Back on the horse: Recent developments in archaeological and palaeontological research in Alberta

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The Smuland Creek site and implications for Palaeoindian site prospection in the Peace Region of northwestern Alberta[1]

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ABSTRACT

Cultural resource management (CRM) survey of a proposed pipeline corridor stretching across uplands to the southeast of Grande Prairie resulted in the discovery of the Smuland Creek site (GdQn-1). Preliminary subsurface testing at the site yielded the proximal portion of a basally thinned (fluted) projectile point and a graver artifact, both diagnostic of earliest prehistoric times in the Peace Region of Alberta and British Columbia. The elevation of the site lies within the range of strandline features associated with the uppermost and earliest levels of Glacial Lake Peace (Bessborough Phase). Further survey in the immediate area resulted in the identification of an upland beach ridge that yielded additional evidence for prehistoric occupation but no diagnostic artifacts. Previous archaeological research in the Peace Region has recognized potential associations between Palaeoindian sites and younger phases of Glacial Lake Peace development (Clayhurst Phase). The new discoveries present preliminary evidence for early human presence in the region that may be associated with older, upland glacial lake features. The merits of this hypothesis are examined and the implications for Palaeoindian site prospection in the Peace Region are discussed.

KEYWORDS

Peace Region, fluted, Palaeoindian, Glacial Lake Peace, Alberta, Cultural Resource Management

1. Introduction and background

The area of focus for this paper is the Peace Region of northwestern Alberta and northeastern British Columbia i (Figure 1). The area forms part of the Western Canadian Interior Plains lying east of the Cordillera Region (i.e., Rocky Mountains). The area is commonly referred to as an environmental oasis since vast portions of the region display aspen parkland isolates that are completely surrounded by closed boreal forest ecosystems (Strong and Leggat 1981). Associated with the unique environmental characteristics of the area are large open grasslands commonly noted by early European explorers visiting the region. Much of the area is situated within a vast glacial lake basin known as the Peace River Lowland. The clay and silt-rich glaciolacustrine sediments and flat topographic conditions of these lowlands are extensively used today for agriculture.

The Peace Region has received considerable attention from archaeologists searching for early sites associated with the initial peopling of the Americas. One of the major reasons for this is that the region is situated along south-central portions of the postulated "ice free corridor" which has represented one of the most popular and enduring theories describing migration routes for early humans entering southern portions of the continent.

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Research into the existence and viability of the ice free corridor as a postulated early migration route has intensified over the last decade. It has been suggested that portions of the central corridor may have been closed during the last glacial maximum around 18,000 yr BP (Mathews 1980; Dyke and Prest 1987). However, even if the corridor existed in its entirety during the last glacial advance, it has been argued that the area was not likely capable of supporting human populations until at least 14,000 yr BP (Mandryk 1990). These arguments, in association with the discovery of increasingly earlier sites to the south of the Laurentide ice sheet, have resulted in changing views of the role of the corridor in the peopling of the Americas which in turn has led to the active investigation of alternative routes and time periods for the initial entry of human populations into the continent (Fladmark 1979; Gruhn 1994). Following similar reasoning, an increasingly popular notion is that the Peace Region was initially populated by Early Prehistoric populations originating from areas to the south of the ice sheet (Fladmark et al. 1988; Wilson 1989). If not associated with the initial peopling of the continent, the Peace Region may instead represent a contact zone during late Wisconsinan times between human groups from both northern and southern areas, long separated by glacial barriers and harsh climatic conditions of the last glacial maximum.

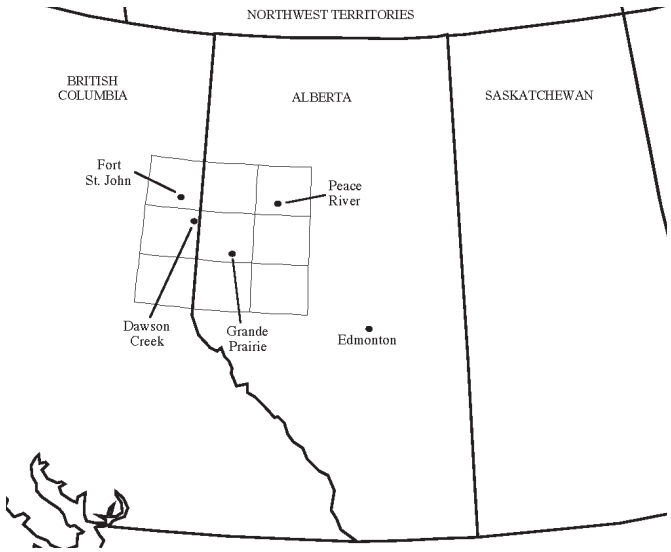

Figure 1. Location of nine contiguous NTS 1:250,000 Map Sheet areas that encompass the Peace Region within Alberta and British Columbia, Canada.

