions of Canada*. Department of the Environment, Canadian Forestry Service, Publication No.1300: Ottawa, Ontario.

Ruggles, R.I.

1991 *A Country So Interesting: The Hudson's Bay Company and Two Centuries of Mapping 1670-1870*. London: McGill-Queen's University Press.

Russell, D.
1982 Initial European Contacts and the Fur Trade to 1767on the Saskatchewan River. In Burley, D. and Meyer, D (eds.), *Nipiwan Reservoir Heritage Study Vol.3: Regional Overview and Research Considerations*, pp, 89-115. Saskatchewan Research Council: Saskatoon, Saskatchewan.

Sahlins, Marshall.
1972 *Stone Age Economics*. New York: Aldine De Gruyter.

Scott, G.A.J.
1997 Manitoba's Ecoclimatic Regions. In: John Welsted, John Everitt and Christoph Stadel (eds.), *The Geography of Manitoba: Its Land and Its People*, pp, 43-59. Winnipeg MB: University of Manitoba Press.

Sieciechowicz, K.
1986 Northern Ojibwa Land Tenure*. Anthropologica* 28, 187-202.

Sims, R.A. and Baldwin, K.A.
1991 *Landform Features in Northwestern Ontario*. Sault Ste. Marie Ontario: Ministry of Natural Resources.

Simmons, W.S.
1988 Culture Theory in Contemporary Ethnohistory. *Ethnohistory* 35 (1), 1-14.

Smith, B.D.
1979 Measuring the Selective Utilization of Animal Species by Prehistoric Human Populations. *American Antiquity* 44 (1), 155-160.

Smith, E.A. et al.
1983 Anthropological Applications of Optimal Foraging Theory: A Critical Review. *Current Anthropology* 24 (5), 625-651.

Smith, J.G.E.
1981 Western Woods Cree. In: W.C. Sturtevant and June Helm (eds.), *Handbook of North American Indians Vol 6 Subarctic*, pp, 256-270. Washington D.C.: Smithsonian Institute.

Smith, J.G.E.
1987 The Western Woods Cree: Anthropological Myth and Historical Reality. *American Ethnologist* 14 (3), 434-448.

Speck, F.G.
1923 Mistassini Hunting Territories in the Labrador Peninsula. *American Anthropologist 25* (4), 452-471.

Stewart, K.W. and Watkinson, D.A.
2004 *The Freshwater Fishes of Manitoba.* University of Manitoba Press: Winnipeg, Manitoba.

Stopp, M.P.
2002 Ethnohistoric analogues for storage as an adaptive strategy in northeastern subarctic prehistory. *Journal of Anthropological Archaeology*. 21, 301-328.

Tanner, A.
1979 *Bringing Home Animals: Religious Ideology and Mode of Production of the Mistassini Cree Hunters*. New York NY: St. Marten's Press.

2002 The Significance of Hunting Territories Today. In: Bruce Alden Cox (ed), *Native Peoples, Native Lands: Canadian Indians, Inuit and Metis*, pp, 60-74. Montreal Kingston: McGill-Queen's University Press.

Tellar, J.T. and Thorleifson, L.H.
1983 The Lake Agassiz-Lake Superior Connection. In: J.T. Tellar and Lee Clayton (eds.), *Glacial Lake Agassiz*, pp, 262-290. University of Manitoba Press. Winnipeg, Manitoba.

Thistle, P.
1986 *Indian-European Trade Relations in the Lower Saskatchewan River Region to 1840.* University of Manitoba Press: Winnipeg, Manitoba.

Thompson, V.D. and Turck, J.A.
2009 Adaptive Cycles of Coastal Hunter-Gatherers. *American Antiquity* 74 (2), 255-278.

Tough, F.
1996 *As Their Natural Resources Fail: Native Peoples and the Economic History of Northern Manitoba, 1870-1930*. University of British Columbia Press: Vancouver, British Columbia.

Trigger, B.
1982 Ethnohistory: Problems and Prospects. *Ethnohistory* 29, 1-19.

Trosper, R.L.
2003 Resilience in Pre-Contact Pacific Northwest Social Ecological Systems. *Conservation Ecology* 7 (3), 1-12.

