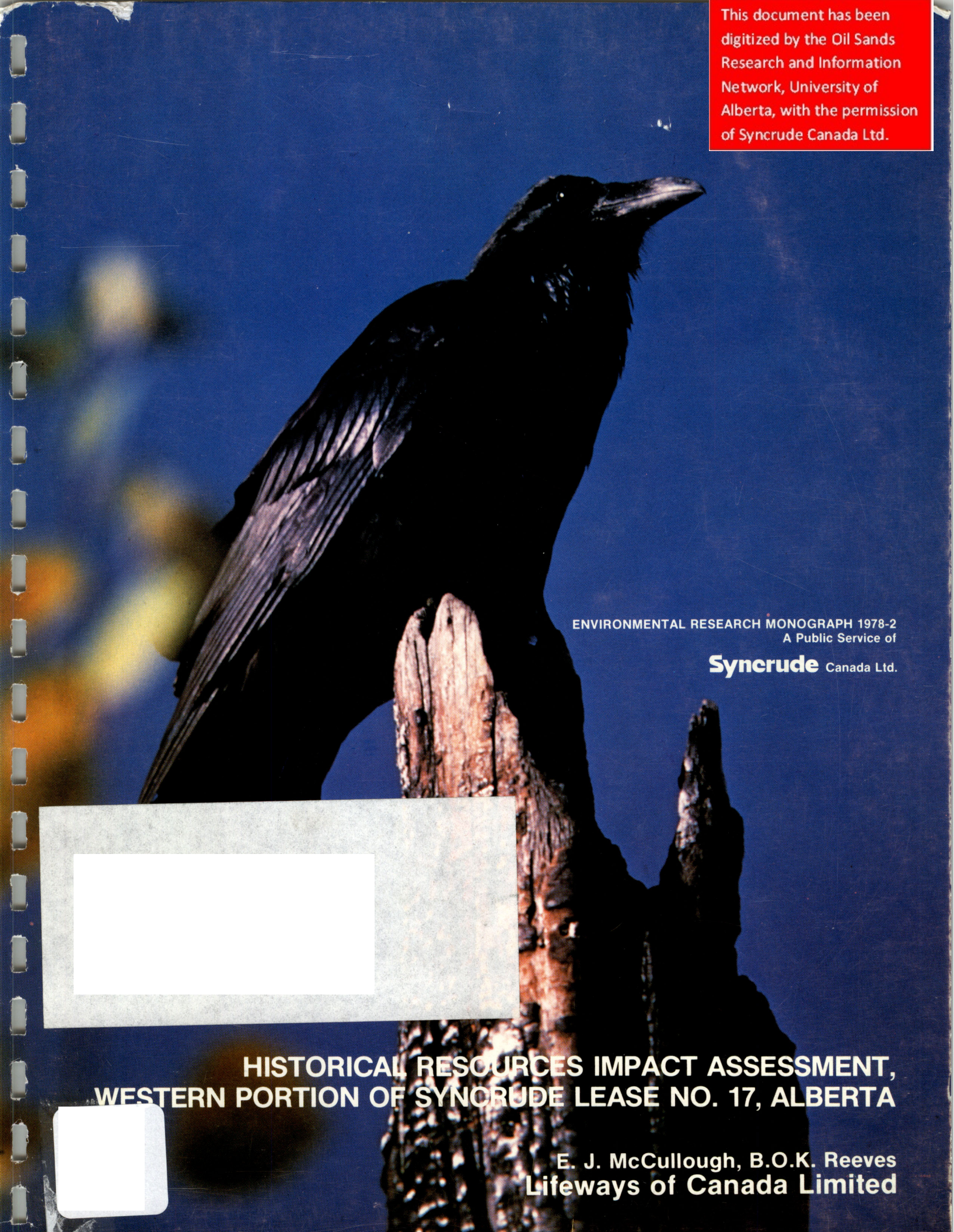

ENVIRONMENTAL RESEARCH MONOGRAPH 1978-2
A Public Service of
Syncrude Canada Ltd.

HISTORICAL RESOURCES IMPACT ASSESSMENT, WESTERN PORTION OF SYNCRUDE LEASE NO. 17, ALBERTA

E. J. McCullough, B.O.K. Reeves
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SUMMARY

An Historical Resources Impact Assessment was undertaken of SYNCRUDE CANADA LTD.'s Lease No. 17 in the area between the Beaver and MacKay Rivers. This assessment was designed to locate and assess prehistoric and historic sites which might be present. Three prehistoric sites were recorded, each consisting of a single artifact found exposed on slopes along the high banks of the MacKay River. These finds represent artifacts lost or discarded by peoples hunting or travelling through the area. They are of no further value or concern. One historic site, a trapper's cabin, was recorded. It is situated in the wetlands and is of no further value or concern. Reconnaissance of the extensive wetlands between the Beaver and MacKay Rivers did not locate any prehistoric sites, reflecting the low productivity of the area for prehistoric man. These environmental limitations are also reflected in the extremely limited finds located along the MacKay River.

