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The archaeological remains from a surface collection, Fort Vermilion, Alberta

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ABSTRACT

In 1987-88, Heinz Pyszczyk, while conducting an archaeological site survey in northern Alberta, found a large archaeological site in a cultivated field near the community of Fort Vermilion. Surface collections from the site yielded an assortment of tools, including a complete microblade core and several diagnostic projectile points made from a variety of lithic raw materials. The Gull Lake site, named after the small lake nearby, became the largest known prehistoric site in the area. In 2018, we revisited the site and undertook another surface collection. We also conducted preliminary testing to determine whether or not there were intact archaeological deposits nearer to the creek on lands that had not been cultivated. The results of this survey yielded diagnostic projectile points, including one specimen resembling more southern Angostura Paleoindian points. The survey also yielded a diverse array of raw materials used to make stone tools, including Peace River and Peace Point cherts. We hypothesize that the Gull Lake site represents one of several areas in the northern Alberta Boreal Borest that were prairies purposely maintained by First Nations peoples to attract large game animals such as woodland bison. Once these and other large animals were depleted after contact, First Nations peoples no longer used the site in favor of other still productive game animal areas in northern Alberta.

KEYWORDS

Northern Alberta, Gull Lake site (IcQa-31), Paleoindian, Peace River Chert, microblade, controlled burning

1. Introduction

In 1987, while conducting archaeological research in the Fort Vermilion area, northern Alberta, Heinz Pyszczyk, along with local high school students, discovered one of the largest prehistoric archaeological sites thus far recorded in the area (Pyszczyk 1990, 1993). Much of the site, which we refer to as the Gull Lake site (IcQa-31), lies in a cultivated field approximately eight kilometres northwest of the hamlet of Fort Vermilion, Alberta (Figure 1). In 2018, we returned to the site to collect more artifacts and to test areas that might not have been cultivated. This paper describes our findings and places the results of this somewhat unusual, noteworthy archaeological site into a broader regional prehistory.

Archaeologists face considerable challenges when investigating the prehistory of Canada's Boreal Forest region. As Ives (1993:8) notes, Indigenous Boreal Forest peoples were organized into small, mobile socio-economic units that often created small, short-term occupied campsites. There are often very few artifacts left at such sites and little to no stratification in the archaeological record. In the Peace River Lowlands there are a few exc-

Figure 1. Fort Vermilion area, northern Alberta, location (red) of Gull Lake site (IcQa-31).

eptions such as the Peace Point site (Stevenson 1986) near Lake Athabasca, Daishowa (Loveseth 1987; Bobrowsky et al. 1988) near the city of Peace River, and the Dunvegan prehistoric site (Smith and Neary 1991) along the Peace River south of Fairview, Alberta.

Although the Gull Lake artifact collection comes from a cultivated field, we feel it warrants further study because: 1) it contains some unusual, rare artifacts; 2) little is known about many of the lithic raw materials (of which there is a considerable range); 3) the possibility exists that there are stretches of undisturbed sediments nearer to a small creek that might contain intact archaeological remains; 4) the site's location might inform important areas of prehistoric human settlement in northern Alberta; and, 5) its relatively long history of occupation (perhaps 9,000 years or longer) and then sudden abandonment in the Historic Period must be more fully explored. In this paper, we elaborate on these and other topics regarding northern Indigenous history.

2. Peace River Lowlands and Fort Vermilion environment

The Peace River Lowlands were ice-free by about 13,000 years ago (Dalton et al. 2020). A boreal forest, dominated by spruce, colonized the area sometime after that date (Dyke and Prest 1987; Ives 1993:8). By 6,000 B.P. the modern, mixed wood boreal forest vegetation was already established (Richie 1989). This ecotone contains aspen forests in drained areas and natural prairie-like fens in the low, wet areas. Open pine forests are present in the higher, dry, well-drained areas containing sandy aeolian or fluvial deposits. The present topography of the area is variable. Some areas contain gently rolling sand dune deposits with jack pine. The Glacial Lake Peace lakebed terrain, which dominates the area, consists of large stretches of very flat sections of fens and grasslands. The Peace, Boyer, and Ponton rivers have down-cut through lakebed deposits, exposing Cretaceous bedrock formations of shale, sandstone, and siltstone, as well as quartzite and chert pebbles and rocks. In north central Alberta, soils range from well-drained luvisols, to more acidic podzols forming on the sandy substrate in the forested areas, and gleysols and histosols in areas with wetter, poorly drained conditions (Canada Department of Agriculture 1974). The formation of these various types of soils are determined by: 1) climate; 2) living organisms; 3) parent material; 4) topography; and, 5) time (Brady 1974:303).

2.1 Human – ecological relationships

The Lowlands host a large variety of fauna, distributed over a vast area, which, according to historic ethnographies, were all mostly consumed by Indigenous peoples whenever available (Ives 1993). Small groups of highly mobile people, covering large expanses of land, moved seasonally to exploit the mostly solitary large game animals in the northern Boreal Forest. Some large game animals, such as moose, moved down from their summer habitats in the Birch and Caribou mountains into the lowlands during the winter months (Ives 1993:24). Others, including large numbers of wood bison, roamed certain parts of the Boreal Forest.

At contact, the Fort Vermilion region contained a high density of large game animals. Alexander Ross stated that without provisions made in the Boyer River area during the early 1790s, the trade and transport of furs out of the north was not possible (HBCA B.9/a/1). As Ives (1993:24) notes, fish, occurring in large numbers during certain times of the year, would also have drawn people to confluences of major streams and rivers. All these factors affected to some degree both the movement and settlement of Indigenous peoples in the Peace River Lowlands.

3. Background

3.1 Northern Alberta prehistory

Prior to the mid-1970s, archaeologists had conducted little research in northern Alberta. In 1976, Paul Donahue (1976) surveyed the Caribou and Birch mountains and the Athabasca and Peace river drainages, including the Fort Vermilion area. In 1981, John Ives (1981) conducted a more thorough reconnaissance of the Middle and Lower Peace River areas, including the Fort Vermilion area. Others followed, working in the Caribou Mountains (Conaty 1977), Birch Mountains (Ives 1985; 2017), the Fort McMurray area (Conaty 1980; Ives and Fenton 1985; Ronaghan et al. 2017) and along Peace River (Stevenson 1986; Bobrowsky et. al. 1988; Smith and Neary 1991), including the Fort Vermilion area (Donahue 1976; Ives 1981; Pyszczyk 1990, 1991, 1993; Romano 2016). We summarize this work below.

Precise dating of archaeological remains, including time-diagnostic projectile points, and relatively restricted site survey of an immense area of the province, continue to plague construction and refinement of human prehistory and land use of northern Alberta Indigenous peoples. Based primarily on a variety of projectile point styles, and little *in situ* dating, the human history of the region spans a period from Paleoindian to Historic Period times (Donahue 1976; Ives 1993). Dates for the earliest occupations remain controversial but, based primarily on projectile point morphology, an estimated age of at least 8,500 – 9,000 calendar years B.P. has been proposed (Ives 1993). That period is represented by lanceolate bifaces, some occasionally similar to southern lanceolates (e.g., Agate Basin, Alberta, or Scottsbluff styles (Ives 1993:9). Middle and Late Prehistoric projectile points, likely representing atlatl and bow and arrow technology, include stemmed, corner- and side-notched varieties similar to more northern traditions (i.e., Taltheilei) and Northern Plains traditions (i.e., Oxbow and Plains side-notched varieties) (Donahue 1976; Ives 1993: Gordon 1996).

Prehistoric peoples used a combination of direct percussion and pressure flaking techniques to make stone tools in northern Alberta. These methods are identified by morphology and types of lithic reduction flakes in northern assemblages. Also, evidence of microblade technologies are present in the region. Pyszczyk (1991) found a complete microblade core at the Gull Lake site in 1987. This core (Figure 2) resembles others found in the Northwest Territories and southwestern Yukon, designated as the Northwest Microblade Tradition (Workman 1978; Millar 1981; Younie et al. 2016; Magne and Fedje 2017). Ground stone technology, except for a few nephrite adzes, is rare in the region.

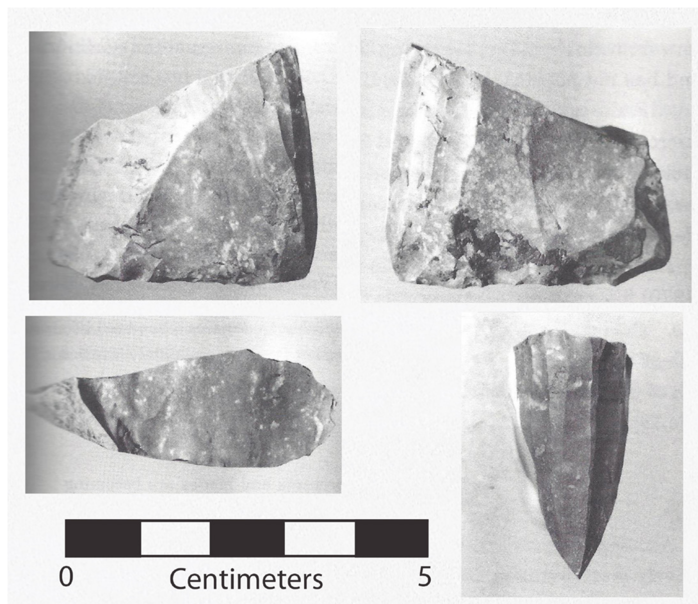

Figure 2. Microblade tablet recovered from the Gull Lake site (from Pyszczyk 1991:291).

Raw materials for stone tool manufacture include primarily local lithics (quartzites, cherts, and silicified mud- and siltstone) and some exotic materials (obsidian, Knife River Flint, and Tertiary Hills Clinker) (Donahue 1976:110; Stevenson 1986; Pyszczyk 1991; Ives 1993:18-20; Dawe 2013; Bereziuk 2016). Sources have yet to be found for some of the local lithics, such as Peace River Chert and Peace Point Chert, and other cherts found in Fort Vermilion area assemblages. Nephrite, although rare in the region, sources west in British Columbia (Kristensen et al. 2016).

Indigenous prehistoric land use is reflected in the location, density, and size of prehistoric sites in the region. For example, when examining archaeological site distribution in northeastern Alberta, Donahue (1976:118) noted a higher site density in the Birch as opposed to the Caribou Mountains. He suggested this greater site density in the former region was a function of more favourable habitat and likely food resources. Donahue (1976:42) also found high archaeological site densities in the Fort Vermilion area and other parts of the Lower Peace River. Ives (1981) later expanded on Donahue's Peace River survey, also finding sites on the lower river terraces. Ives (1993:25) concluded:

> The large site concentrations along the Peace and Athabasca Rivers pretty much coincide with the locations and Native groups we learn of at the outset of the fur trade, places such as Peace Point, and groups such as the Athabasca Cree. The traders were of course highly dependent on country foods and Native fort hunters for their provisions. Many factors affected the location of any given fur trade post, but it is in no way surprising to see a corresponding tendency for fur trade posts to cluster near these larger concentrations of prehistoric sites.

3.2 Fort Vermilion area prehistory

Donahue (1976) and Ives (1981) found a considerable number of sites along the Peace River in the Fort Vermilion area, ranging from sparse lithic scatters to larger sites with higher artifact densities (e.g., IcPx-1). Neither archaeologist surveyed far from the Peace River. In 1987-88, Pyszczyk (1990) surveyed exposed areas away from the Peace River in both the Fort Vermilion and La Crete areas. The survey was intended to gain a better understanding of the archaeological site density and distribution of the region, and the relationship of sites to certain physiographical features. Pyszczyk (1990) identified a total of 40 archaeological sites during that survey (some far away from major rivers). Archaeological remains at these sites ranged from a few lithic flakes to dense lithic scatters spread over a large area, containing both considerable debitage and tools.

The current number (since 2018) of archaeological sites in the region is high relative to surrounding areas (Figure 3). However, this high site density may be a function of our archaeological methodologies and visibility of sites in the Fort Vermilion region. We cannot, therefore, conclude with any certainty that other areas would be equally productive had visibility been as good and our survey methods as thorough as in the Fort Vermilion and La Crete areas.