Turner, N.J., Davidson-Hunt, I.J. and O'Flaherty, M.
2003 Living on the Edge: Ecological and Cultural Edges as Sources of Diversity for Social-Ecological Resilience. *Human Ecology* 31 (3), 439-461.

Waisberg, L.G.
1975 Boreal Forest Subsistence and the Windigo: Fluctuation of Animal Populations. *Anthropologica* 17 (2), 169-185.

Walker, B. and Salt, D.
2006 *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Island Press: Washington, DC.

White, B.M.
1999 The Woman Who Married a Beaver: Trade Patterns and Gender Roles in the Ojibwa Fur Trade. *Ethnohistory* 46 (1), 109-147.

Williams, G.
1969 *Andrew Graham's Observations on Hudson's Bay 1767-1791*. Hudson's Bay Record Society XXVII: London, England.

1983 The Hudson's Bay Company and the Fur Trade: 1670-1870. *The Beaver Magazine:* Winnipeg, Manitoba.

Willmott, C. and Brownlee, K.
2010 Dressing for the Homeward Journey: Western Anishinabe Leadership Roles Viewed through Two Nineteenth-Century Burials. In Podruchney, C. and Peers, L. (eds.), *Gathering Places: Aboriginal and Fur Trade Histories,* pp, 48-89. University of British Columbia Press: Vancouver, British Columbia.

Winterhalder, B.P.
1980 Canadian Fur Bearer Cycles and Cree-Ojibwa Hunting and Trapping Practices. *The American Naturalist* 115 (6), 870-879.

1983a History and Ecology of the Boreal Forest Zone in Ontario. In Steegmann, A.T. ed. *Boreal Forest Adaptations*. New York: Plenum Press, 9-46.

1983b Boreal Foraging Strategies. In Steegmann, A.T. ed. *Boreal Forest Adaptations.* New York: Plenum Press, 201-241.

Wobst, H.M.

1978 The Archaeo-Ethnology of Hunter-Gatherers or the Tyranny of the Ethnographic Record in Archaeology. *American Antiquity* 43 (2), 303-309.

Wood, W.J. et al.

1976 *An Archaeological Reconnaissance of the Tyrrell Sea Beach Manitoba.* Department of Tourism, Recreation and Cultural Affairs: Winnipeg, Manitoba.

APPENDIX

DATA TABLES

York Factory 1773 - 1774

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fisher	Porcupine	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins	Beaver Tails
Oct	89		320			21	60			1																			
Nov	921		260			+	168+						1				1			20									
Dec	1606						40								1					65									
Jan	559																												
Feb	1208												1				2		3										
Mar	2130					130																							
Apr	516														3				1										
May		167		1			21				15															4			
June			27		8		10				15				4				4			4				14			
July		20			57	78					33														12	234			
Aug					40						84												46		36	370			
Sept		537			11						110												89		418	616			
total	7029	724	607	1	116	229+	299+			1	257		2		8		3		8	85		4	135			466	1238		

+ = reference
*=goose and duck

York Factory 1774 - 1775

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins	Beaver Tails
Oct	2				64	16	3				6									10						8	30		
Nov	817		110				110													106		13+						+	
Dec	1010					5	7													6									
Jan	597				10	80													2										
Feb	590														1		66					10+					14+		4
Mar	1780														6		110		10			23+					18	6	6
Apr	384					15					2				5				1			27+					29		4
May		1628**									15																		
June		178	1	25			53				3											47+					50		
July		+				30	10				19															62	138	+	
Aug				66	40	10					1												10+			80	30+		
Sept		1646+									49											19+	62+			191	332	+	
total	5180	3452+	111	91	124	156	183				95				12		176		13	122		139	72			341	641	6+	14

+ = reference
*=goose and duck

York Factory 1793-1794

	Fowl		Fish							Mammals											Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fisher	Porcupine	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins	Beaver Tails
Oct		900+	242+																				+			+			
Nov	+		+								+																		
Dec	+		+																										
Jan	321																												
Feb	745																			5									
Mar	612+																						+					+	
Apr	140	1	30								1												+					+	
May		536																											
June			+								68+																		
July																							+			52+		8+	
Aug																												+	
Sept																							+			+			
total	1818+	1437+	272+								69+									5			+			52+		8+	