FOREWORD

Syncrude Canada Ltd. is producing synthetic crude oil from a surface mine on the eastern portion of Crown Lease 17, Alberta. Lifeways of Canada Limited was commissioned to assess the archaeological value of the undeveloped western portion of the lease. To ensure that the sites surveyed were as undisturbed as possible, the study was completed before concerted exploration activities in the area were scheduled to begin.

Syncrude's Environmental Research Monographs are published verbatim from the final reports of professional environmental consultants. Only proprietary technical or budget-related information is withheld. Because we do not necessarily base our decisions on just one consultant's opinion, recommendations found in the text should not be construed as commitments to action by Syncrude.

Syncrude Canada Ltd. welcomes public and scientific interest in its environmental activities. Please address any questions or comments to Syncrude Environmental Affairs, 10030 - 107 Street, Edmonton, Alberta T5J 3E5.

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1. INTRODUCTION

SYNCRUDE CANADA LTD.'s Lease No. 17, situated 40 kilometers north of Fort McMurray on the west side of the Athabasca River (see enclosed map), was first examined for archaeological sites in 1973 (Syncrude Canada Ltd. 1973). This study focused on areas of high or moderate prehistoric site potential in the eastern part of the lease area. The western part of the lease area, encompassing extensive wetland tracts between the Beaver and MacKay Rivers, was not examined in the 1973 study. In complying with Alberta Government requirements, SYNCRUDE CANADA LTD. contracted with LIFEWAYS OF CANADA LIMITED to carry out an Historical Resource Impact Assessment of the area in the fall of 1977. The results of this Assessment are detailed in the following report.

1.2 ENVIRONMENTAL OVERVIEW

Lease No. 17 lies within the mixed wood section of the Boreal Forest region of Alberta. The climate is characterized by short cool summers and long cold winters (Longley 1967). Glacial topography is characteristic. This section of the Boreal Forest is dotted with small

shallow lakes. Two lakes, Mildred and Horseshoe are located within the lease area and lie oriented in a northwest/southeast direction in abandoned fluvial channels.

The eastern border of Lease No. 17 abuts the Athabasca River. The MacKay River and Beaver Creek flow north-easterly across the lease and drain into the Athabasca River. The MacKay River originates in the Birch Mountains to the west, and Beaver Creek originates in the Thickwood Hills to the south.

The region adjacent to the Athabasca River is well drained. West of Mildred Lake, the area is characterized by extensive tracts of muskeg developed on a level-to-slightly undulating lacustrine plain cut by the MacKay River (Pl. 1). This plain was formed by a proglacial lake which lay along the margin of the wasting continental ice cap.

1.2 PALEOENVIRONMENTS

The Fort McMurray region was last covered by continental ice some twenty thousand years ago. The ice originated in Keewatin, reached as far as the Edmonton area, then retreated. Deglaciation, however, did not proceed at a

uniform rate, and several halts, re-advances, and possible surges of the ice margin occurred. By 10,000 years ago, the ice front lay in a northwest/southeast position in the vicinity of Lake Athabasca, and as the ice front retreated, meltwater was impounded and lakes were formed. When the water level fell, large areas of barren lacustrine sediments became exposed.

Palynological research carried out at Lofty Lake, near the town of Athabasca, 250 kilometers southwest of the study area, indicates that the newly exposed barren surfaces were immediately occupied by relatively open, pioneering plant communities (Lichti-Federovich 1970). This open forest was replaced by a pioneering Boreal Forest within a few hundred years. Similar vegetational changes would have occurred in the Fort McMurray area, for the Boreal Forest phytogeographic region is climate-controlled by the Arctic air mass. This air mass has dominated the study area since post-glacial times (Bryson and Wendland 1967), and it is probable that conditions similar to today's characterized the area throughout the last 10,000 years.

Muskeg, a characteristic part of the Boreal Forest life zone, today dominates most of Lease No. 17. Muskeg forma-

tion was initiated at varying times in the past 10,000 years when climatic conditions deteriorated. In the Athabasca area, it probably first began shortly after deglaciation, with a subsequent cycle initiated some 5,000 years ago when the climatic conditions changed from warmer and dryer than today's to colder and moister.

1.3 HISTORIC RESOURCES

Historic resources, as defined by the Alberta Historical Resources Act (1975), may be natural, paleontologic, historic, or prehistoric in nature. Paleontological sites are characterized by plant and animal fossils; natural sites by unique geological features or landforms.

Historic and prehistoric sites are manifestations of human behavior. Historic sites may include standing, occupied or abandoned buildings; various man-made features, structures, and the remains thereof; and associated objects. Such sites relate to the settlement of Alberta by peoples of European descent. Prehistoric sites consist of the various remains left by the native peoples who utilized Alberta's lands over the past 12,000 or more years. Campsites are the most characteristic prehistoric site type in the forested

regions of the province.