Previous research has firmly established the existence of the Fluted Point Tradition within the prehistoric archaeological record of the Peace Region of northwestern Alberta and northeastern British Columbia (Fladmark 1981; Fladmark et al. 1988; Gryba 1988, Wilson 1989; Figure 2). These assemblages include projectile points that compare closely to the Clovis and Folsom complexes described for

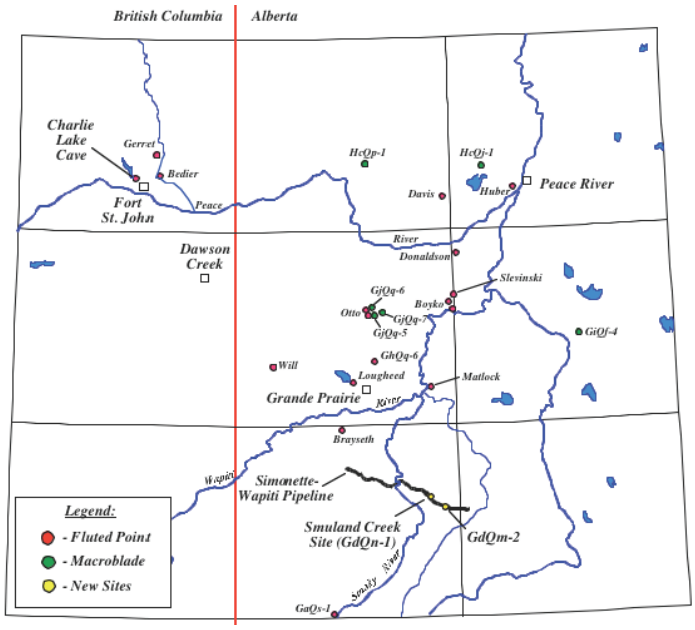

Figure 2. Fluted point and macroblade site locations across nine contiguous NTS 1:250,000 Map Sheet areas that encompass the Peace Region. Note the location of the Smuland Creek site and site GdQm-2.

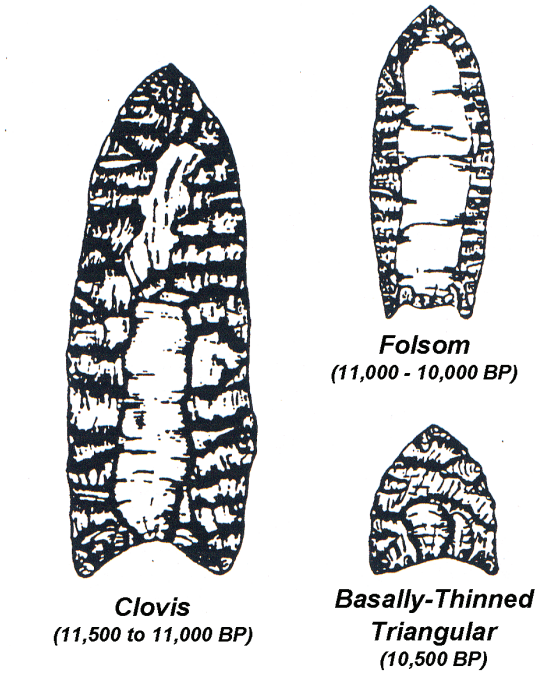

Figure 3. Early Prehistoric projectile point styles attributed to the Fluted Point Tradition in the Peace Region (ca. 11,500 to 10,000 years BP).

the Northern Plains (Frison 1978) as well as a distinctive basally thinned, deeply concave-based triangular projectile point type that has been referred to as the late northern fluted or "stubby" fluted point (e.g., Fladmark et al. 1988; Figure 3).

In addition, LeBlanc and Wright (1990) have reported several macroblades identified within collections from

the Peace Region. The macroblades exhibit metric and technological similarities to Clovis artifacts from the Blackwater Draw site in New Mexico. They also note the potential association of these surface finds with early landforms associated with Glacial Lake Peace. Following this reasoning, and the fact that a macroblade tradition is absent from succeeding prehistoric populations in Alberta, they reason that this macroblade technology may also be associated with Early Prehistoric occupation of the region.