+ = reference
*=goose and duck

York Factory 1794 - 1795

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fisher	Porcupine	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins	Beaver Tails
Oct	20+		390								1				6				3	19+								+	
Nov	100+		46												3				5	+								+	
Dec	100+		+												1														
Jan	+																												
Feb	+										+				1				2									+	
Mar	+																												
Apr	+										+																		
May		350+									3																		
June		+	56								20																60*		
July		+	+								1																		
Aug		72+	20								3				4								+			+			
Sept		+									+																		
total	220+	422+	512+								28+				15				10	19+			+			+	60	+	

+ = reference
*=goose and duck

York Factory 1796 -1797

	Fowl		Fish							Mammals											Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins	Beaver Tails
Oct	+		200								2				6				6									
Nov	30+		+								4+																	
Dec			+								1+																	
Jan	60+		+																									
Feb	+																											
Mar																												
Apr																												
May	+	2													2							2000						
June		1140																										
July																												
Aug											+																	
Sept		+									+												+				+	
total	90+	1142+	200+								7+				8				6			2000	+				+	

+ = reference
*=goose and duck

York Factory 1812 - 1813

	Fowl		Fish							Mammals											Provisions (lbs)								
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails	Castoreum
Oct		+																				4785	440+							
Nov	79		20																2	33										
Dec	119																			2										
Jan	+																													
Feb	198																					27.5								
Mar	575																											98		10.5
Apr			+																			97+					9			
May	2	1551									28											+			15bgs		14			
June		320+									2											1056								
July																														
Aug											42																			
Sept		110									15											+								
total	973+	1981	20+								87								2	35		5965.5+	440+		15		23	98		10.5

+ = reference

York Factory 1813 - 1814

	Fowl		Fish							Mammals												Provisions (lbs)								
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails	Castoreum
Oct		63									15										1		89+							
Nov	2											2	9				3			4		131					11	1		
Dec	186												1			5	3			113		176						133+		
Jan	667												1				5			61			30							
Feb	1323																			8		72						30		
Mar	1153												34		26		141				10							2		2
Apr	2051												125		2		7											2		
May	+	68+	20										38	1	58		132			57	5	762.5	36.5+				70			2
June		10										1		3	108	343	34	7		21	159									12
July		68									12																			
Aug		60									25				1							+						+		
Sept		+									145				7							400+						+		
total	5382	269+	20								197	3	208	4	202	348	325	7		264	175	1541.5+	155.5+				81	168+		16

+ = reference

York Factory 1814 - 1815

	Fowl		Fish							Mammals												Provisions (lbs)								
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails	Castoreum
Oct	4	8	1451		2			2					8		35				9	2		21						+		
Nov	141		638					207					8		9	2	3		62									+		
Dec	593		450										226		1	7	22		56+									20+		
Jan	779												20		4		15		47									+		
Feb	16+																													
Mar																														
Apr																														
May															20		21								169	96				
June		527											9		6	56	2		90	13		870			7	0		7		3
July		3											16	1	46	99	117		73	30		1481	29		4000		26	83		2
Aug		52	426	7									5		50	111	34		10	10		4319	34.5	50			42	6		
Sept		690	331+							10												9731	658				62			
total	1533+	1280	3296+	7	2			209		10			284	1	324	310	403		347	55		12495	742.5	50	5697	960	130	116+		5

+ = reference

York Factory 1834 - 1835

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins	Beaver Tails
Oct	40	45			1200					6										20		50							
Nov	878+				5723					2										71+		211							
Dec	717+		290		1092															132+		1214						308	
Jan	536+		1034+		1172			4		2										156+		112						55	
Feb	541+		+		284					3										37+		443						+	
Mar	1705	221	73		30					17										49		1559							
Apr	1181	11	30																	27		1564						302	
May		44																				329						+	
June		1012	185		2011																				+				
July																													
Aug	2283	1261	270		4379																	423							
Sept																						210			163				
total	7881+	2594	1882+		15891			4		30										492+		6115			163+			665+	

+ = reference

Gordon House 1794 - 1795

	Fowl		Fish							Mammals										Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct	37																	6	12									
Nov	10																	1	60									
Dec	14																		9									+
Jan	17																		2								10	
Feb	39																		12									
Mar	7																					500		30		14	+	
Apr		1																				+					+	
May		19					+	+																				
June						+															2							
July																						20						
Aug																												
Sept	3																	4				+					+	
total	127	20				+	+	+										11	95		2	520+		30		14	10+	+