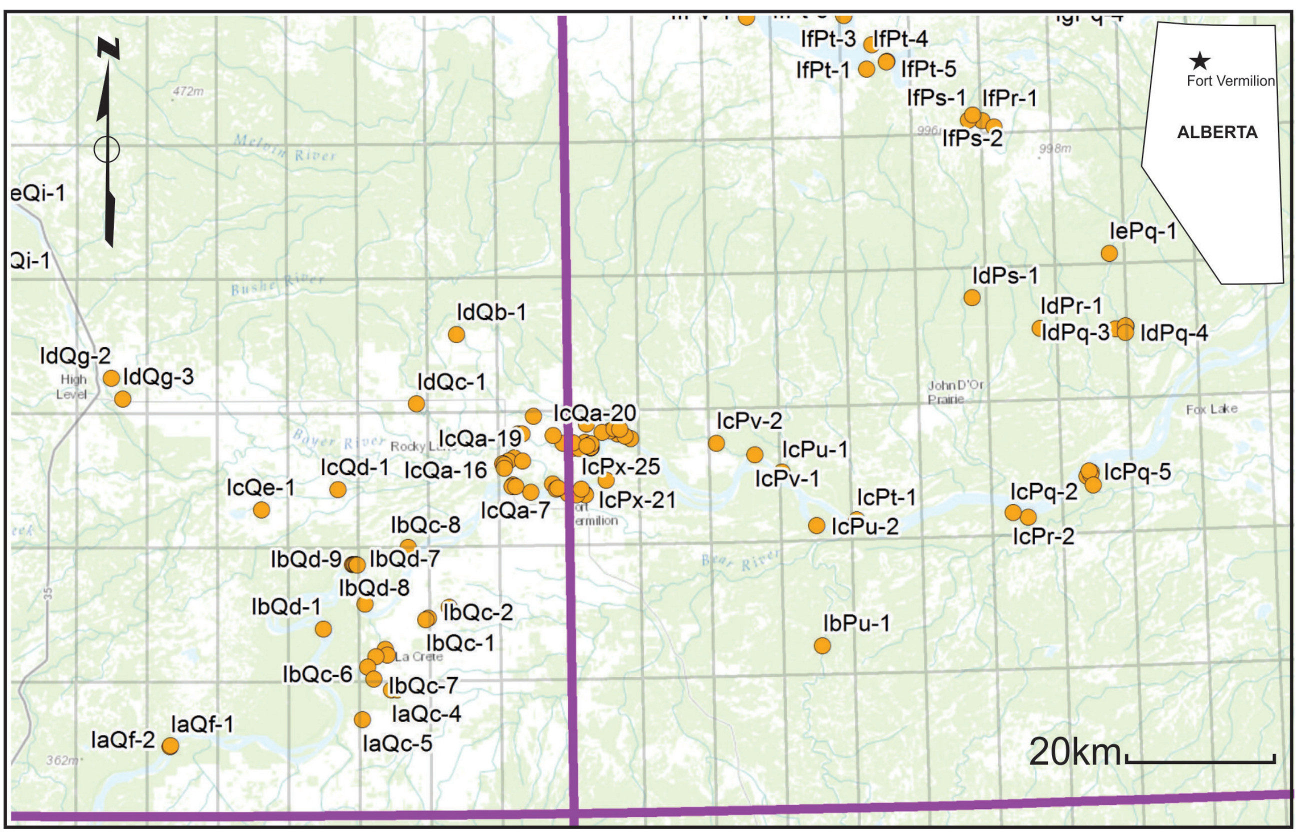

Figure 3. Archaeological site density and distribution in the Fort Vermilion – La Crete region.

To date, most archaeological sites in the Fort Vermilion area contain little or no stratigraphy, and few organic materials suitable for radiocarbon analysis, creating problems dating associated archaeological remains. Unfortunately, archaeologists recovered few time-sensitive artifacts at the few deeply stratified sites, such as Peace Point (Stevenson 1986), Daishowa (Loveseth 1987; Bobrowsky et. al. 1988), and Dunvegan (Smith and Neary 1991). At the Gull Lake and other sites in the area, there was no apparent stratigraphy, but potentially time-diagnostic artifacts were recovered in an undated context (Figure 4). This lack of stratigraphy is a consequence of cultivation and low rates of sediment deposition. In 2018, we hoped to resolve these problems by testing near the creek, which may have flooded, resulting in possible stratigraphic deposition at the Gull Lake site.

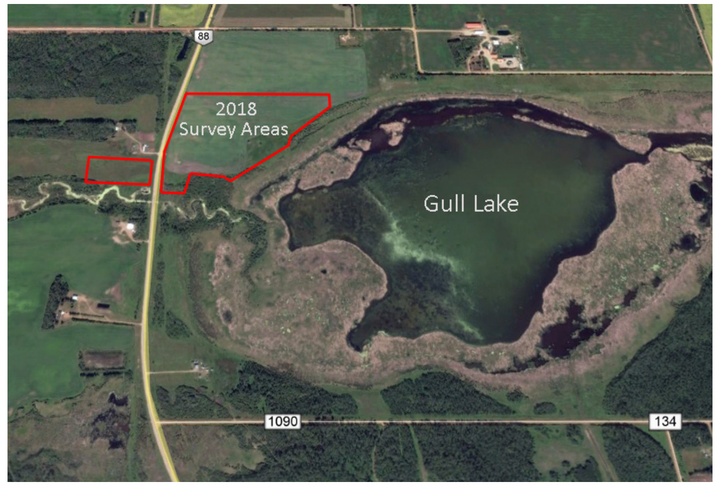

Figure 5. Surveyed area of IcQa-31.

Figure 4. Lithic tools from Fort Vermilion – La Crete region, 1987 (from Donahue 1976; Pyszczyk 1990). Bottom right-hand lanceolate bifaces from near La Crete (Pyszczyk 1990) and Fort Vermilion (Donahue 1976).

Figure 6. View of the Gull Lake site looking west.

4. The Gull Lake site

4.1 Location

The Gull Lake site is on the north side of a small creek joined to a small, shallow lake to the east (Figure 5). The site occurs primarily in a cultivated field; however, it continues into undisturbed forested lands further west along the small creek. Also, there is an area, presently covered by bush between the cultivated field and the creek edge, which may be undisturbed. The site is relatively flat, rising slightly toward the north away from the creek edge (Figure 6).

The west side of Gull Lake, where the prehistoric remains are located, was settled in the early 1900s by the Lambert family on both sides of Hwy 88 (and perhaps earlier). This area was on the periphery of the river lot settlement known as Buttertown, located on the north banks of the Peace River across from the community of Fort Vermilion. Settlement likely began soon after the construction of the HBC Fort Vermilion II in c.1830. The original Lambert log buildings, dating back to c. 1912 and 1915 still stand on these properties. Presumably, the adjacent fields were also cleared and cultivated sometime during or after initial settlement.

4.2 Collection and recording methods

In 1987 and 1988, with the help of three high school students and one assistant, Pyszczyk walked the site, surface collecting lithic tools and debitage. This gave us some idea of not only the variety of tool types present, but also the lithic reduction techniques used, and the types of raw materials. We did not piece-plot the artifacts because we collected from a cultivated field. We also did not conduct shovel testing, either in the field or edges nearer the creek. Because the Lambert families still lived in both residences, on either side of the road, we kept a respectful distance away from their properties, and therefore could not define the site's boundaries.

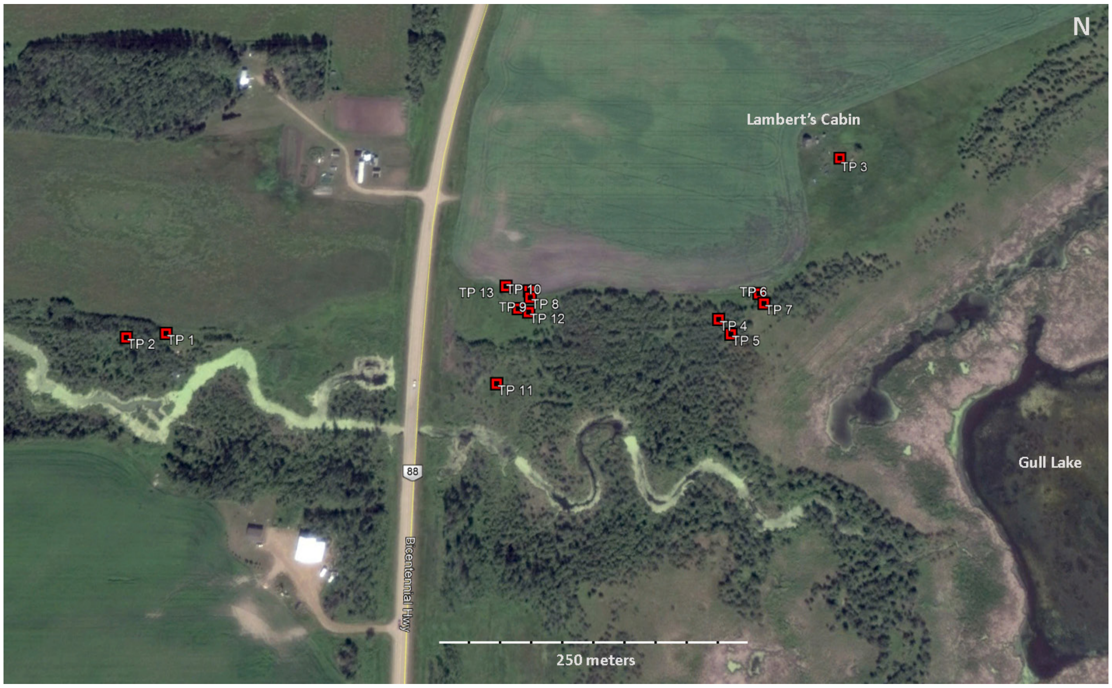

Figure 7. Location of test pits, Gull Lake site.

In 2018, 38 people, primarily from the University of Lethbridge archaeological field school, surface collected from approximately 13 hectares of cultivated field, starting at the east side of Hwy 88 and ending at the northwest margin of Gull Lake. Ground visibility ranged from good to average as the local crop had already come up. This time we surveyed closer to the abandoned Lambert log cabin and past it to get some idea of the site's east boundaries. In the process we also collected an assortment of Historic Period artifacts that mostly occurred near the Lambert property. The students plotted the UTM's of the artifacts they collected. Finally, they dug 11 test pits on the east side and two test pits on the west side of Hwy 88 to assess the nature of those sediments, and possible artifact content and context in those areas (Figure 7).

4.3 Test pits, soils, and sediments

There is a stretch of treed land between the cultivated field and the small creek to the south (Figure 7). We wanted to determine if archaeological deposits extended into the area south of the cultivated field, and if there was possible overbank flooding of the small creek. If so, it could have resulted in stratified layering in the area.

All test pits were dug 40 cm - 50 cm deep. Two test pits were dug in the cultivated field (TP 10 and TP 13) to determine if intact cultural deposits were present below the plow zone. Test Pits 1 and 2 were dug on the west side of the highway. Test Pits 8, 9, 11, and 12 were positioned outside the current plowed field, but in a section of land that may have been cultivated in the past (there is limited arboreal vegetation in this area). Test Pits 4-7 are clustered 200 meters east of Test Pits 8-13. Test Pit 3 is near the abandoned Lambert log cabin. No cultural remains were recovered in any of the test pits.

We chose the profiles of Test Pits 5, 9, and 11 to describe sediment matrices and formation on the east side of the highway (Figure 8A-C). All soil nomenclature follows the system for soil classification for Canada (Canada Department of Agriculture 1974; Soil Classification Working Group 1998). The characteristics and layers (with some minor differences) of all three test units are relatively similar. The layering in these units is most reminiscent of orthic grey luvisols. Luvisolic soils develop under deciduous, coniferous, or mixed-boreal forests, or in mixed forest-grassland transitional zones (Canada Department of Agriculture 1974:73). They are the predominant soil type in northern Alberta. Luvisolic soils are characterized by an acidic eluvial horizon overlying a Bt horizon with accumulated silicate clay (Lavkulich and Arocena 2011; Pennock and Sanborn 2015). The surface epipendons often include L, F, and H horizons of varying thickness, ranging from intact organic matter (L) to decomposed organic matter (H). Luvisols display Ah horizons of varying thicknesses covering a light grey colored eluvial Ae horizon, occasionally a darker brown AB horizon, and clay enriched illuvial BA horizon. Orthic grey luvisols have an Ae and Bt horizon but may lack other ancillary features of the soil order including distinct mottling due to gleying.