Despite the ample representation of diagnostic fluted or basally thinned projectile points within archaeological collections of the Peace Region, efforts to construct a detailed culture-historical framework have been hampered by the lack of datable and well-stratified sites. To date, the Charlie Lake Cave site (HbRf-39) near Fort St. John in British Columbia (Figure 2) represents the only well-dated component of the Fluted Point Tradition in the Peace Region. The site is dated at approximately 10,500 yr BP (Fladmark et al. 1988).

In the Alberta portion of the Peace Region, no archaeological sites containing fluted point assemblages have been discovered in datable contexts. In fact, all fluted points from this area are known either from poorly documented private artifact collections or have been surface collected from disturbed contexts. In addition, most of these projectile points were recovered from agricultural contexts within the clay-rich, glacial lake basin situated at elevations below 700 metres above sea level (a.s.l.). In Alberta, notable exceptions to these lowlands sites are several fluted points recovered from the Saddle and Birch Hills (Gryba 1988; Wright 1988; Beaudoin et al. 1996) as well as the Smuland Creek site located within uplands to the south of Grande Prairie (Figure 2).

During the last glacial maximum between 22,000 and 18,000 yr BP, the entire Peace Region was overridden by Laurentide Ice (Liverman 1989). At its maximum extent, the ice sheet reached beyond the Fort St. John area. According to Liverman (1989), the Laurentide ice sheets in the Peace Region are thought to have been fairly thin and flowed uphill to the southwest against the regional topographic gradient. Estimates for the commencement of deglaciation are variable, but it is certain that the Laurentide ice sheet was in retreat some time between 18,000 and 14,000 yr BP (Dyke and Prest 1987; Catto and Mandryk 1990).

Given the regional topography of the Peace Region, the wasting of such large volumes of ice resulted in the formation of a series of vast glacial lakes along the margins of the retreating ice front. This series of lakes is known collectively as Glacial Lake Peace. Mathews (1978, 1980) originally identified the existence of a number of stages in the downdraining of Glacial Lake Peace through the examination of glaciolacustrine deposits and associated strandline features within the Peace Region. More recently, Liverman (1989, 1991) has investigated the development of Glacial Lake Peace in the Grande Prairie area and has identified two major phases of early lake development (i.e., the Bessborough and Clayhurst Phases). Unfortunately, the chronology of Glacial Lake Peace development is still poorly understood. Chronological estimates for the formation and downdrainage of the early stages of Glacial Lake Peace vary between 15,000 and 10,000 yr BP (Mathews 1978; LeBlanc and Wright 1990).

The earliest Bessborough Phase is characterized by strandlines that lie between 840 and 805 metres a.s.l. in the Grande Prairie area (Liverman 1991; Figure 4). The outlet for this lake is thought to be a large spillway located to the southeast of Grande Prairie at Pass Creek. The presence of strandline features at intervening elevations in the Grande Prairie area suggests that the observed shorelines of the Bessborough Phase resulted from the continual downcutting of the Pass Creek Spillway immediately following deglaciation. Strandlines associated with the Bessborough Phase are found only to the south of the Saddle Hills suggesting that Laurentide ice occupied a position directly north of these uplands. Since the complete disappearance of Laurentide ice from the Saddle Hills is estimated to have taken place before 12,000 yr BP (Liverman 1991), the formation of the Bessborough stage of Glacial Lake Peace is likely to have occurred prior to this time. Liverman (1989:300) indicates that the poor development of strandlines associated with this phase suggests that the Bessborough lake level was not stable for any substantial period of time. He interprets the sediments preserved in the lake as showing a very brief period of existence along the order of several hundred years. As previously suggested by Wright (1988), this may have contributed to low levels of biological productivity within this phase of Glacial Lake Peace.