+ = reference

Gordon House 1796 - 1797

	Fowl		Fish							Mammals										Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct	9				90													1	45									
Nov	4																	6	12								+	
Dec	6												1					10			+	240						
Jan																		2			50	30						
Feb										1									60			220+					40	
Mar																					140+							
Apr										+					3				+			132				5	160+	
May		33+																										
June		8	+			+					1																	
July																						+					+	
Aug															+			2			170	+			36		10+	
Sept																												
total	19	41+	+		90	+				1+	1		1		3+			21	117+		360+	610+			36	5	210+	

+ = reference
*=goose and duck

Gordon House 1797 - 1798

	Fowl		Fish							Mammals											Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct					11																80							
Nov											1								7		200	50						
Dec																					324							
Jan																		2										
Feb			+			+															+						+	
Mar																					+	80					+	
Apr																					+							
May		46									5																	
June																												
July																						130						
Aug																											+	
Sept																					100						+	
total		46	+		11	+					6							2	7		704+	260					+	

+ = reference
*=goose and duck

Oxford House 1798 - 1799

	Fowl		Fish							Mammals											Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fisher	Porcupines	Rabbits/Hares	small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		22**	1017																1		1*	921	370			66		34	
Nov			2712								1											205	50						
Dec			1380																			965	185		23			181	
Jan			487																				172		20			56	
Feb			169																1			1095	101		23	15	12*	71	
Mar			117																			112	357			20		151	
Apr			127																			142	84					89	
May		36**	188								+											40	30				10*	56	
June		58	418																									142	
July			877																				162					6	
Aug		+	129																			170	386			75		55	
Sept		+	73																			289	403			120		30	
total		116+	7694								1+								2		1	3939	2300		66	296	22	871	

+ = reference
*=goose and duck

Oxford House 1799 - 1800

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fisher	Porcupines	Rabbits/Hares	small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			284																17			484	253			57			
Nov			1368																			104						3	
Dec			1311																			1395						7	
Jan			461																			475						4	
Feb																			2			310	30						
Mar																						150	278						
Apr		21	23																			140							
May			385																										
June			308																										
July			239																				238						
Aug			172																				260			22			
Sept			191									+							3			274	360			46			
total		21	4742									+							22			3332	1419			125		14	

+ = reference
*=goose and duck

Oxford House 1800 - 1801

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fisher	Porcupines	Rabbits/Hares	small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		+	519									+										700						6	
Nov			1446												7				1										
Dec			1258																			200	160						
Jan			163																			882	35						
Feb			+							+												130	20						
Mar																												1	
Apr		25**																				183	94				5		
May		82	141																									6	
June		3	697																										
July		5**	1045																			30	46						
Aug			388																			40	189			127			
Sept		3	135																			100	440			165			
total		118	5792+							+		+			7				1			2265	984			292	5	13	

+ = reference
*=goose and duck

Oxford House 1810 - 1811

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct					2700										+						1							4	
Nov					1635									6							10		30					35	
Dec			342								+		1	13+					12		2							18	
Jan			100									2	1	6							13							14	
Feb																						20							
Mar														14							7	300						11	
Apr		4+													11						11	413	60	138	17		9*	3	
May		45**	+																			+							
June		+																										3	
July																													
Aug																						100						4	
Sept			100							+											3		+					10	
total		49+	542+		4335					+	+	2	2	39+	11+				12		47	833+	90+	138	17		9	102	

+ = reference
*=goose and duck

Oxford House 1818 - 1819

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		2	1000																			30*							
Nov			18+																										
Dec			40+																			23*							
Jan			100+		400		14				1																		
Feb			279+								2																	2	
Mar			225							1+	2								1										
Apr		2	360					257+														50							
May		7	+					+															+						
June											1																	+	
July																													
Aug																													
Sept																													
total		11	2022+		400		14	257+		1+	6								1			102.5	+					2+	

+ = reference
*=goose and duck

Oxford House 1827 - 1828

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			1393		4345	3	3	112	7							30													
Nov	11		2703		1342		27	5	1											17								5	
Dec			601		688	6	35	21						8														13	
Jan			18		239	4	26	17		+																		15	
Feb			21		470		34	1							1						2							5	
Mar			250		1950	2	3	86							4					50	10							12	
Apr		+	238		342	1	24	522														+						62	
May			124		682	2	100	943																				23+	
June					215		43	132																					
July																													
Aug																													
Sept																													
total	11	+	5348		10273	18	295	1839	8	+				8	5	30				67	12	+						141+	