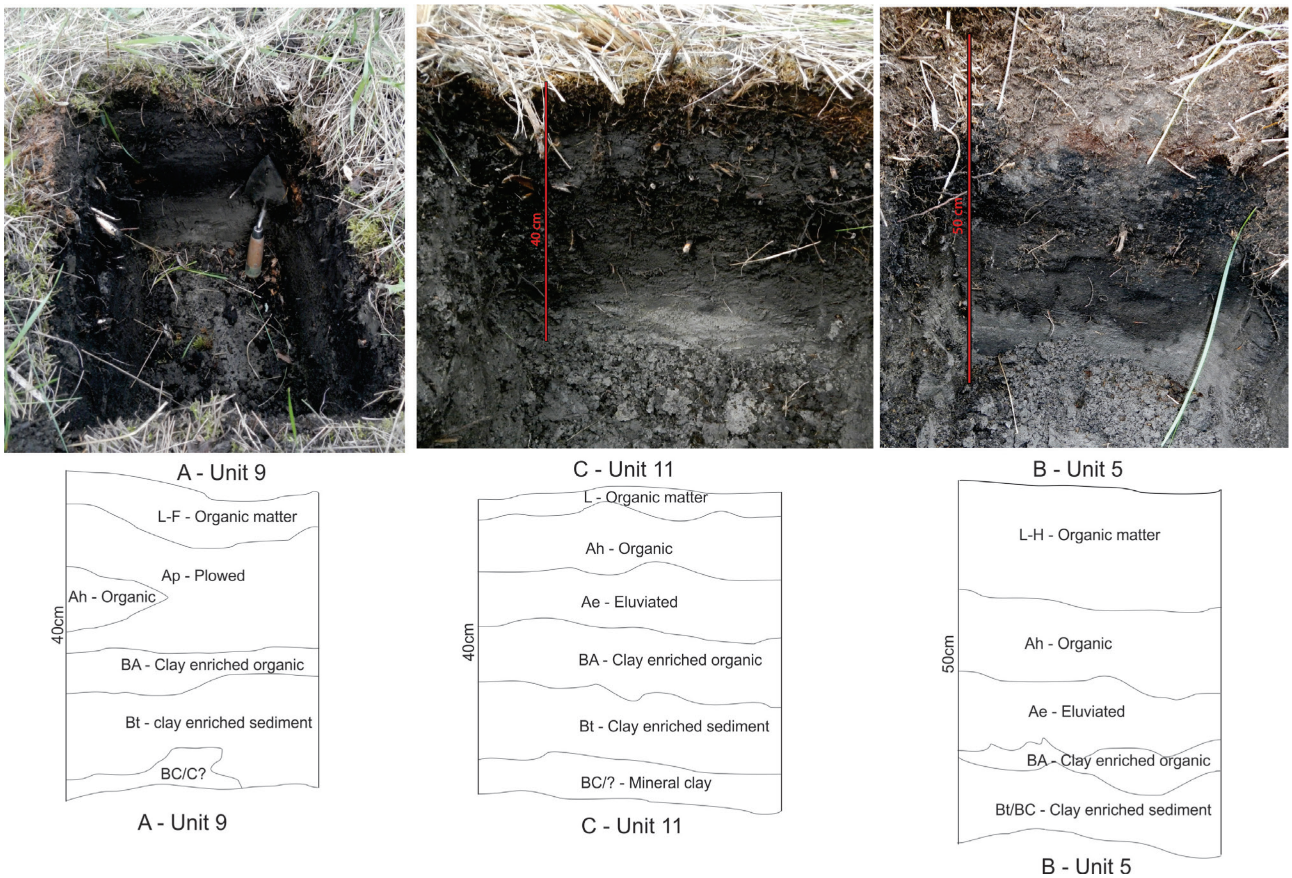

Figure 8. Soil profiles of three test pits, Gull Lake site: A) Unit 9; B) Unit 5; and, C) Unit 11.

Orthic grey luvisols may also have an Ap horizon, which replaced the original L, F, or H horizons and mixed the A, Ae, and AB horizons through cultivation.

The soil pedons in the test pits were luvisolic in nature but varied in surface horizon thickness and subsurface horizon distinctness. Below the 15-20 cm thick, dark coloured, organic rich Ap-horizon (plowed) in the five northern most units (8-13) was a grey, clay-rich Bt horizon (Figure 8A). The plow zone (Ap) horizon in Test Pit 9 is now covered by a thin organic rich L-F surface horizon, evidencing a hiatus in cultivation in this area. The buried Ap horizon is lighter than the intact BA horizon directly below it due to the mixing of the A and Ae horizons. The light grey Bt and BC horizons can be seen at the bottom of the test unit.

A more characteristic orthic grey luvisol was noted in the intact soil columns of the other test pits. Test Pit 11, the southern-most test unit, was positioned in a grassy patch surrounded by large trees. It is the closest test pit to the stream that feeds Gull Lake from the west. An intact soil column was revealed (Figure 8C), with a thin L horizon above a slightly thicker Ah horizon, and a grey Ae horizon. The darker BA horizon begins around 20 cm below surface and transitions into a grey, clay rich Bt horizon by 30 cm. The BC or C horizon is at the bottom of the test pit. Distinct mottling is absent.

The soil pedon in Test Pit 5 (Figure 8B) differed from the other intact soil profiles because it had a thick L-H horizon that capped an Ah horizon. These unusually thick organic epidedons are possibly due to increased vegetation growth along the margins of Gull Lake punctuated by seasonal fluctuations that promoted die off and organic accumulation. A light-coloured Ae horizon is recognizable at about 35 cm from the surface. The boundary between the thin, dark BA and light grey clay rich Bt/BC horizons at the bottom of the test unit is riddled with bioturbation.

Though no cultural materials were found below the surface, we do not rule out the possibility that with further testing, intact archaeological deposits may be present in uncultivated areas nearer to the creek. Systematic testing along and out from the stream's edge and lake's margin is needed to establish the relationship between the cultural remains and these bodies of water. Nor do we rule out that the entire area between cultivated field and the creek was not flooded. If we moved closer to the creek edge, we may in fact find intact alluvial sediments, which may not have covered ancient surfaces. But this is not the case where we tested.

4.4 Archaeological site boundaries

The site boundaries are roughly estimated based on our surface collecting and minimal shovel testing. West of Hwy 88, the site continues to the cultivated field edge and most likely west into the forested area. From this point east to the highway, the site is 150 metres wide (north-south); artifact density tapered off towards the north. It is uncertain how much further south towards the creek the site extends, as the riparian vegetation was dense making surface visibility difficult. As a result, we dug few shovel tests on the west side of the highway. We are also uncertain if the site extends south of the creek in this area (where we did not have land access).

On the east side of Hwy 88, the site is 150 – 200 metres wide (north-south) and extends up to the grass area around the Lambert house (approximately 250 metres from the highway). We surveyed further north and east of the house in the cultivated field but found no cultural materials. The site may extend further east towards Gull Lake in a narrow uncultivated, grassy swath, but no shovel testing was done east of the Lambert house nearer to Gull Lake. All shovel tests along the southern edge of the field, among the willows, not previously plowed, were negative. We are also uncertain if the site is present on the south side of the creek in this area.

4.5 The artifact collection

The 2018 artifact collection was divided according to ‘Industry’, ‘Category/Class’, and artifact ‘Type’ (Table 1). The artifacts were then further divided by portion/integrity (complete, fragment), raw material, and colour, and briefly described. Although our primary objective was to investigate the prehistory of the site, we did collect some historic artifacts. Based on age and materials, these artifacts are all related to the late 19th century – 20th century Lambert occupation. Table 2 lists the number and relative percent of artifacts per major artifact industry and organic remains. The ‘lithic’ industry (n = 173) contains all the prehistoric remains. All the other industries combined (n = 152), including recent faunal remains, contain the site’s historic component. As Table 1 indicates, the historic component consists of everything from ceramic and glass fragments to a repeating Winchester rifle, minus the stock. In this study, we only note the presence or absence of the historic artifacts. However, none of these artifacts could be assigned to an early Fur Trade Period or later Historic Period (e.g., c. pre-1850), that might have signified an Indigenous historic period component. We return to this fact later in this report.

Table 1. Artifact classification scheme for the Gull Lake site artifacts.

Artifact industry	Artifact class/ function	Artifact type
I. Architecture	Fastener	Handle, latch, spike, lock, nail
II. Domestic	Ceramic	Bowl, plate, cup, teapot
	Glass	Bottle, jar
	Furniture	Stove
III. Personal	Jewelry	Bracelet, brooch, locket, pendant, ring, rosary
	Smoking	Clay pipe, stone pipe
	Hygiene	Haircomb, toothbrush
	Entertainment	Bell, chalkboard, Jews harp, toy
	Other	Nail polish bottle
IV. Subsistence/maintenance	Hunting/ Trapping	Ammunition, bale seal, bullet mould, fishhook, gun flint, gun part, ice wedge, trap part
	Tool	Awl, axe, file, netting needle, plowshare, strike-a-light
	Transportation	Hawkbell, horsebell, snowshoe
	Other	Split ring
V. Lithic	Tool	Point, biface, scraper, wedge
	Debitage	Cores, flake, shatter
	Other	Fire broken rock, unmodified
VI. Fauna	Bone	
	Shell	
	Antler	
VII. Miscellaneous	Metal	Band, bar, chunk, sheet, slag, strap, wire, indeterminate
	Glass	Sheet, slag, indeterminate
	Other	Shell, plastic

Table 2. Gull Lake site artifacts per major artifact industry, frequency, and percent.

Artifact industry	Frequency	%
Architecture	6	1.8
Domestic	81	24.9
Personal	8	2.5
Subsistence/maintenance	11	3.4
Lithics	173	53.2
Fauna	16	5.0
Miscellaneous	30	9.2
Total	325	100

Table 3. Lithic raw materials, frequency and percent.

Lithic raw material	Frequency	%
Chert	53	31.9
Chert, Peace River	13	7.8
Chert, Peace Point	8	4.8
Quartz	3	1.8
Quartzite	62	37.3
Orthoquartzite	13	7.9
Silicified siltstone	11	6.6
Siltstone	2	1.2
Igneous	1	0.6
Total	166	99.9

4.5.1 Lithic raw materials

All lithic artifacts were grouped into basic raw material types when possible (Table 3). Most of the assemblage is of locally available fine-grained cherts and quartzites, along with some silicified siltstone (Figure 9a-d). Both Peace River (Figure 9a) and Peace Point chert (Figure 9b) occur in low numbers (Table 3). There are at least four other distinctive cherts of unknown origin (Figure 9c). The almost orange coloured chert (far left of Figure 9c) resembles a chert microcore found in 1987. The source is unknown. All other materials (Figure 9d), including orthoquartzite, silicified mudstone, and siltstone, lag far behind the collective category of chert, which makes up nearly 45% of the assemblage.

Peace River Chert is a high quality, fine-grained, opaque grey – black, often with a greasy lustre assumed to be from heat-treatment. This material can be banded, predominantly black but with bands specked with blue-white mottles of unknown origin (Figure 10a). It may be a very highly metamorphosed siltstone. The source is unknown, but it is most prevalent in Paleoindian assemblages in the Peace River district in northwestern Alberta (Le Blanc and Wright 1990; Dawe 1997b). It is presumed to have a bedrock source in the Rocky Mountains of northeastern British Columbia. A dramatic illustration of the quality of that raw material is the large Braseth Folsom point found near Grande Prairie (Dawe 1997b) where broad fluting was applied to either face.