Archaeological research in the study area has been limited to an archaeological survey of portions of Lease No. 17 and Surface Lease No. 352, carried out by T. Losey in 1973 (Syncrude Canada Ltd. 1973). This survey was confined to:

> "the Mildred Lake shore, the Beaver Creek, the area between Mildred Lake and Beaver River, the west bank of the Athabasca River, the area between the Athabasca River and Mildred Lake, and finally the remaining localities with some potential human habitat or resource." (Ibid 1973: 25-26).

In this study, Losey located 28 prehistoric sites, 27 of which were located within 900 meters of the Beaver Creek. In 1974, excavation of a stone quarry and workshop, identified in the 1973 survey, was undertaken (Syncrude Canada Ltd. 1974).

1.4 STUDY OBJECTIVES

The principal objective of the 1977 study was to carry out and report upon a prehistoric and historic Resource Impact Assessment of the portion of Lease No. 17 west of the Beaver River. The Interim Guidelines issued by the Archaeological Survey of Alberta were followed in the conduct of this assessment.

2. PREHISTORIC OVERVIEW

The understanding and reconstruction of past native people's history and use of an area are built upon site surveys and excavations. In the Athabasca River area, north of Fort McMurray, archaeological studies have been limited to surveys of project-specific areas (Syncrude Canada Ltd. 1973; Lifeways of Canada Ltd. 1976, 1977) or to general reconnaissances along the major rivers (Sims 1974; Donahue 1976). Excavations have been carried out at the Beaver Creek Quarry (Syncrude Canada Ltd. 1974) and on the Clearwater River above Fort McMurray (Pollock 1978). Only limited research of tributary streams or inter-stream areas has been carried out (Lifeways of Canada Ltd. 1976). Because of the areal biases inherent in the surveys and the lack of detailed excavations, the prehistoric land use pattern and historical sequence can only be most generally approximated.

2.1 LAND USE PATTERNS

Low-energy societies culturally adapt to the environments in which they live. In order to understand man's use of the environment within Lease No. 17 through time, changes

in this environment since deglaciation must be considered. One may predict that man, in pursuing the open-country grazing species such as mammoth, giant bison, horse, and caribou, would have first entered the area some 10,000 or so years ago, and would have occupied the open pioneering communities peripheral to the proglacial lakes. (*Proboscidae*, i.e. elephant remains found in a Great Canadian Oil Sands' gravel pit indicates the presence of these animals some 10,000 years ago). With the establishment of the Boreal Forest and muskeg, a major readaptation would have been forced upon these early peoples, for the dense forests and extensive muskegs would not have supported the open-country grazers. Browsers, such as moose, would have been the primary ungulates available for man within the local terrestrial ecosystem. Aquatic ecosystems, i.e. fish lakes, would have been very important, as would the more open mixed woods capable of supporting wood bison.

Historically, the natives of the lower Athabasca relied primarily on moose for food as well as for clothing, and their lifestyle was adapted to the effective exploitation of this resource. A moose hunting economy, however, can only support a sparse human population of approximately .005 persons per square kilometer (Ridington 1968).

Because moose populations are small, and because moose are non-herding animals which cannot be killed in sufficient numbers at one time to support large seasonal aggregate populations, a system of small -- between 20 and 30 individuals -- highly mobile native wandering groups resulted. These groups usually had a minimum of 5 hunters who radiated out from the base camps in pursuit of the animals and had the flexibility necessary to fully exploit the widely dispersed moose populations by moving in response to the changing availability of the resource (Ridington 1968).

To supplement this economy, other resources such as small game were exploited throughout the year. Additional resources were exploited on a seasonal basis as they became available; beaver were exploited in the winter, birds' eggs were gathered in the spring, plants were gathered during the appropriate seasons, and fishing was carried out during the spring and fall spawns. The presence of "fish lakes" (McCullough 1977) in the vicinity may have been an important economic factor as well. The numbers and distribution of wood buffalo would also have been a factor in the local adaptive pattern.

2.2 CULTURAL HISTORY

The first people to occupy the region were most probably a group characterized by a distinctive projectile point known as Agate Basin, a specimen of which was found at the Beaver Creek Quarry (Syncrude Canada Ltd. 1974). South of the study area, projectile points of this culture are common along the edge of today's forest, and it has been hypothesized that the Agate Basin peoples hunted the open-country grazing species which inhabited the northeastward migrating pioneer biome that occupied the lands as the ice and lakes retreated (McCullough 1977). With the establishment of the Boreal Forest some 8000 or so years ago, these initial peoples either readapted or were displaced by cultures whose livelihood was based upon moose hunting and fishing.

The cultural sequence of these later Boreal Forest peoples is poorly understood. Projectile points found by various workers (Donahue 1976; Wright 1975; Minni 1976; Pollock 1978) suggest the presence of a number of groups of forest-adapted people who were influenced to a small degree by Plains cultures (Donahue 1976; Wright 1974; Pollock 1978). One of these Boreal cultures, known as the Taltheilei Shale Tradition, lasted to the historic period, and represents the natives who occupied the area

immediately prior to the coming of the fur trade in the mid 1700's.