+ = reference
*=goose and duck

Oxford House 1832 - 1833

	Fowl		Fish							Mammals													Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			1581		1282		417																						
Nov			4619		7184		111																						
Dec			101		1691		666							5			1											5	
Jan			37		1075		290								14	92	7				13	518						18	
Feb			337		970		473							1							18							3	
Mar			121		498		138					1	1	11	5	44	12	3			34							14	
Apr			225		123		5																						
May																													
June			754		430		325																		25			1	
July			1280		724		80																						
Aug			330		808		75					1				10					3				38			+	
Sept			1106		532		419																						
total			10491		15317		2999					2	1	17	19	146	20	3			68	518			63			41+	

+ = reference

Norway House 1796 - 1797

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		13**	1070																			+							
Nov			1133		64																							+	
Dec																												+	
Jan																												+	
Feb			110			19																							
Mar			98			29																+	+					+	
Apr			82		10	45																							
May		32**	222			116									+								+					+	
June						77																+						+	
July																													
Aug			42	1	10					+													+				+	
Sept		20	143		54	21				+													+				+	
total		75	2900	1	138	307				+					+							+	+				+	

+ = reference
**=goose and duck

Norway House 1797 - 1798

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		12	2602																			+						+	
Nov			5541																										
Dec			60								2																		
Jan																				18		+	+					+	
Feb																						+	+					+	
Mar										+	25																	+	
Apr		85**	67			26					6																	+	
May		81	27	20		197									1							+						+	
June		1		55		37																+						+	
July		120	2	9		26																	6					+	
Aug			65	6																		+						+	
Sept			451																			+						+	
total		299	8815	90		286				+	33				1					18		+	6+					+	

+ = reference
**=goose and duck

Norway House 1798 - 1799

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		13	1996																										
Nov			2443																										
Dec											1																		
Jan																													
Feb																													
Mar			54			9																2	40						
Apr		47	334																			8							
May		71**	158	19		65																							
June				34		54									4														
July																													
Aug																													
Sept		26	278									1										4						+	
total		157	5263	53		128					1	1			4							14	40					+	

+ = reference
**=goose and duck

Norway House 1812 - 1813

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct										+						+						+					1		
Nov			657		432						1		1				+												
Dec			40		34					2												312							
Jan													1				3					638	40						
Feb																	21					775		30				+	
Mar										4+	4						3				5	100							
Apr										1																		+	
May		57			21	122					+																	+	
June		13																											
July																													
Aug																													
Sept																													
total		70	697		487	122				7+	5+		2			+	27+				5	1825	40	30			1	+	

+ = reference

Norway House 1820 - 1821

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		175+	2730		3500											+					*		4+					90+	
Nov		12	5000							+						99+				+		1						9	
Dec			5300								2											3							
Jan											+											290+						+	
Feb											1											+						+	
Mar											+												+					+	
Apr																				16+		+						+	
May		34+	202	5	9	69																						33+	
June				175										1		139													
July																													
Aug																													
Sept		31**														241					6		11					1	
total		252+	13232	180	3509	69				+	3+			1		479+				16+	6	294+	15+					133+	

+ = reference
**=goose and duck

Norway House 1828 - 1829

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			760		10829	190																				32			
Nov			16		8123	70																							
Dec			200		2468	36																					2		
Jan					90											1000												+	
Feb																2000												3	
Mar																800												18	
Apr		3	2		8	128		51						13														119+	
May		1+		1	19	940+		35																					
June				109	50	57																		490	120	48			
July				129	25	204																							
Aug				27	2																								
Sept					1065																								
total		4+	976	266	22679	1625+		86						13		3800								490	152	50	137+		

+ = reference

Norway House 1832 - 1833

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			8137		524																							64	
Nov			3403		68									1							6								
Dec			7510																									20	
Jan										1+	2											240						65	
Feb											2											30+						20	
Mar			8801								4				+						2	614						211	
Apr		60+												1			6	3			3							286	
May		25+		287	8	644										365												341+	
June				447	425	714+										50												80	
July				171+	82	121																							
Aug				100	208	189																							
Sept					2434	76				2						1230												107	
total		85+	27851	1005+	3749	1744+				3+	8			2	+	1645	6	3			11	884						1194+	