Peace Point Chert, the dominant raw material at the Peace Point site downstream from Fort Vermilion along the Peace River (Stevenson 1981), is a distinct, fine-grained mottled grey (Figure 9b). This material is available as nodules in a limestone formation (Figure 10b). Softer parent bedrock is often found adhering to some of the larger chunks of this material at the Gull Lake site, indicative of probable close proximity to the as yet unidentified source.

A third distinctive but also unsourced material in the assemblage is a type of glassy orthoquartzite that often appears as clear, well rounded quartz grains bound in a milky interstitial cement. It looks much like tapioca pudding. The milky colour may be a result of heat alteration (Figure 10c). This material is common in northern Alberta assemblages, but the specific source is unknown (also see Ives 2016:19, Figure 13).

In his initial northeastern Alberta survey, Donahue (1976:110) divided lithic raw material frequencies and percentages according to general survey/excavation region (see Figure 11). The two main Gull Lake lithic raw materials, chert and quartzite, are similar in proportional frequency to Donahue's Peace River raw materials. When examined at an inter-regional level, there seems to be a dichotomy between regions north of the Peace River, including the Gull Lake site, and Donahue's southern survey areas. The Peace River lithic raw material percentages are more like the Caribou Mountain percentages, than the Birch Mountain or Clearwater/Athabasca percentages. The latter contain more quartzites (including Beaver River Sandstone). From this perspective, the Boyer River/Fort Vermilion area seems to have a much more northern and western influence than the other regions. Even the distinctive Beaver River Sandstone only occurs in small percentages in the Birch Mountains, which are not that far away from its source near Fort McMurray/McKay, Alberta (Gryba 2016; Saxberg and Robertson 2016).

4.5.2 Lithic tool types

The types of lithic tools found during the 2018 survey and their frequencies are shown in Table 4. More specific descriptions of the microblade fragment and the bifaces/projectile points can be found in Appendix I. Bifaces make up

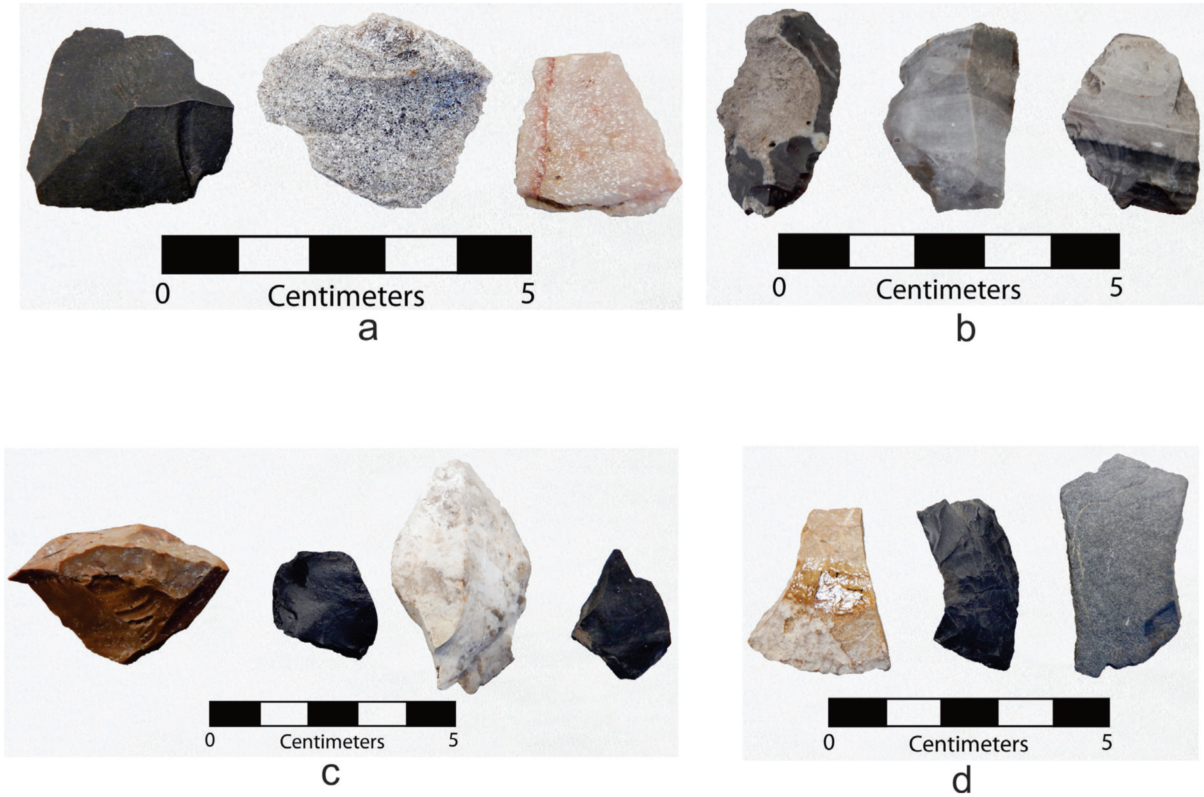

Figure 9. Lithic raw material types, Gull Lake site: a) (left to right) Peace River Chert, orthoquartzite, and quartzite; b) Peace River Chert; c) (left to right) type 1 – type 4 cherts; and, d) (from left to right) mudstone, silicified siltstone, siltstone.

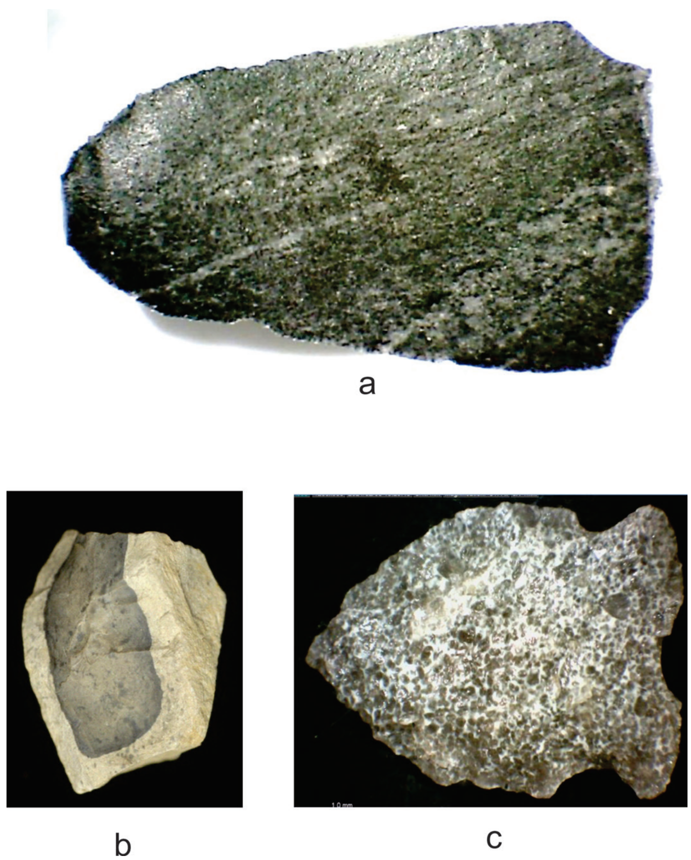

Figure 10. Close-up of lithic raw materials, Gull Lake site: a) Peace River Chert, note banding; b) Peace Point Chert nodule collected near Boyer River, Alberta; and, c) close-up view of Oxbow point, IcQa-31:227, of orthoquartzite.

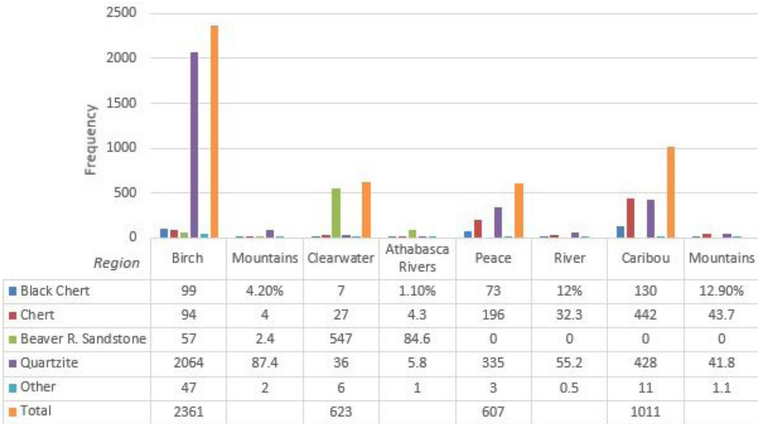

Figure 11. Raw material breakdown according to region, northern Alberta (from Donahue 1976:110).

over 40% of all the tool types, followed by scrapers, and bifaces/projectile points.[1] Both *pieces esquillees* and microblades occur in low numbers. Tools were made primarily from a variety of lithic cherts and quartzites and from lesser quantities of other lithic raw materials (Table 5).

4.5.2.1 Bifaces/projectile points

As Hranicky (2002:187) notes: "Any projectile point can be a knife, but any knife cannot be a projectile point." The five bifaces in this category could be projectiles and/or knives, whereas the bifaces described later likely could not function as projectile points (Figure 12). Table 6 summarizes projectile point type, lithic raw materials, and dimensions.

Table 4. Lithic tool types, frequency and percent.

Tool type	Frequency	%
Projectile point/biface	6	23.1
Scraper	7	26.9
Biface	11	42.3
Piece esquillees	1	3.8
Microblades	1	3.8
Total	26	99.9

Table 5. Frequency and percent tools per lithic raw material type.

Tool raw material	Frequency	%
Quartzite	8	27.6
Orthoquartzite	3	10.3
Chert	10	34.5
Peace Point Chert	1	3.4
Peace River Chert	4	13.8
Silicified Siltstone	3	10.3
Quartz	0	0
Total	29	99.9

Only two of the five points, consisting of cherts, quartzite, and silicified siltstone, were complete. The two eared points resemble Oxbow types while the other three points are not identifiable to type (one possibly resembles a Hanna point). A few similar projectile points were found in our previous 1987-88 area surveys (see Figure 4).

Figure 12. Gull Lake site projectile points/bifaces. Top row (left to right): Hanna-like point, orthoquartzite Oxbow point, Oxbow point made from Peace Point Chert, and silicified siltstone lanceolate biface. Bottom row (left to right): quartzite point base; projectile point fragment.

[1] The definitions of biface, projectile point, and knife are vexing. Both knives and projectile points can be bifacially flaked (but not always). A lanceolate has a blade that expands out from the tip and then narrows back in towards a generally straight or concave base. Lanceolate thicknesses vary considerably.

Table 6. Projectile point types and basic attributes.

Projectile point/biface type	Frequency	Raw material	Weight (gm)	Max. length (mm)	Max. width (mm)	Thickness (mm)
Preform	1	Silicified siltstone	3.5	31.8	15.9	6.2
Point base	1	Quartzite	3.9	21.5	23.6	6.1
Side-notched	1	Grey chert	3.9	34.0	19.0	6.0
Oxbow	1	Orthoquartzite	1.6	22.0	15.0	4.9
Oxbow	1	Peace Point Chert	5.1	39.0	22.4	6.4
Lanceolate	1	Silicified siltstone	12.4	51.5	24.4	8.1

The lanceolate biface fragment exhibits oblique overshot flaking on the ventral side (Figure 13a). Ives (1993:9) refers to similar northeastern Alberta specimens as: "…lanceolate or near lanceolate bifaces (either projectile points or knives)." We refer to this one as a lanceolate biface but make no further assertion as to function. It could be a projectile point and/or a knife. Some Early Prehistoric bifaces in Ives' (1993:8) sample, and from the Poohkay collection (GlQl-3), northwestern Alberta, do show more uniform, but parallel to slightly oblique flaking (Figure 14). A few specimens from a collection of lanceolate bifaces from the Fort Chipewyan area shows some overshot oblique flaking (Figure 13b). However, Ives (2016:38), when describing the large, stemmed bifaces in the Poohkay collection (thought to be Paleoindian), notes:

> One other distinguishing feature of the tip portions of the preforms involves a shift in the pressure flaking pattern. Over most of the proximal portion of the preforms, there is organized comedial flaking converging on the midline of the specimen. Toward the tip however, flaking begins to extend more across the specimen, and in some cases (see GlQl-3:13/23 in Figure 31) we see actual outrepassé (overshot) flaking that does seem to be purposefully controlled.