With the establishment of the fur trade, the Hudson's Bay Company middlemen--Cree and Assiniboine residents from the east--found it necessary to expand their political boundaries west in order to meet the increased European demand for furs. In the process of acquiring political control over the rich fur-trapping territory in western Canada, they quickly displaced the aboriginal populations.

Of the original inhabitants of Lake Isle-a-la-Crosse, Saskatchewan, situated approximately 250 kilometers southeast of Fort McMurray, Alexander Mackenzie comments that:

> "Who the original people were that were driven from it (Isle-a-la-Crosse), when conquered by the Knisteneaux (Cree) is not now known, as not a single vestige remains of them." (Mackenzie 1966:lxxxi).

Documentary evidence suggests that the most likely inhabitants of the region prior to the Cree expansion were the proto-Beaver-Sarcee-Sekani Indians, and possibly the Blackfoot Indians (McCullough 1977). The Slave Indians may also have inhabited the region.

3. HISTORIC OVERVIEW

The Historic Period begins shortly after the Cree penetration of the area. Immediately prior to the Cree expansion, the fur trade had been primarily directed toward the Hudson Bay region, and western participants in the fur trade were required to make the long journey east.

In 1772, Joseph Frobisher, a Montreal trader, built a trading post on Cumberland Lake, in the present day province of Saskatchewan. From this post, he managed to intercept the fur-laden natives travelling down the Churchill on their way to the Hudson Bay. The natives were induced to trade with Frobisher rather than continue their travels east. This sparked the beginning of a new era, for by trading further and further inland, the natives were spared the trouble of making the long and hazardous journey to Hudson Bay.

In order to compete with Frobisher, the Hudson's Bay Company ordered Samuel Hearne inland to establish a fur trading post next to Frobisher's. In reaction, a number of Montreal traders moved further west,

established a post on Isle-a-la-Crosse, and in 1778,

> "...commissioned...Peter Pond to cross the height of land known as Portage la Loche and to go down the Clearwater and Athabasca rivers, so as to cut off as much as possible of the fur trade at its western sources." (Wallace 1922:12).

Peter Pond was the first White man to establish a fur-trading post in Alberta. This post, Pond's House, was situated at the confluence of the Clearwater and Athabasca rivers--the site of the modern town of Fort McMurray. The competition by Pond's trading post soon resulted in the establishment of rival posts throughout Alberta and the influx of European traders.

4. FIELD STUDIES

Research conducted by Syncrude Canada Ltd. (1973), Sims, (1974), Donahue (1976), and Lifeways of Canada Limited (1977) demonstrates that areas immediately adjacent to the Athabasca River were extensively occupied by prehistoric man. The region paralleling the Athabasca River is of high relief, in contrast to the wetlands which occur away from the river. This high relief zone is a game corridor and is rich in life-sustaining resources--particularily moose. The low wetland areas are, comparatively speaking, resource-poor.

The present study is the first systematic analysis of a section of low wetlands. Because low-energy societies are closely linked to the environment in which they live, we predicted that the area of Lease No. 17 examined would exhibit variability in site distribution, site type, as well as site function, as compared to the zone paralleling the Athabasca River.

With the limiting factors in mind, field studies were carried out to locate and identify historic and

prehistoric sites. Paleontologic or natural sites were not observed. On-ground studies were preceded by a helicopter overflight of Lease No. 17 by E.J. McCullough and R.J. Pickard. Subsequent field studies were carried out by this two-person party over a 10 day period in October 1977.

4.1 PREHISTORIC SITE STUDIES

Prehistoric sites may be characterized by stone tools, lithic debris resulting from tool manufacture, fire-cracked rock, and on occasion, structural features. Upon examining the study area during the overflight, it was apparent that because of the extensive wetlands, sites representative of prehistoric moose hunting economies would occur primarily along the MacKay River, on a narrow ridge of land which lies between the river and the wetlands (Pl. 1, 2; map). This ridge would have been used for travel along the MacKay and for access to the wetlands which are virtually impassable by man except when frozen.

During the warm months of the year, the MacKay valley edge can be reached dry-shod, via a ridge which parallels the Athabasca River and intersects the MacKay River near its outlet. Animal movements along the MacKay River

would have likely been confined to this zone in the warmer months when the wetlands were unavailable habitat. Because moose concentrate in the river valley in the winter (Penner 1976:56-77), man's camping activity would, therefore, have been confined to the river edge in winter, as well as in summer.

The MacKay River valley is deeply incised in glacial deposits. It is characterized by high valley walls, slump blocks, and a forested floodplain terrace, with exposed point bars and terrace fills (Pl. 1 - 4).