+ = reference

Cumberland House 1774 - 1775

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct	1+	+	2+												2							+	+			+		+	
Nov			13+	1	7										4														
Dec	9+		+	12	3																	+							
Jan	112+						1								5							+	+						
Feb	24+					+																+						+	
Mar				9		9	1															+	+					+	
Apr		30**+																											
May		99**+																											
June										7																			
July																													
Aug										5																			
Sept				3																		+	+			+		+	
total	146+	129+	15+	25	10	9+	2			12					11							+	+			+		+	

+ = reference
**=goose and duck

Cumberland House 1775 - 1776

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		+	18+			38+				+													+						
Nov			2+	4		1				+																			
Dec			1+	4						+					+														
Jan			3+	31	2					+																		+	
Feb			4+	34		3									+							+	+					+	
Mar				3		1				+					+		+					+						+	
Apr		2+		3											+		+											+	
May		+																										+	
June			+	10+						+													+					+	
July																													
Aug																													
Sept																													
total		2+	28+	89+	2	43+				+					+		+					+	+					+	

+ = reference

Cumberland House 1776 - 1777

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			1+	27	4	38				+					+													+	
Nov			6	3													+												
Dec			+	61						+							39				2	+						+	
Jan			+	2						+		1			+		7						1397+			169		+	
Feb	+		+	6+		1				+					+		80+				2	+						+	
Mar			6+	34+	1	12				+	+				+		216				3	270+	496			52		+	
Apr			2+	19		6				+					+		495+				4							+	
May		7**+	+	10																								+	
June			3+	13		5				+												86	40			90		+	
July			1	4						+					+								+					+	
Aug										1+	+	+											+					3+	
Sept		49+	12+			+				+												+	+					+	
total	+	56+	31+	179+	5	62+				1+	+	1+			+		837+				11	356+	1933+			311		3+	

+ = reference
**=goose and duck

Cumberland House 1777 - 1778

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct	13	117**	35	31	93				9								4			13		+							
Nov	24	1	3	48		2											28			8		220							
Dec			+	91	10	1	3		7								7			2		370+							
Jan	2		3+	53	2	1	1										3												
Feb			17	39	3	10											18					526**	50					+	
Mar			1	24	3	6	1										62				2	140*						+	
Apr		49**		27		4								1	1		173				5	+						+	
May		140**	+	13																								1+	
June		6		7																		195+						13	
July			4	1		1				+																			
Aug		1	2	2																		+	+					+	
Sept		84	2	3	80	2																5459	3226		100	2127			
total	39	398	67+	339	191	27	5		16					1	1		295			23	7	6910+	3276+		100	2127		14+	

+ = reference
**=goose and duck

Cumberland House 1797 - 1798

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		57**+		33	38	5		4														+	860	162	2			+	
Nov			7	292	13	16	3	8	10																				
Dec				109	21	36	1	12	14											68								+	
Jan	3		9	53	15	39	1	2	3	2										11								+	
Feb	4			36	8	52		4	3	4					6														
Mar				13	3	24	4	1		3													+						
Apr		39**	12+	27	7	21	1	3+	4																			102	
May		90**	40	20	2		1								3							+						+	
June				7																									
July																													
Aug																													
Sept																													
total	7	186+	65+	590	107	193	11	34+	34	9					9					79		+	860+	162	2			102+	

+ = reference
**=goose and duck

Cumberland House 1798 - 1799

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		1	18	43	15	2	1			3																			
Nov			68	421	1	16	1													130		410						+	
Dec			102	82																403								30+	
Jan			59	50		1				5																		+	
Feb			32	17						3																		+	
Mar			32	19						4												+	130					+	
Apr		15		19		22							200																
May																									21	8			
June		+	19	48	10	1			5														+						
July			16	57	10	2			2	1	2											+	+						
Aug			13	73	7			1															+					10+	
Sept			292	45	19	3																+	+						
total		16+	651	874	62	47	2	1	7	16	2		200							533		410+	130+		21	8		40+	