The younger Clayhurst phase is characterized by strandlines that lie between 710 and 655 metres a.s.l. in the Grande Prairie area (Liverman 1991; Figure 5). The absence of strandlines between the lowest beach ridges known for the Bessborough Phase and the highest known for the Clayhurst Phase suggest that the transition between these two lake levels was the result of catastrophic downdrainage. This is thought to have resulted from the opening of the Iroquois Lake Spillway along the northern margin of the Swan Hills. Strandlines associated with the Clayhurst Phase of Glacial Lake Peace are found on both sides of the Saddle Hills, indicating that the glacial ice had retreated far to the north and northeast by this time. The

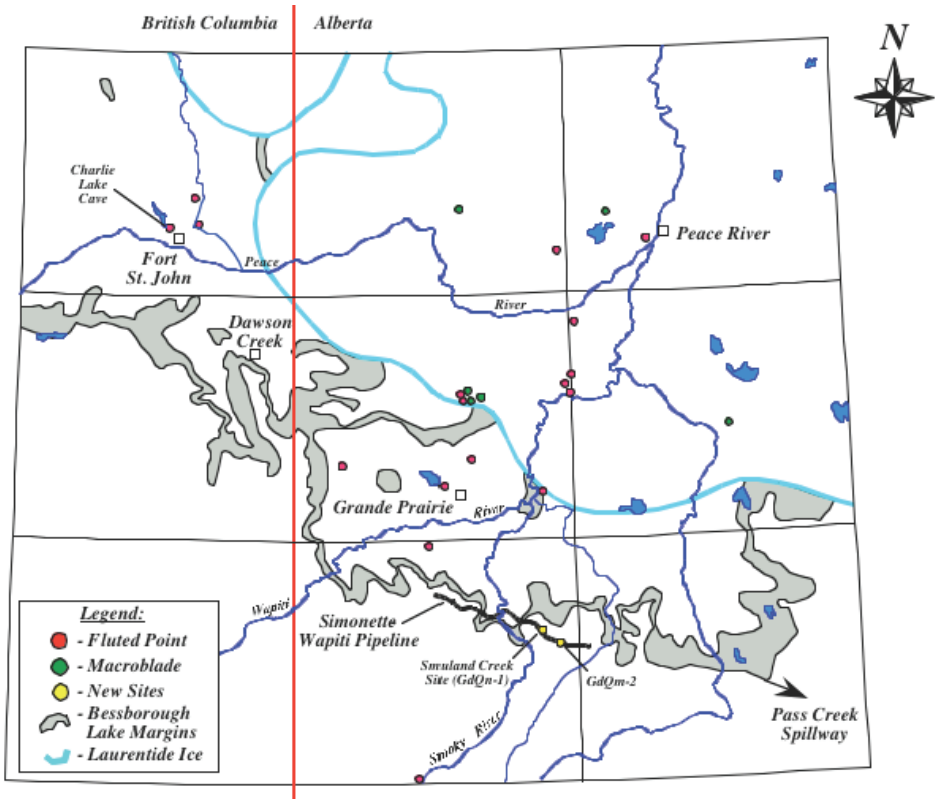

Figure 4. The Bessborough Phase of Glacial Lake Peace across nine contiguous NTS 1:250,000 Map Sheet areas that encompass the Peace Region.