Slumping of the high valley wall created excellent exposures of post-glacial deposits (Pl. 3, 5, 6) along almost the entire length of the river. The survey strategy consisted of a foot traverse of the upper benchlands, the lower slump blocks, and the terrace fills (Pl. 4; map). The upper tableland is a flat-lying lacustrine plain formed by deposition of sediments from a proglacial lake which abutted the western margin of the Laurentide Ice Sheets. These deposits are exposed at the base of the geological sections (Pl. 6). Evidence for early sites, as well as late sites, was sought through the inspection of the organic deposits and soils which had developed on the sediments

(Pl. 5, 6). Three sites, consisting of small, isolated artifact finds, were recorded. A distinct stratum of river gravels and clams lies exposed in terrace fills (Pl. 4). The fill above this stratum was examined for evidence of prehistoric occupation; none was found.

In the wetland area (Pl. 7), tributaries of Beaver Creek, which are rich beaver habitats, were examined (map). Because ethnographic literature documents the fact that "chiseling" for beaver through the ice was a winter activity of considerable import (Goddard 1916), an attempt was made to locate sites of this nature by examining exposures at cutline intercepts. Selected wetland areas and dry islands along the cutlines were also inspected. Subsurface visibility was relatively good in the disturbed areas. No sites were recorded.

4.2 HISTORIC SITE STUDIES

Historic sites relating to Native, Metis, or White settlement were also sought. These sites are characterized and identified by standing structural remains, features, metal and glass artifacts, and refuse of recent origin. A systematic low overflight in a helicopter was made of the entire area in an attempt to locate historic structures. One structure, a log cabin, was recorded (Pl. 5).

4.3 SITE RECORDING AND EVALUATION

The general procedure followed when a site was encountered was to photograph it on color negative film, record it on forms provided by the Archaeological Survey of Alberta, note its position on 1:50,000 NTS maps and aerial mosaics, and in the case of prehistoric sites, collect artifacts. Project numbers (Syn-1, Syn-2, etc.) were assigned to the sites. Subsequently, Borden Site Designation numbers were provided by the Archaeological Survey of Alberta. The historic site was not assigned a Borden number.

Site values and mitigative measures were also considered. In general, a site's particular value is a scientific judgement based on an assessment of observed and collected data acquired during ground reconnaissance. Many factors are taken into account, including the site's cultural characteristics, its intrinsic scientific worth, its present impairment, and its capability, given present archaeological techniques and objectives, to yield further data of value for scientific and public interpretation.

Sites of high value are those which are largely unimpaired and of regional, provincial, or national

value. Such sites should be either preserved or fully studied if destruction is inevitable. Sites of moderate value rate lower on the scale. They contain certain information which adds to our understanding of past man's activities, both cultural history and land and resource use patterns. Sites of limited value may be very small prehistoric sites, such as scattered campsites or log structures. These sites contain a certain amount of data which could be of interest when interpreted within a broader context of cultural history. With regard to log structures, the photographing and location mapping of the site may be sufficient to mitigate the impact of development.

Sites of unknown value are ones which cannot be placed in a known value category without further study. For historic structures, this might include archival research or the contacting of local residents in order to evaluate the significance of the structure.

Sites of no further value are ones which have either been essentially obliterated by past land use, or are very limited finds, such as a tool lost or discarded. The initial observation and collection of material from the site's surface retrieves all data and mitigates the impact of the proposed development.

5. RESULTS AND ASSESSMENT

5.1 PREHISTORIC SITES

Three prehistoric sites were recorded (Syn-1, Syn-2, Syn-3). (See site forms pp.35). They consist of isolated finds eroding from the upper surface of the tablelands which overlook the MacKay River (Pl. 5, 6). Two of the isolated finds are flakes--one of bull quartzite, the other of chert. The remaining site is characterized by a Beaver Creek quartzite core. These sites represent isolated artifact occurrences and are of no further value or concern.

5.2 HISTORIC SITES

One historic site (Syn-4) was recorded. It is a log trapper's cabin situated on high ground above Creek #2, a small intermittent tributary of the Beaver Creek (Pl. 8). The structure is of recent age and does not require further investigation.

6. SUMMARY, CONCLUSIONS, AND SPECULATIONS

6.1 PREHISTORIC

While none of the prehistoric sites are of value or further concern, they reflect a distinct land use pattern. This pattern, as depicted by the sites recorded along the MacKay River, is strikingly different from that pattern reflected in the archaeological record along the Athabasca River. The numerous sites located along the Athabasca are characterized by large quantities of debitage resulting from tool manufacture, a range of tools (eg. bifacial and unifacial knives, hide scrapers, and projectile points), and fire-broken and fire-cracked rock indicative of cooking hearths. These artifacts represent a wide range of native activities, suggesting that these sites were base camps, rather than task-specific sites (i.e., a hunting station or stone tool workshop).

Numerous small sites also occur along the Athabasca River which are characterized by isolated finds (e.g. a broken knife or biface or light scatter of chipping detritus). These sites also lack fire-cracked rock, suggesting that they were task-specific and probably

represent the remains left by hunters operating from a base camp.

Although site visibility was high along the MacKay River, there was no evidence of base camps, suggesting that they, in fact, are absent. The lack of base camps along the MacKay as compared to the area adjacent to the Athabasca River, we feel, reflects qualitative and quantitative differences in resource availability and productivity. The muskeg ecosytem with its limited ungulate productivity appears to be the primary resource-limiting factor in the western part of Lease No. 17. This factor is reflected in the general lack of sites along the Mackay River.