On our lanceolate biface there are at least three (perhaps four) overshot flakes which, before edge retouch, would have ended on the other side of the point (for a more thorough description of this point, see Appendix I). These flakes resemble a parallel oblique flaking style found in Frederick, Lusk, Jimmy Allen, and Angostura Paleoindian points further south, occasionally lumped together and referred to as oblique flaked Plano projectile points (Cassells 1986). However, it most resembles Angostura points, in both appearance and the oblique overshot flaking characteristics. An Angostura point this far north we believe is a first, but they have been observed just south of Edmonton, Alberta in the Bashaw area (Figure 13b). A few of these lanceolate bifaces also exhibit oblique overshot flaking. Neither our lanceolate nor the other Alberta examples show the consistency of oblique flaking over the entire face of the biface as in the more southern examples. This inconsistency could be a product of the quality of lithic raw materials used to manufacture these northern lanceolate bifaces.

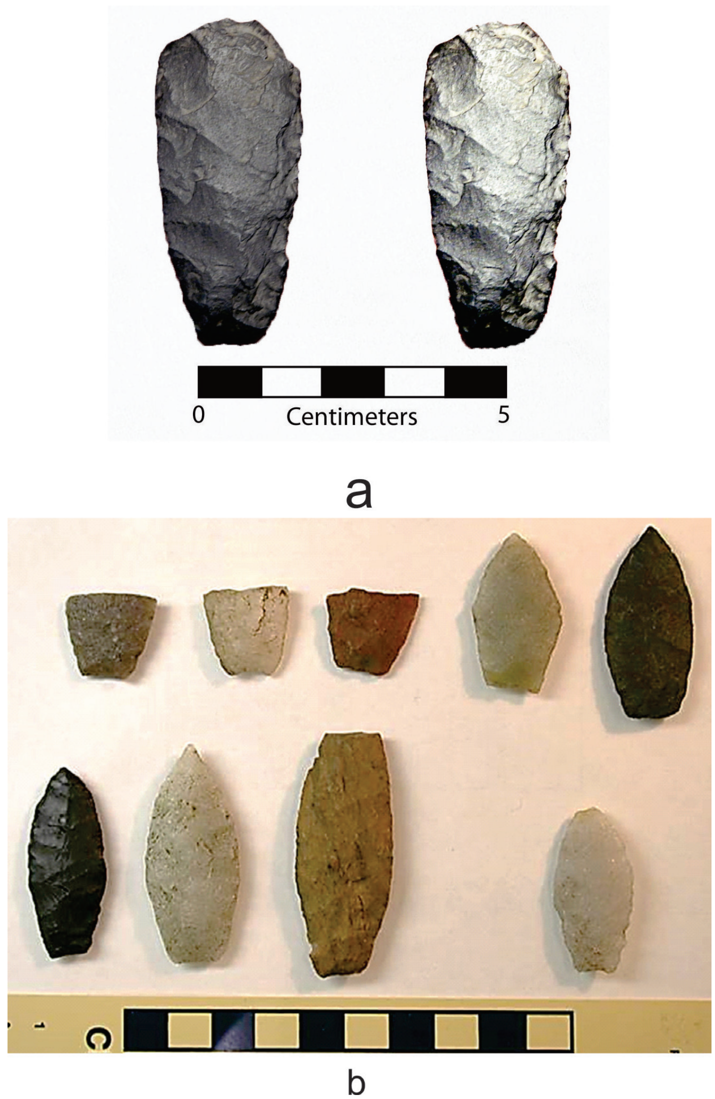

Figure 13. a) Close-up view of lanceolate biface (top row). b) Series of lanceolate bifaces found near Bashaw, Alberta (photograph courtesy of Bob Dawe). The first three specimens on the bottom row show oblique flaking.

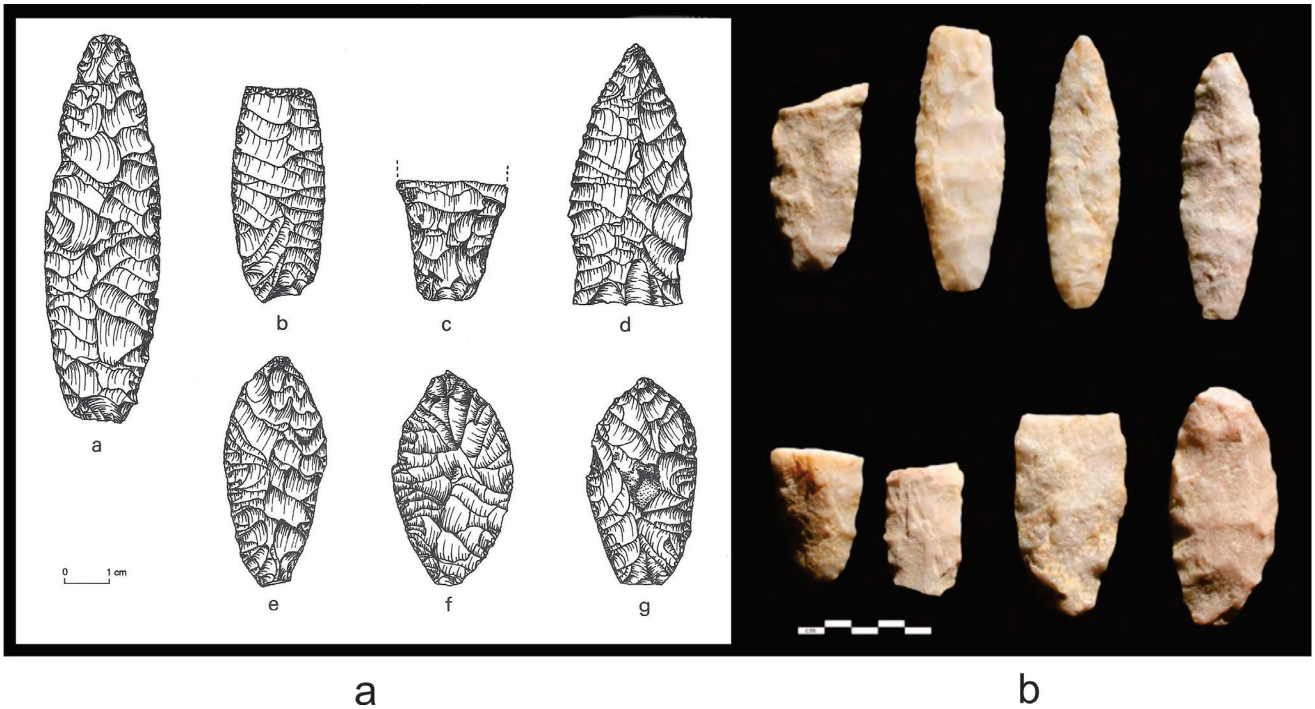

Figure 14. Left: Northern Alberta Plano projectile points (from Ives 1993:8). Right: lanceolate bifaces from the Fort Chipewyan area, northern Alberta (images courtesy of Dr. John Ives, University of Alberta).

Borchert (1989:72) notes the following for northern US Plains Angostura specimens:

> Agate Basin points are described as having horizontal parallel flaking, while Angostura points are described as having parallel oblique flaking. Angostura point bases are shallowly concave or irregularly straight, while Agate Basin point bases are rounded.

Furthermore, Borchert (1989:75) also comments on geographical location of this point type:

> There have been many reports of Angostura points from Alaska to Texas, but the described points are primarily from the Plains. It isn't clear to me whether this accurately reflects distribution of parallel oblique flaked points of Angostura form or simply indicates a general lack of use of the term outside of the plains. I do not take exception with the use of the term "Angostura" to describe parallel oblique flaked projectile points of a comparable form, regardless of their geographical location.

If identified correctly, the Angostura point should be in the order of 9,000 years old. The age of this type in the north mirrors the central Plains (Wheeler 1957). Other than the one probable Paleoindian point, the other projectile points have more certain northern dates, including the small-stemmed Oxbow points. At other northern Alberta sites, they were found in dated contexts going back to at least roughly 2,500 – 2,900 calendar years B.P (Ives 1993:14). The prehistoric side-notched points (found in the 1987-88 surveys) date anywhere from about 1,800 B.P. to European contact. Remarkably, many of these side-notched points resemble those found further south in the Alberta Parklands and Northern Plains (Donahue 1976:109); Ives 1993:15). Without either more careful measurements or sound radiocarbon dates, we can only speculate that the Gull Lake site was occupied as long as 9,000 years ago to European contact.

4.5.2.2 Scrapers

The Gull Lake collections contain five scraper fragments and two complete scrapers (Figure 15 and dimensions in Table 7). There are three end-scrapers, one thumbnail, and one side-scraper made from a variety of cherts. The two end-scrapers are over 30 mm long with relatively similar widths (22.0 – 26.3 mm) and thicknesses (9.2 – 10.3 mm). Some of the specimens resemble those found by Donahue (1976) and others in northeastern Alberta.

Figure 15. Lithic scrapers, Gull Lake site.

4.5.2.3 Bifaces

The 13 bifaces come in a variety of shapes, sizes, raw materials, and completeness (Figure 16 and Table 8). While most of the bifaces are quartzite (n = 9), a few are chert and silicified siltstone. Most of the complete specimens are ovoid-shaped, though one has a straight base. A few specimens could be preforms, intended for the later manufacture of projectile points. Several well-crafted bifaces were also found at the site in 1987-88.

4.5.2.4 Pieces esquillees

This tool category is often difficult to distinguish from bipolar flakes. These tools are essentially wedges made from flakes. They often have cortex on them and were useless as cores. The negative scars from flake removal show flakes that are often badly hinged and stepped, extending only a fraction down their dorsal or ventral sides (Hayden 1980:2-3; Pyszczyk 1980:50, 53). Only one *piece esquillees* was found at the Gull Lake site. It has battering on at least one or two sides (Figure 17a; Table 9).

Table 7. Lithic scraper types and basic attributes.

Scrapers	Frequency	Raw material	Weight (gm)	Max. length (mm)	Max. width (mm)	Thickness (mm)
Scraper (terminal end)	1	Chert	2.6	19.6	19.1	7.7
Scraper (terminal end)	1	Quartzite	3.4	20.3	15.6	7.3
End scraper	1	Chert	8.1	30.4	22.3	10.3
End scraper	1	Peace River Chert	8.9	31.4	26.3	9.2
End scraper	1	Chert	8.2	33.0	22.0	9.5
Side scraper	1	Peace River Chert	4.5	30.7	20.3	7.7
Thumbnail scraper	1	Peace Point Chert	1.3	16.3	13.5	3.7

Table 8. Lithic biface types and basic attributes.

Bifaces	Frequency	Raw material	Weight (gm)	Max. length (mm)	Max. width (mm)	Thickness (mm)
	1	Quartzite	14.0	34.2	33.1	9.8
Straight base	1	Orthoquartzite	22.6	58.1	31.5	13.5
Edge fragment	1	Peace River Chert	10.0	64.5	15.9	12.1
	1	Quartzite	242.0	110.0	74.0	28.3
End fragment	1	Quartzite	69.6	89.0	36.9	16.9
	1	Quartzite	37.6	71.0	46.0	9.0
	1	Chert	11.7	49.1	23.9	8.9
Preform	1	Chert	43.5	67.9	47.4	13.3
	1	Chert	40.9	72.6	41.9	14.2
	1	Silicified siltstone	19.7	65.1	29.8	8.3
	1	Quartzite	10.2	44.1	19.1	8.2

Figure 16. Lithic bifaces, Gull Lake site.

4.5.2.5 Microblade technology

We also found a possible chert microblade fragment (6 mm x 10.5 mm) and possible microblade core at the site (Figure 18; Table 10). This proximal blade fragment is almost twice as long as it is wide, with at least two ridges running down its length, and with two edges along its length. The multidirectional core is best described as a microblade core. It is roughly conical in shape. The sides of the striking platform taper down all around to a point. The distal end of the face shows remnants of old flute scars with missing proximal ends due to additional flake removal (possibly for platform rejuvenation). It is made from the same orange-coloured chert as the microblade core found in 1987 (Pyszczyk 1991). The distal half of a platform rejuvenation ridge flake knapped off a microcore, perhaps microblade core, was also recovered in 2018.