+ = reference

Cumberland House 1800 -1801

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct			3	56																								+	
Nov				122										4	6					64+									
Dec			7+	93		6														38+								100	
Jan			12+	47	5					1				30	30					6								+	
Feb				14		7																						+	
Mar			+	15	1	13				2+	1											+						+	
Apr		17**	+	11		4																							
May		50	+	42											13							+						+	
June				6																									
July																													
Aug																													
Sept																													
total		67	22+	406	6	30				3+	1			34	49					108+		+						100+	

+ = reference
**=goose and duck

Cumberland House 1818 - 1819

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		236+	8+	2	3					2					10	99	37			9+	5		500+	450+		100+		14	
Nov			1325	98	157	52							8	4	7	845	1998	1		+	4	2088						43	
Dec			330	76	32						1	1	3		31	846	535	3		111	9	1715	35	50		40		5+	
Jan			87	43													4	1		11		1880						120	
Feb			86	35	310	5						3	8		58	20	839	2		10	8	2589	280+	12				39	
Mar			228	15	290								12	27	7	130+	594	9		120	12	2165	50+	150+		10+		42+	
Apr		103	1025	45		4						3	15	15	39	821	561	4			20	2020+	+	+			2	70	
May		351+	14	169												1780												27	
June			8	52	191					1						165													
July			30	53	133					3+				2	37	1784	20				9	290+	65+					31	
Aug				97	33			+		1					23	22					2	+	893+	387+		35+		21+	
Sept		38		55	57					1					20	5					14	25	1622+	747+		445+		62	
total		728+	3141	740	1206	61		+		8+	1	7	46	48	232	6517	4588	20		261+	83	12722+	3445+	1796+		630+		474+	

+ = reference

Cumberland House 1828 - 1829

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		96**	154	14	686									2	12	10129					44		60						
Nov			238	138	152	2								2	+	14974	15	1			27								
Dec			738	78	548	3684	3						1	3	1	12700	6		2		40							8	
Jan			343		257						10	2	1	80	10	5137	3				34							5	
Feb			296		119						2		4	14	8	66	13				3							3	
Mar			298	1	174								6	3	24	2157	579	9			11	70	80	280				49	
Apr		4	745	2	532							8	6	61	120	20145	314	3			81							15	
May		7	67	183	54							4	7	117	86	13692	129	8	6		112							51	
June		2	122	88	132								1	2		4979		1			15		+		2			6	
July			151	34	164											417					5	+	225	100				3	
Aug		1	199	1	561									1	101	2602					40	400+	650	360		30	1	15	
Sept		10**	203	3	696										26	12864					157	200	2330	990		270		36	
total		120	3554	542	4075	3686	3				12	14	26	285	388+	99862	1059	22	8		569	670+	3345+	1730	2	300	1	191	

+ = reference
**=goose and duck

Cumberland House 1828 - 1829

	Fowl		Fish							Mammals												Provisions (lbs)							
	Upland birds	Migratory	General	Sturgeon	Whitefish	Pike	Trout	Burbots/Sucker	Perch	Moose	Caribou	Bear	Canids	Lynx	Beaver	Muskrats	Martens	Fishers	Porcupines	Rabbits/Hares	Small mammal	Green meat	Dried meat	Beat meat	Pemmican	Fat	Organ meat	Skins/Furs	Beaver Tails
Oct		96**	154	14	686									2	12	10129					44		60						
Nov			238	138	152	2								2	+	14974	15	1			27								
Dec			738	78	548	3684	3						1	3	1	12700	6		2		40							8	
Jan			343		257						10	2	1	80	10	5137	3				34							5	
Feb			296		119						2		4	14	8	66	13				3							3	
Mar			298	1	174								6	3	24	2157	579	9			11	70	80	280				49	
Apr		4	745	2	532							8	6	61	120	20145	314	3			81							15	
May		7	67	183	54							4	7	117	86	13692	129	8	6		112							51	
June		2	122	88	132								1	2		4979		1			15		+		2			6	
July			151	34	164											417					5	+	225	100				3	
Aug		1	199	1	561									1	101	2602					40	400+	650	360		30	1	15	
Sept		10**	203	3	696										26	12864					157	200	2330	990		270		36	
total		120	3554	542	4075	3686	3				12	14	26	285	388+	99862	1059	22	8		569	670+	3345+	1730	2	300	1	191	

+ = reference
**=goose and duck