The recovery of isolated finds along the MacKay River does indicate, however, that prehistoric man did utilize this marginal area, and the sites may represent task-specific activities such as hunting, or they may represent artifacts dropped by people moving to resource-rich areas. The observation and recording of the sites, and the collection of the single artifacts has adequately mitigated any impact. These sites therefore, are of no further value or concern.

5.2 HISTORIC

A single trapper's cabin was located on a tributary of the Beaver River. The site is surrounded by wetlands, suggesting a winter occupancy when the area is easily accessible and when fur pelts are prime. The cabin appears to be strategically located to take advantage of the rich beaver and muskrat populations inhabiting the wetlands. The cabin is of recent age and further study is not recommended.

5.3 SPECULATIONS

It has been only in recent years that the northeastern Boreal Forests have become the focus of archaeological studies. Previous studies (e.g. Syncrude Canada Ltd, 1973; Sims 1974; Lifeways of Canada 1977) have focused primarily on the areas adjacent to the Athabasca River. Because these studies concentrated on one environmental zone, there is a marked absence of information pertaining to the overall prehistoric subsistence-settlement pattern in the region. To achieve a fuller understanding of this pattern, it is necessary to examine contrasting habitats in order to determine how environmental factors influenced prehistoric land use patterns.

The results of this present study suggest that extensive

muskeg tracts exert a significant control on prehistoric land use patterns by limiting utilization of adjoining non-muskeg areas such as that examined along the MacKay River. The lack of any sizable sites in the MacKay River area indicates the area was not regularly exploited. If our hypothesis is correct, the overall lack of prehistoric cultural remains within the post-glacial sediments exposed along the cutbanks of the MacKay River suggests that muskeg formation occurred shortly after deglaciation and that the area was generally inhospitable to man throughout the Holocene.

This hypothesis of differential resource use is a first approximation only and requires further testing in similar and contrasting environmental areas within the Athabasca region to assess its applicability as a general predictive model.

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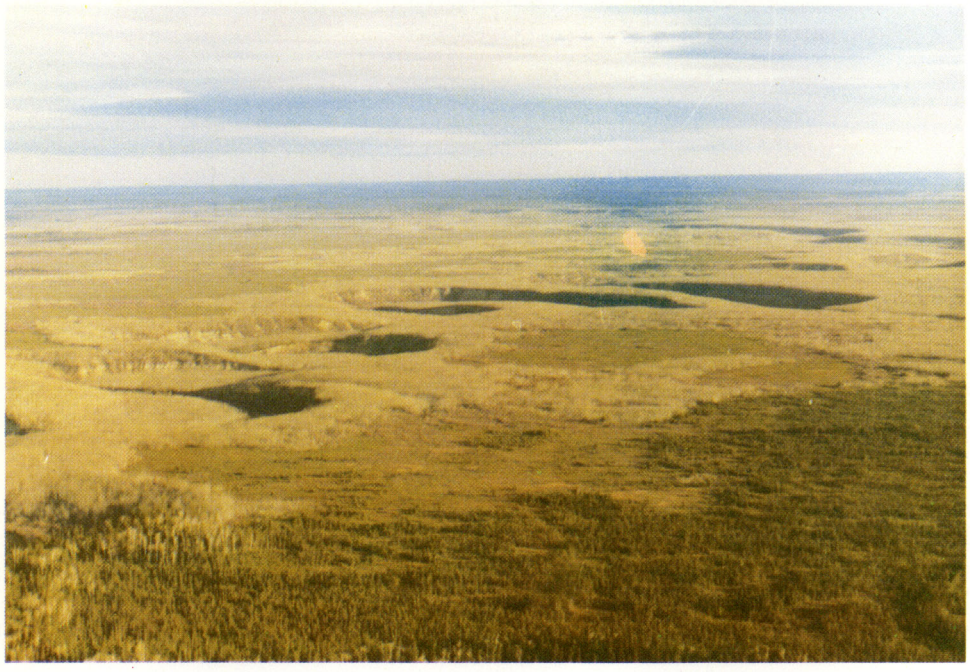


PLATE 1 Aerial view of wetlands and the MacKay River. General view northwest.