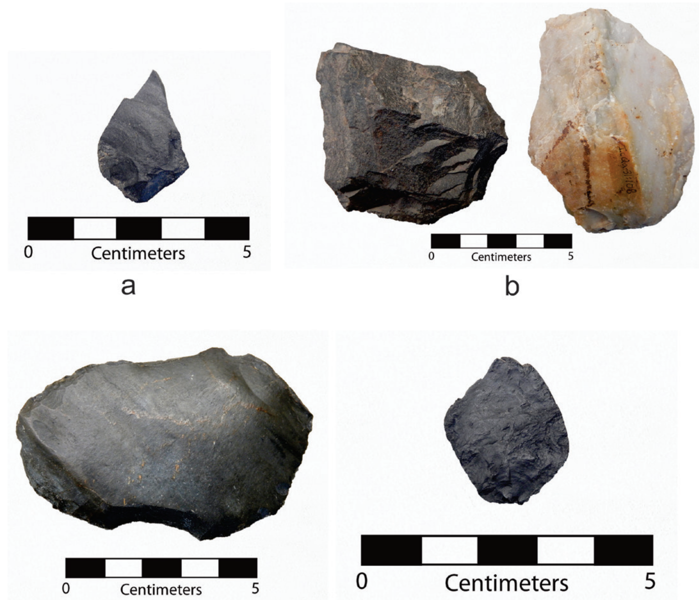

Figure 17. Cores, flakes and tools, Gull Lake site: a) *piece esquillees*; b) cores; c) lithic flake with edge retouch; and, d) lithic spit pebble.

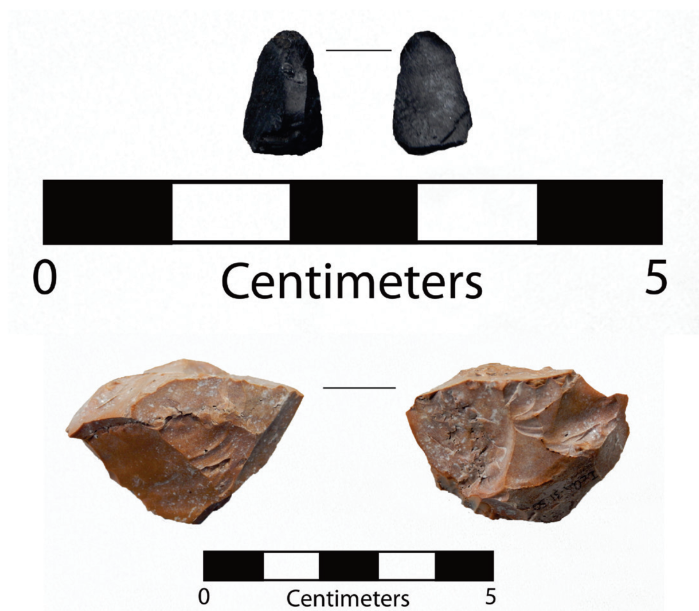

Figure 18. Top: microblade fragment, bottom: microblade core.

Table 9. *Piece esquillees* basic attributes.

Piece esquillees	Frequency	Raw material	Weight (gm)	Max. length (mm)	Max. width (mm)	Thickness (mm)
1 crushed end	1	Chert	3.2	25.0	29.0	5.5

Table 10. Microblade and core basic attributes.

Microblade/core	Frequency	Raw material	Weight (gm)	Max. length (mm)	Max. width (mm)	Thickness (mm)
Blade fragment	1	Peace River Chert	0.1	10.5	6.0	2.2
Core, multidirectional	1	Chert	25.3	38.3	28.5	27.6

4.5.3 Lithic debitage and technologies

Cores and debitage (flakes and shatter) enable an assessment of raw material use, type, and degree of lithic reduction techniques and technologies present at the site (Table 11).

4.5.3.1 Cores

The seven lithic cores are made of quartzite, chert, and silicified siltstone (for example, see Figure 17b). Flakes from four of the cores were removed multidirectionally, while flakes from the other three cores were removed unidirectionally.

The one unidirectional chert microcore may be microblade technology (Figure 18). Its presence is not surprising given the presence of a microblade fragment and the complete microblade core collected from the site in 1987-88, and similar materials in other parts of northern Alberta (Sims 1977; Ives 1993:10). According to Ives, this tradition comes from northwest North America (Yukon) and could have a considerable antiquity (Younie et al. 2010; Magne and Fedje 2017).

4.5.3.2 Flakes

All flakes (n = 55) were divided into three basic categories shown in Table 12: 1) primary flakes containing all (or almost all) cortex on the dorsal side; 2) secondary flakes containing some cortex mostly on the distal end; and, 3) reduction flakes, containing no cortex and exhibiting flake ridges on one or both sides. Some of the reduction flakes were less than one centimetre in size, with a well-defined platform. They were likely pressure flakes for either thinning or tool edge retouch. Reduction flakes were made from all major raw materials found at the site (Table 13). When these frequencies are compared with the tools (Table 5), the proportions of raw materials are relatively similar.

One flake shows possible edge retouch and therefore may be an expedient tool (Figure 17c). However, it and a few others, while exhibiting some retouch, come from a plowed field. It is difficult to ascertain whether the retouch was deliberate or the product of farm equipment.

4.5.3.3 Split pebble

The one chert bipolar split pebble represents bipolar reduction of small, locally found chert pebbles at the site, likely sourced to the local Peace River gravels (Figure 17d).

Table 11. Lithic debitage, frequency and percent.

Debitage	Frequency	%
Core	4	3.0
Flake	52	38.5
Shatter	73	54.1
Split pebble	1	0.7
Spall	5	3.7
Total	135	100

Table 12. Lithic flake types, frequency and percent.

Flakes	Frequency	%
Primary	3	5.5
Secondary	19	34.5
Reduction	33	60
Total	55	100

Table 13. Lithic flake types per raw material.

Raw Material	Primary	Secondary	Reduction
Quartzite	3	6	9
Orthoquartzite	0	4	5
Chert	0	0	12
Peace Point Chert	0	1	2
Peace River Chert	0	0	1
Silicified siltstone	0	0	6
Quartz	0	0	0
Total	3	11	35

4.6. Discussion and interpretation

The presence of an undated lanceolate biface/projectile point at the Gull Lake site is problematic. It, and others like it in undated northern assemblages, bring up the debate regarding the questionable antiquity of northern lanceolate bifaces (Bryan and Conaty 1975; Donahue 1976; Vickers 1986:41; Ives 1993:9; 2017). Unlike the Northern Plains, lanceolate bifaces also occur late in prehistory in northern Alberta and the Northwest Territories (Bryan and Conaty 1975; Workman 1978; Gordon 1996). Ives (1993:9) when faced with undated lanceolate bifaces from northeastern Alberta, used morphological and metrological characteristics to argue for their early antiquity.[2] Donahue (1976:93) found two stemmed bifaces in the Birch Mountains and one lanceolate biface from the Fort Vermilion area (see Figure 4). Of the latter, Donahue (1976:94) suggested: "Initial com-

[2] Ives (1993:9) argued one group of lanceolates (Gardiner Lake Narrows and Eaglenest Portage, Birch Mountains) resemble specimens found in Yukon and Alaska, which could also be of Paleoindian origin. He (1993:9) stated that two other lanceolates (Gardiner Lake Narrows and Beaver River Quarry [HgOv-29]), "…fit within the range of variability for Agate Basin materials."

parisons were with northern Agate Basin or Keewatin Lanceolate points, but this was considered tenuous and is now rejected." Again, because of its general similarity to later period lanceolates, and without accurate dating, he suggested that no safe, suitable comparisons could be made. Flenniken and Raymond (1986), in controlled experiments showed that projectile point shape alone was not a reliable attribute in developing projectile point typologies.

When point attributes such as shape, size (length, width, thickness), or flaking methods are considered, without accurate dating one would be hard-pressed to correctly separate these points into their proper temporal spans. For example, we compared a small sample of what are thought to be Early Prehistoric lanceolates to those found in later Prehistoric contexts in the Northwest Territories (Figure 19). In terms of shape, base, and point configuration, there is considerable overlap between Gordon's (1996) and Noble's (1971) samples.

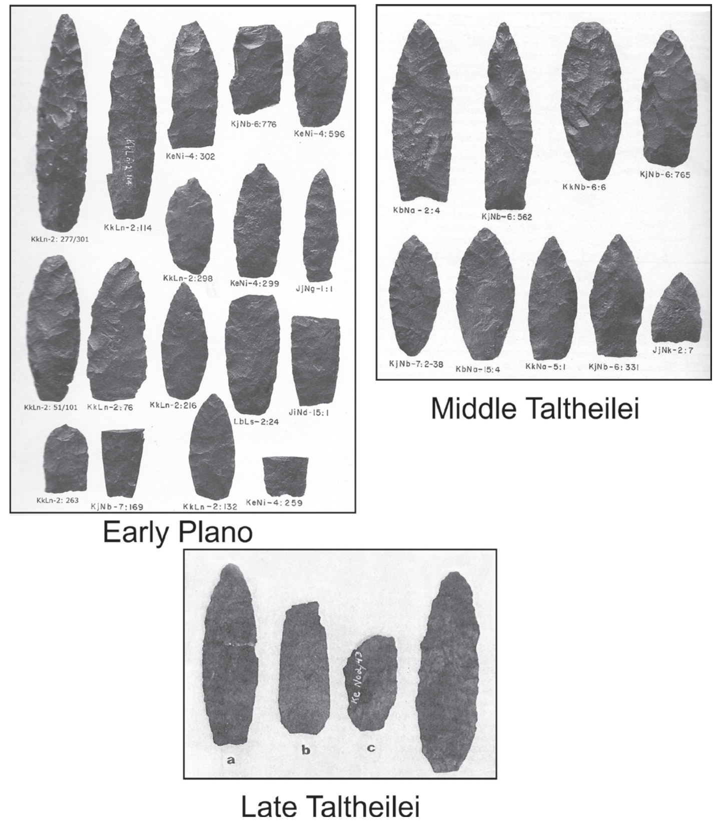

Figure 19. A comparison of Plano, Middle, and Late Taltheilei lanceolate bifaces (from Noble 1971 and Gordon 1996:88).

Besides the usual morphological (e.g., shape, basal grinding) and metric attribute (e.g., size, thickness) characteristics of lanceolate bifaces, are there any other attributes useful for dating them? Bradley (2015) discusses the use of pressure flaking patterns to determine artifact age, in particular overshot pressure flaking on Paleoindian projectile points. He indicates that this and other more symmetrical pressure flaking techniques appear to indicate early prehistoric ages for lanceolate projectile points. The lanceolate bifaces from northern Alberta and subarctic Canada display various types of pressure flaking. However, the pressure flaking on the later period lanceolate bifaces are much more random and less uniform than the presumed Early Prehistoric Period lanceolate bifaces in the sample. For example, some of the presumed Early Plano lanceolate bifaces from northern Alberta show more uniform parallel flaking than Gordon's later Taltheilei projectile points. Ives' (1993:8; see Figure 14) potential Agate Basin lanceolate bifaces from Gardiner Lake Narrows and Beaver River Quarry show oblique parallel flaking and, in the latter, what could possibly be overshot oblique parallel flaking. There is also uniform parallel flaking on a cache of lanceolate bifaces found in the Grande Prairie region (Ives 2016:52). These features are consistent with Bradley's (2015) Paleoindian pressure flaking patterns and may be indicative of an Early Prehistoric Period occupation in northern Alberta.

We also suggest an early date for lanceolate biface recovered from the Gull Lake site, based on its similar pressure flaking characteristics to Early Prehistoric bifaces further south. Without conclusive evidence, however, we leave its cultural affiliations to be answered once we have dated specimens. The other two lines of evidence for a possible early occupation of the Gull Lake site include the presence of Peace River Chert and the Denali microblade cores. While not high (nearly 8%), the use of this lithic material has been associated with Early Prehistoric assemblages in northern Alberta (Dawe 1997b). Magne and Fedje's (2017:187) simulation models of dated microblade technology suggest this technology could have arrived in northern Alberta as early as 9,500 years ago. However, both lines of evidence are not mutually exclusive to only Early Prehistoric Period sites.

To summarize, based on the considerable variety of projectile point types, the Gull Lake site is a large multicomponent site that was frequently occupied, perhaps for as long as 9,000 years. There is a considerable diversity of lithic raw materials, especially the cherts, which if studied in more detail could possibly be sourced. Certainly, the raw material type breakdowns at Gull Lake resemble those found in the Caribou Mountain sites more than those of the Birch Mountains and Athabasca drainage system. Comparisons to assemblages further north in the Northwest Territories would be enlightening in this regard but are beyond the scope of this paper. Some archaeologists (Ives 1993:10) have suggested the microblades represent the Northwest Microblade Tradition found in the Northwest Territories and the Yukon.

The various lithic tool types indicate the site was a long-term habitation used repeatedly over millennia. According to the available regional ethnohistoric records, fall and winter are the most likely times of occupation. As moose moved from the upper altitudes down into the Peace River Lowlands, the area would have had an abundant and diverse food resource base, especially when combined with the extensive bison herds and fish spawning in the streams during this time of year. The historic journals suggest that, at contact, Beaver First Nations were present in the area during the winter months but say little on the location of their camps or movements. Finally, our extensive surveys at the Gull Lake site have not recovered one artifact that relates to the Fur Trade Period, suggesting that this site was no longer occupied by Indigenous peoples after European contact, or so sporadically and temporarily that we have been unable to detect it.

5. Gull Lake in the larger Peace Lowland Indigenous prehistoric settlement system

5.1 Prehistoric Period

The location of the Gull Lake prehistoric site is somewhat unexpected. Generally, large sites such as this are often more firmly associated with large bodies of water (major lakes and rivers). However, both Donahue (1976) and Ives (1993:20) noted that a diversity of food resources, occurring in varied vegetational communities, were also important for camp selection. The Gull Lake site is situated beside a small shallow lake, along a small ephemeral stream, a short distance away from two major rivers. People at this site had access to diverse resources: 1) the shallow Gull Lake marshlands that during certain parts of the year would have contained large numbers of nesting and migrating waterfowl, muskrat, and provided ideal moose habitat; 2) the pine forests in the dune fields just to the south, containing browse for deer, pine cones for food, and resin for pitch); 3) the lower terraces of the Peace River, which made ideal moose habitat; and 4) the confluence of the Ponton and Boyer Rivers, as well as the Boyer and Peace Rivers, which would have concentrated major fish resources during annual spawns.

The location of the Gull Lake site, and other similar sites, might be explained by nearby anthropogenic burning activities, which may have a long history in northern Alberta and the Northwest Territories. By the early 1970s, anthropologists (Lewis 1982) began to study the effect that both natural and human-made fire had on the Boreal Forest in northern Alberta. Lewis and Ferguson (1988) put forward the paradigm that hunter-gatherers, such as the Dene of northern Canada, were not simply passive players taking advantage of a wide range of resources as they became available. Instead, they actively maintained or changed the ecology of the Boreal Forest in certain places to make it more productive and accessible, thus benefitting them. There is evidence in northern Alberta that Indigenous people purposely altered the Boreal Forest with fire to make it more suitable and sustainable for wildlife. By deliberate burning, Indigenous peoples created a more open, mosaic Boreal Forest (Rowe and Scotter 1973:458):

> By maintaining a mosaic pattern in the boreal forest, fire assists in the maintenance of diverse wildlife populations….The pattern and scale of burned and unburned patches is probably critical in determining the suitability of habitat for many species.

Lewis (1982:17) documented places in northern Alberta where:

> …prescribed fires were once part of the Indian's own pattern of "landscape management."….their selective employment of modern fire for boreal forest adaptations indicated an understanding of both the general principles and the local specific environmental relationships that are the subject of modern fire ecology…. They understood and practiced controlled burning as a part of hunting-gathering subsistence activities.

Proof, either scientific or documentary, that prehistoric northern Indigenous peoples used such practises, is difficult to come by, but there are hints to the use of human use of fire before settlement. For example, geologist and surveyor in western Canada George M. Dawson (in Macoun 1882:125) noted:

> …the origin of the prairies of the Peace River is sufficiently obvious. There can be no doubt that they have been produced and are maintained by fires. The country is naturally a wooded one, and where fires have not run for a few years, young trees begin rapidly to spring up.

By using fire, the people kept meadows and other areas open and refurbished (Beaver woman, 69, High Level area; from Lewis 1982:24):

> Why the bushes so thick is because…they stop burning—the Indians stopped burning...Did you ever see them prairies? My goodness, I even remember. It was really prairie…just prairie, you know, (and) here and there you see little specks of woods…

Open meadows and edges would have attracted many large game animals, including the once abundant woodland bison:

> Until the mid-eighteenth century bison ranged throughout much of the boreal forest, as far north as Great Slave Lake and the Mackenzie River in the Northwest Territories….it seems unlikely that either the Athapaskans or later Algonkians would have overlooked the possibilities of providing and maintaining better habitat for woodland buffalo [through use of fire] (Lewis 1982:30; brackets ours).

> People know where to hunt. Our people have a name for those burned places in the forest called go-ley-day. They tell one another about those places and when to hunt there. (Slavey, 69, Meander River area, from Lewis 1982:31-32).

There is no doubt northern peoples used fire at the time of contact to open parts of the boreal forest into meadows to attract more game animals, including Grande Prairie, High Prairie, and the High Level – Fort Vermilion area (Kristensen and Reid 2016:12). As noted by Poletto (2019:42):

> …once vegetation was established, the Boreal Forest did not become a static backdrop to human and animal activity. It was susceptible to human and natural fires. Fire is essential to the maintenance of the Boreal Forest. The region's vegetation and environmental history sets the stage for human occupations. For First Nations, the environment is an important tool that they use to influence hunting rounds and anthropogenic landscape management practices…

Maintenance and hunting in these areas would have resulted in frequent human use camps. The problem that prehistorians face is just how long in antiquity such practises took place and where in the northern Boreal Forest of Alberta they were most prevalent. Certainly, one piece of evidence might be a higher than normal archaeological site density in certain areas of northern Alberta. Or, large sites occupied by many people that were sustained by a more diverse, abundant food resource. And, if available, detailed palaeobotanical records of fire intensity and frequency in the local region, such as that compiled by Poletto (2019) for the Athabasca Lowlands, Fort McKay region for the last 3,000 years, would help considerably.

To our knowledge, while the historic connection between fire and humans has been made in the Fort Vermilion region, the prehistoric archaeological and palaeobotanical connections remain vague. Without more detailed data and evidence, we by no means intend to reach any major conclusions in this regard. We hope to at least propose a set of ideas and possible future avenues of research to help us understand this topic more thoroughly. Readers should therefore consider our argument and evidence as a first approximation to the problem.

Poletto's (2019) detailed research in the Athabasca – Creeburn Lake area suggests that anthropogenic burning occurred long before European contact. Northern forests were deliberately burned to construct and maintain diverse ecotones, including meadows and grasslands. At the time of contact the Fort Vermilion region was such a place and resembled other 'prairies' in northern Alberta (Figure 20). These open spaces would have drawn a greater diversity and numbers of wild game animals, including wood bison, as the historic journals indicate (see Ferguson's 1993, discussion of these places). The Gull Lake site, as well as other smaller sites in the area, was ideally situated to take advantage of this substantial food resource during certain times of the year. Ives (1993:24) notes that not only did moose move down from the Caribous and Birch mountains in the fall, but wood bison also moved down into the Peace River Lowlands and Athabasca Delta regions during this time of year. This rich resource base would have supported larger numbers of people for longer periods.

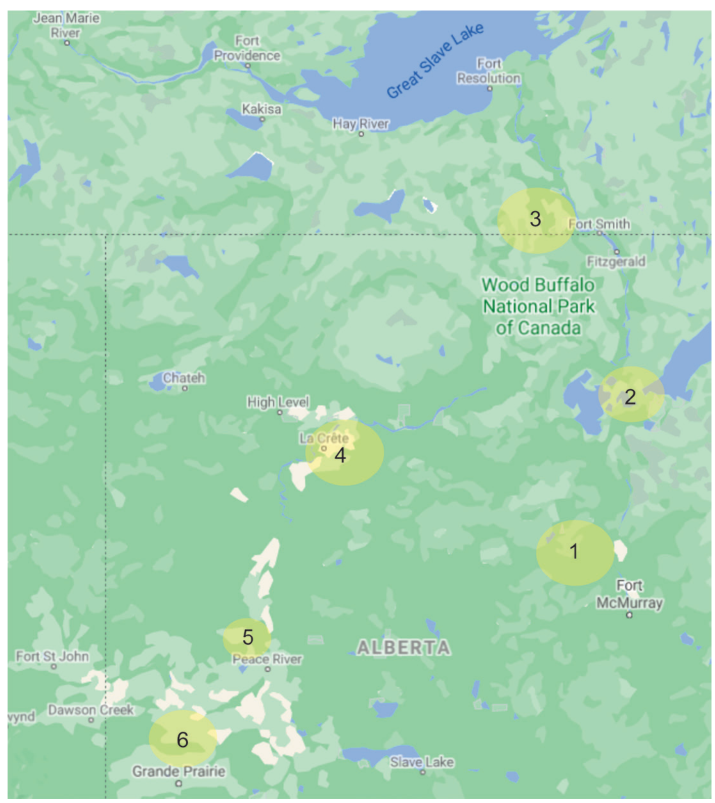

Figure 20. Historically noted prairies in northern Alberta and the Northwest Territories, marked by yellow circles.

Large game animals, such as wood bison, found in sizeable numbers, would have drawn prehistoric peoples to them. We looked at other regions along the Peace River and in the Northwest Territories where similar ecotones were present at contact. Traders and explorers mention several sizeable prairies in northern Alberta and the Northwest Territories, which mostly consist of open grasslands. Ferguson (1993) and Ives (1993) have noted a few of these places including the Fort Vermilion region. Others are present in northern Alberta and adjoining Northwest Territories (Figure 20).

Just north of the Alberta – Northwest Territories border, west of the Fort Smith and the Slave River, historic traders mention the Salt Plains consisting of large stretches of open fen-grassland with large accumulations of exposed salt on them. On the Alberta side, Ferguson (1993) and Poletto (2019) note extensive grasslands in the Athabasca – Fort McKay areas. The Athabasca Delta area also contained open fens and bison herds, although they were not as numerous as in other places in northern Alberta. However, according to Stevenson (1981:2) the Peace Point area was also a prairie at contact and earlier:

> While trembling aspen and willow presently dominate vegetation in the vicinity of Peace Point, up until the late 1920s most of the area from the river several hundred meters distant to the bluff was prairie (Raup 1935; Archie Simpson pers. comm.). That Alexander Mackenzie (1793:8) also noted the predominance of grassland on most open parts or exposed sections of the lower Peace in 1792 further suggests that the Peace Point prairie had a fairly long existence before being replaced by forest in the twentieth century.

The Fort Vermilion - La Crete area historically was important for its bison; the principal reason the first forts were built in the area. They too had open fens and prairie-like settings, and the historic names such as Jon D'or Prairie, Prairie Point, Buffalo Head Prairie, and others, attest to the importance of these local prairie-like environments, which also occur as far away as the High Level area (Ferguson 1993). Further downriver, the Clear Hills (near the present city of Peace River) were an important bison hunting area historically (Ferguson 1993). And still further down on the Peace River, south of Dunvegan where the river runs the farthest south in Alberta, there was the 'Grande Prairie', historically noted for its open grasslands (Ferguson 1993).