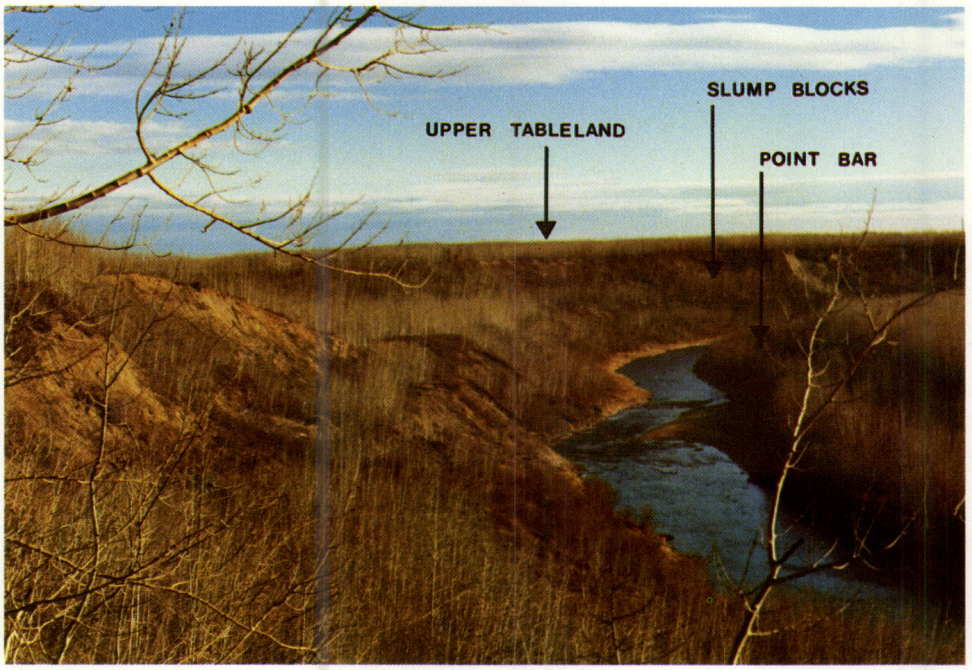


PLATE 2 View of types of topographic surfaces traversed along the MacKay River. General view northeast.

PLATE 3 Traverse of tableland edge along the MacKay River. General view east bank of the MacKay River.

PLATE 4 General view of stratum exposed along terraces of the MacKay River. Note river gravels and clams along contact zone above gravels.

PLATE 5 Site Syn-2. General view north. Deposits consist of glacial lacustrine silts overlain by organic materials developed into forest podzol.

PLATE 6 Site Syn-3. General view south.

PLATE 7 ATV traverse of wetlands between the MacKay and Beaver rivers.

PLATE 8 Log cabin (Syn-4). General view north.

HISTORICAL SITE FORM
SYNCRUDE CANADA LTD.
LEASE No. 17

PROJECT SITE NO.: Syn-1

SITE TYPE: Prehistoric (Isolated Find)

BORDEN SITE NO.: HgOw-1

SITE LOCATIONAL DATA:

Legal Description: 1,8/1/93/12/4

UTM Grid Ref.: 12VVU528214

NTS Map Ref.: 74E/4W

SITE LOCATION/DESCRIPTION: Site is situated on the east bank of the MacKay River. Collected a quartzite core (Beaver Creek quartzite) exposed in the cutbank. No other evidence for prehistoric human occupation was observed.

SITE VALUE: None

SITE IMPAIRMENT: None

PROJECT IMPACT:

Relationship to ROW: Site is situated in Lease No. 17.

Sources of Impact: Unknown

RECOMMENDED MITIGATION: None

HISTORICAL SITE FORM
SYNCRUDE CANADA LTD.
LEASE No. 17

PROJECT SITE NO.: Syn-2

SITE TYPE: Prehistoric (Isolated Find)

BORDEN SITE NO.: HgOw-2

SITE LOCATIONAL DATA:

Legal Description: 2/2/93/12/4

UTM Grid Ref.: 12VVU505210

NTS Map Ref.: 74E/4W

SITE LOCATION/DESCRIPTION: Site is situated on the west side of the MacKay River. Collected a chert flake which was eroding out of a cutbank along the MacKay River. No other evidence for prehistoric human occupation was observed.

SITE VALUE: None

SITE IMPAIRMENT: None

PROJECT IMPACT:

Relationship to ROW: Situated in Lease No. 17.

Sources of Impact: Unknown

RECOMMENDED MITIGATION: None

HISTORICAL SITE FORM
SYNCRUDE CANADA LTD.
LEASE No. 17

PROJECT SITE NO.: Syn-3

SITE TYPE: Prehistoric (Isolated Find)

BORDEN SITE NO.: HgOw-3

SITE LOCATIONAL DATA:

Legal Description: 8/24/93/12/4

UTM Grid Ref.: 12VVU527264

NTS Map Ref.: 74E/4W

SITE LOCATION/DESCRIPTION: Site is situated on the west side of the MacKay River. Collected a bull quartzite flake which was eroding out of a cutbank along the MacKay River. No other evidence for prehistoric human occupation was observed.

SITE VALUE: None

SITE IMPAIRMENT: None

PROJECT IMPACT:

Relationship to ROW: Situated in Lease No. 17.

Sources of Impact: Unknown

RECOMMENDED MITIGATION: None

HISTORICAL SITE FORM
SYNCRUDE CANADA LTD.
LEASE No. 17

PROJECT SITE NO.: Syn-4 **SITE TYPE:** Historic (Cabin)

BORDEN SITE NO.:

SITE LOCATIONAL DATA:

Legal Description: 9/5/93/11/4 **UTM Grid Ref.:** 12VVU560219

NTS Map Ref.: 74E/4E

SITE LOCATION/DESCRIPTION: Site consists of a log cabin situated on the north bank of a tributary of the Beaver River. A dog sled, muskrat stretchers, and various traps were observed within the cabin. A recently constructed tripod of aspen poles was also present. The cabin is abandoned.