At each of these places, including Fort Vermilion, there is a high archaeological site density and/or very large archaeological sites occupied for millennia: 1) many sites in the Athabasca – Fort McKay area (Ives 1993; Poletto 2019); 2) the Peace Point site (Stevenson 1986) near the Athabasca Delta; 3) the Gull Lake site in the Fort Vermilion area; 4) the Daishowa site (Bobrowsky et. al. 1988) and Carcajou (a prominent Métis settlement) along the Peace River near the Clear Hills; and, 5) Dunvegan, a stratified prehistoric site (Smith and Neary 1991) near the Grande Prairie and the Clear Hills to the north. We do not have archaeological site data for the Salt Plains in the Northwest Territories.

Ives (1993:24) suggested that 'nodes' or site concentrations should appear, consisting of high site densities and large sites, along the Peace and Athabasca rivers at regular intervals or where large rivers run into the Peace River. Nevertheless, he found few sites while surveying near the confluences of the Mikwa and Wabasca rivers, where site concentrations were expected. We propose instead that large archaeological site concentrations and large sites occur near the major prairies that occur within the broader boreal forest ecozone, and not necessarily at regular intervals along the rivers, or just at tributaries. The Gull Lake site is one such site located near a major prairie.

The last major question to answer in this regard is which came first: the people or the prairie? There is considerable evidence and literature to suggest that northern Dene purposely burned out areas in the boreal forest to open them up to create a grassland or parkland setting, as Poletto's (2019) and Lewis's (1982) research in some parts of Alberta suggest. A more diverse ecotone would also attract varied sets of game animals, including the major large game animals, which were essential for northern peoples. Such a postulation, that people chose an area and then began to systematically burn it out to create these new ecotones, is very difficult to prove without more extensive palaeobotanical research in the Fort Vermilion area. However, Stevenson's (1986) statements about the present vegetation at the Peace Point site are informative, as are Poletto's (2019) about the Fort McKay area. This area was likely maintained as a prairie by the Dene to attract animals. Once no longer used, the natural vegetation regenerated, and the area was more forest-like in nature. The Fort Vermilion area surrounding the Gull Lake site also underwent a similar transformation after settlement. It would have been reforested today if it had not been for the extensive agriculture in the region.

5.2 Historic Period

According to the historic journals, both the NWC and HBC established their first posts along the Peace River in the Boyer River region, not far from the Gull Lake site, to gain access to the bison herds. It was the acquisition of meat supplies for the fur brigades, more than trading with Indigenous groups, that the NWC built Boyer's Post in 1788 and the HBC Mansfield House in 1800. The presence of Beaver First Nations people in the area, as least periodically, further helped their decision to build at these places as Indigenous hunters were critical in acquiring the necessary meat supplies. The traders needed meat. In fact, without both a good meat resource and hunters to acquire it, as Thomas Swain of the HBC was to find out when his Indigenous hunter abandoned him, the men had to eat their parchment skins that winter to survive (Pyszczyk 1993).

Our extensive surveys of the Gull Lake site, in both 1987-88 and again in 2018, did not yield one artifact that we could assign to the early Fur Trade Period. This absence of evidence of the site being occupied by Indigenous peoples during and after contact is somewhat baffling, given its extensive use for thousands of years. Were our survey and collection methods too crude and we missed those artifacts? While small objects, such as glass beads or lead shot, would be easily overlooked, gunflints, musket balls, and other fur trade goods would be as visible as lithic flakes. Early Historic Period artifacts were found at Peace Point and other prehistoric sites in the Caribou and Birch mountains, but thus far not at Gull Lake.

Based on these facts, Indigenous land use may have changed in the area. Apparently, by the time of contact, the Gull Lake site was no longer a focal area for Indigenous peoples. The NWC only stayed in the region for four years before moving further upriver near La Crete and establishing Aspin House. In 1798 they moved even further upriver and established LaFleur's Post (Fort Vermilion I). Ferguson's (1993) research also shows that areas further west, near High Level, were more important for hunting later in the 1820s. While the NWC did return to the Boyer River for a short period in the early 1800s, those forts were short-lived before the traders returned further upriver again. By the 1820s large game animals, including wood bison, were severely depleted in the region. Colin Campbell, in charge of HBC Fort Vermilion I in 1822, stated that although the fort was no better off than any other along the river, the Beaver First Nations liked to bring their furs to 'this place'. Depleted resources, along with new land use strategies, which may have required trapping, may have led to the declining importance of the Boyer River area and the use of the Gull Lake site along with it.

6. Concluding remarks

The Gull Lake archaeological materials, although coming from a disturbed context, are useful because so little archaeological evidence has been published from the Fort Vermilion region. This prehistoric assemblage can serve as a basis for comparison to future archaeological discoveries. It also informs members of the community of Fort Vermilion and area of the historic importance of the region and long land use history by Indigenous peoples.

Although many of the lithic materials from the Gull Lake site resemble those found previously in the region and adjoining Caribou and Birch mountains, the diverse number and types of cherts is noteworthy. Hopefully, with more research, more sources like the Peace Point Cherts will be located. The site is also unusual because of its immense size, the presence of microblade technology, and some unusual lithic raw materials. Pyszczyk, while doing extensive surveys of the Fort Vermilion – La Crete areas, only came across one other site that was even remotely close to the size of the Gull Lake site (south of La Crete on an old river oxbow). Instead of being located next to a major lake or river, the Gull Lake site sits alongside a small ephemeral stream. When surveying in the Fort Vermilion region we often found other lithic scatters near small streams or shallow sloughs (Pyszczyk 1990).

To conclude, in terms of a larger regional perspective, the Gull Lake site, like other large multicomponent prehistoric sites in the Peace/Athabasca River Lowlands, generally coincides with the large prairie-like openings found in these regions historically. These open Boreal Forest grasslands would have sustained large game animals such as the woodland bison during certain times of the year, creating an enormous food resource for Indigenous populations. As long as this food resource was abundant, it attracted larger Indigenous groups to it. The depletion of game animals after contact may explain why Indigenous peoples adapted their seasonal rounds to intercept other food resources in the region, and thereby ended the long Indigenous history of the Gull Lake site in the process.

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Appendix 1: Selected artifact descriptions

IcQa-31:110: Probable proximal end of microblade (Figure 18). Wt.: 0.1 g, L: 10.5 mm, W. 6.0 mm, T.: 2.2 mm. This artifact is of Peace River Chert. It has a straight ventral face that meets the single faceted flat platform at a 100º angle. Three dorsal scars originating from the platform end form two parallel dorsal ridges. The distal end has been snapped off toward the dorsal face.

IcQa-31:177: Side notched projectile point (Figure 12a). Wt.: 3.5 g, L.: 31.8 mm, W.: 15.9 mm, T.: 6.2 mm, Neck width: 13.3 mm. Fine quality sub translucent dark grey chert with a few very fine tiny irregular black inclusions. Odd point; it was apparently made on a thick flake with a rollout hinge termination – this latter feature occupies the base and gives this proximal end a very asymmetrical cross-section. The side bearing the roll out is unmodified along the base, with only one minor flake scar extending distally from the base on what would have been the dorsal face of the blank. Despite complete bifacial retouch in a somewhat chevron fashion, the cross section is thickly biconvex, and the longitudinal cross section skewed and asymmetrically biconvex. The thickest part of this point is hence at the neck – normally an undesirable feature, but despite this the edges are quite even and sharp, with 50º edge angles, and lead to a very sharp tip.

IcQa-31:185: Broken projectile point preform (Figure 12f). Wt.: 3.9 g, L.: 34.0 mm, W.: 16.0 mm, T.: 6.0 mm. Well made trianguloid point preform made of fine black silicified siltstone. The non-patterned flake scars on one side extend past the midline. This raw material was fraught with internal linear flaws. The artifact is broken off along an internal bedding plane that runs lengthwise perpendicular to the almost straight base. Apparently while trying to thin a thick portion of one edge another internal flaw – a jointing plane, was hit and intercepted the bedding plane, forcing a chunk to break off. This remnant was apparently then discarded, before use. The extant excurvate lateral edge is slightly sinuous and sharp, with a 35º edge angle.

IcQa-31:206: Stemmed projectile point base (Figure 12e). Wt.: 3.9 g, L.: 21.5 mm, W.: 23.6 mm, T.: 6.1 mm, "Neck" width: 21.8 mm. A fair quality light grey/dirty white quartzite with a very few tiny copper coloured string-like inclusions. This was probably a dart or perhaps a spear point with an almost square stem broken just distal to the stem, and hence the haft, on a transverse break, probably during use. The base edge is lightly ground, the stem margins more so. One stem edge is slightly notched with a broad concave constriction which is not mirrored on the opposite side. The stem has a somewhat shouldered appearance, but barely. This appears to have been a remnant of a lanceolate point exceeding at least 5 cm in length. The point was fairly well made considering the quality of the material. It has an even biconvex cross-section. Thinning is poorly developed and extends well onto the stem on one face, minimal on the other.

IcQa-31:227: Oxbow projectile point (Figure 12b). Wt.: 1.6 g, L.: 22.0 mm, W.: 15.0 mm, T.: 4.9 mm, Neck width: 12.0 mm. This small point is complete, made of glassy orthoquartzite with white interstitial cement. This whitening of the cement may be a function of heat treatment. The point has an irregular biconvex cross section, relatively short, sharp, sinuous excurvate blade edges leading to a sharp tip. The base edge is unground and has a gull wing appearance by virtue of having been bifurcated by a small blunt notch in the middle of the base. Basal thinning is barely developed and only extends to the neck. The inside of the parabolic side notches is ground. It may have been longer and resharpened, but even so, this is very small for an Oxbow dart point. With a neck width of 12 mm this is small enough to fit an arrow, but alternatively could be a foreshafted dart tip or perhaps a "toy" dart tip (Dawe 1997a).

IcQa-31:228: Complete side notched dart point (Figure 12c). Wt.: 5.1 g, L.: 39.0 mm, W.: 22.4 mm, T.: 6.4 mm, Neck width: 16.0 mm. Mottled grey Peace Point Chert. This point is asymmetrical in every dimension, and despite chaotic unpatterned flaking overall, it does achieve a sharp tip. The unevenly positioned notches were alternately flaked and blunt. The base is slightly convex, and not thinned, but naturally so. The sharp blade edges sharply angle toward the tip at a point about two thirds of the blade length which probably represents repointing of a previous slightly truncated tip. The basal tabs are irregularly and unevenly tabular, and are blunt, although not apparently ground.

IcQa-31:251: Angostura point base (Figure 12d; Figure 13 top). Wt.: 12.4 g, L.: 51.5 mm, W.: 24.4 mm, T.: 8.1 mm, Base width: 11.0 mm. Very fine dark grey silicified siltstone. The tip of this well made lanceolate point fragment was snapped off probably near or slightly distal to the midpoint of a long lanceolate dart or spearhead that probably measured at least 80 mm in length when complete. The flaking is oblique parallel transmedial from upper left to lower right when viewed with the distal end up. The nicely patterned flaking is better executed on the flatter face of this point which has an asymmetrical bifacial cross section. The flaking directed from the upper right on the flatter side almost completely extends across the face, the opposite face, with a higher profile has flake scars directed in the same orientation from both margins, that is diagonally from top right to lower left, but the profile apparently limited most of the flake scars directed from either edge to the midpoint, in a less well patterned fashion. The basal edge is straight and marginally thinned with the exception of one 11 mm long narrow thinning flake on one side. It does not have conspicuous stem edge grinding but the stem margins expand from the base, are straight and flattened even to a point 12 mm from the base, after which they start to curve gently toward the distal end and are slightly sinuous and sharp. This compares very well to the Angostura type, which is described by Wheeler (1957:537-538) as having:

> … parallel diagonal ripple flake scars, i.e., long, narrow extremely shallow flake scars, running from upper left (tip) to lower right (base) and generally extending in from each lateral edge but sometimes reaching completely across the face. … The lateral edges are commonly smoothed by grinding forward from the base for a distance of one-fourth to two-fifths of the total length of the point. The thinned concave or irregularly straight basal edge is unsmoothed.

The size of this specimen falls in the range of variation of the Angostura type in terms of length, width, and thickness. The occurrence of this point type this far north may not have been previously observed, but as it is not uncommon for other Plains Paleoindian point types to extend well north, particularly into the Peace country where Clovis, Folsom, and Cody point types have all been observed, it should be no surprise in this case.

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