SITE VALUE: None

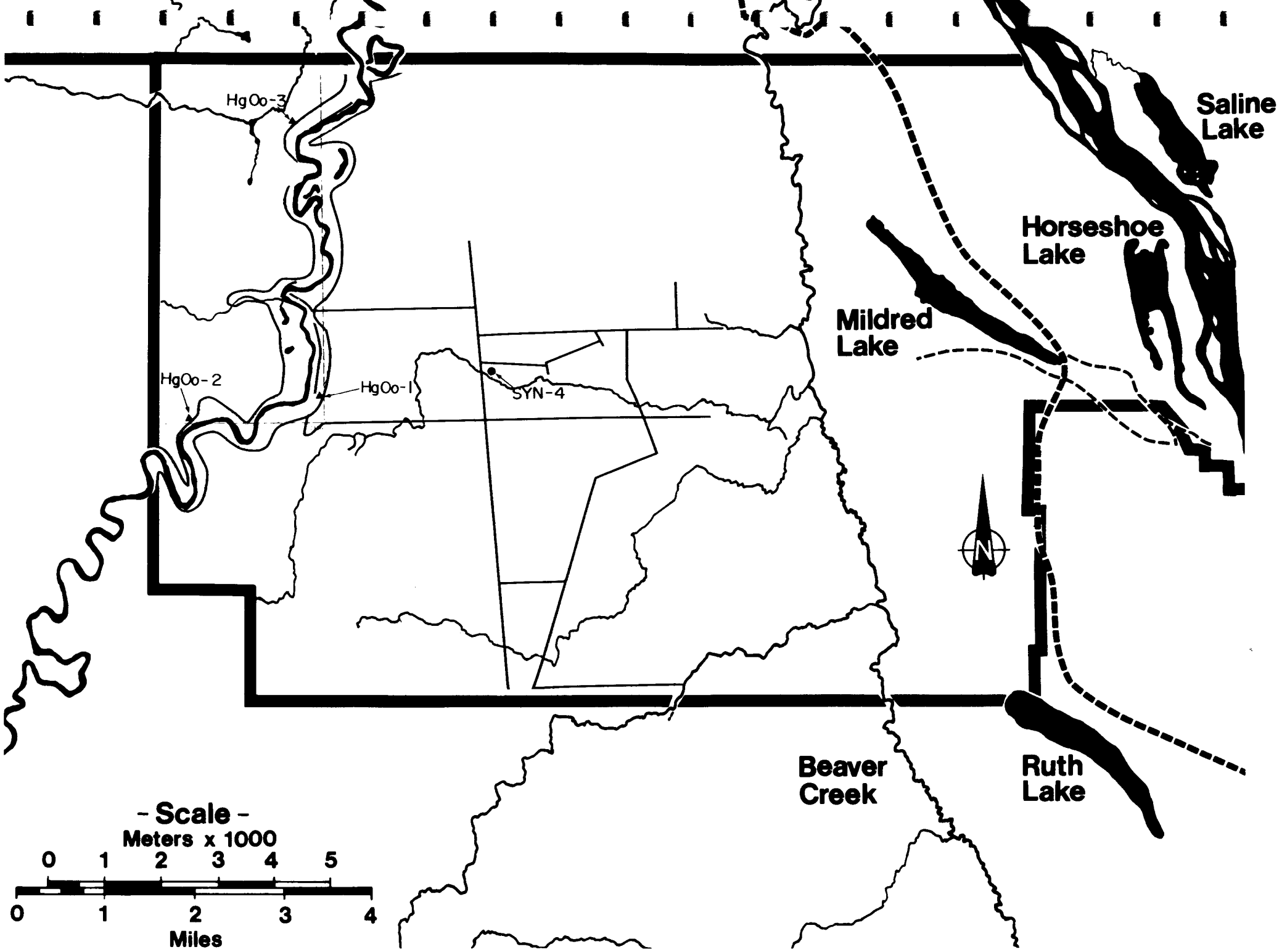
SITE IMPAIRMENT: Chemical and mechanical erosion of organic material.

PROJECT IMPACT:

Relationship to ROW: Situated in Lease No. 17.

Sources of Impact: Unknown

RECOMMENDED MITIGATION: Site is of recent age and no further research is recommended.



1977 Historical Site Reconnaissance Areas of Lease 17 - (——), and Sites Located (▲ Isolated Artifact Finds, • Cabin).
Scale 1:50,000

Conditions of Use

McCullough, E.J. and B.O.K. Reeves, 1978. Historical resources impact assessment, western portion of Syncrude Lease No. 17, Alberta. Syncrude Canada Ltd., Edmonton, Alberta. Environmental Research Monograph 1978-2. 38 pp. plus map