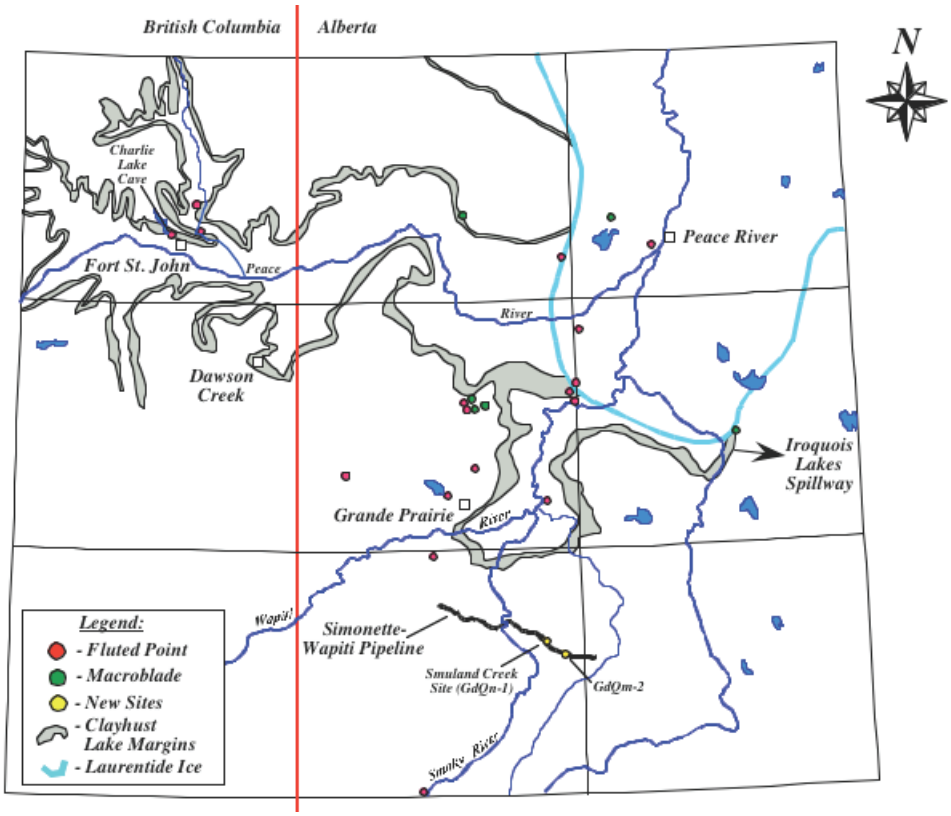

Figure 5. The Clayhurst Phase of Glacial Lake Peace across nine contiguous NTS 1:250,000 Map Sheet areas that encompass the Peace Region.

Clayhurst Phase is thought to have been longer lived than the earlier Bessborough Phase which may have contributed to higher levels of biological productivity during this time period. The Clayhurst Phase was followed by a number of smaller lake stages that occupied the major river valleys of the Peace Region.

Glacial Lake Peace would have covered vast portions of the Peace River Lowlands immediately following deglaciation, effectively limiting the habitable landscapes available to pioneering human populations. An examination of the late glacial vegetation and climate within southern portions of the postulated ice free corridor indicates that by at least 14,000 yr BP the morphology of the corridor and ameliorating climatic conditions would have changed sufficiently to support increasingly viable flora and fauna, including the possibility for human presence (Mandryk 1990). If human populations entered the region during the critical 14,000 to 11,000 yr BP interval, their occupations are likely to have been associated with either the Bessborough or Clayhurst Phases of Glacial Lake Peace. However, since the earliest and only dated presence of the Fluted Point Tradition in the Peace Region is approximately 10,500 yr BP from Charlie Lake Cave, this hypothesis remains far from demonstrated.

Given the potential association between early phases of proglacial lake development and initial human occupation of the area, in conjunction with isolated finds of fluted points and macroblades within upland contexts, many archaeologists have recognized the potential of upland areas for preserving evidence of the earliest prehistoric occupation within the Peace Region (LeBlanc and Wright 1990; Beaudoin and Wright 1993). The question remains unanswered whether these upland sites were utilized during the period of existence of early phases of Glacial Lake Peace or whether they were occupied long after their disappearance from the landscape.

2. Survey methods

The Simonette-Wapiti pipeline extends approximately 125 kilometres across upland areas to the south-southeast of Grande Prairie (Figure 2). The pipeline route is situated upon terrain that forms the elevated southern margin of the vast glacial lake basin of the Peace River Lowland. Theoretically, this area should contain evidence of shoreline features associated with the uppermost and earliest Bessborough Phase of Glacial Lake Peace.

The field survey of the Simonette-Wapiti pipeline was conducted in accordance with a predictive model that attempted to isolate landforms that exhibit potential for containing evidence of prehistoric occupation. The assessment involved the evaluation of previously recorded sites, coupled with information from models of settlement patterns (derived from ethnographic and historic information), as well as local topographic, hydrological and biogeoclimatic features of the region.

As is customary in most CRM predictive models, those portions of the pipeline that cross extant water courses or natural meadows were recognized as high potential areas for containing archaeological sites. The problem with the method is that it considers only modern physiographic and hydrological information in its assessment of archaeological potential. As a result, the model exhibits reduced efficiency for predicting site settings within drastically different landscapes of the distant past. This problem is compounded when attempting to locate sites dating to Late Pleistocene and Early Holocene times since, for most areas, the environmental and geographical data needed to model this complex phenomenon do not exist. This is particularly true of the immediate postglacial time period when landscapes were drastically changing as a result of ameliorating climatic conditions and associated glacial retreat.

For this reason, the field survey of the Simonette/Wapiti Pipeline focused not only upon river and creek crossings but also upon elevational ranges of known glacial lake strandlines in the Grande Prairie area. The focus of survey in these upland areas was the purposeful search for glacial lake strandlines and associated archaeological materials.

3. Results and discussion

The survey strategy resulted in the discovery of four new archaeological sites situated along the pipeline route between the Smoky and Latornell Rivers. Two of these sites, the Smuland Creek site (GdQn-1) and site GdQm-2 are of interest to discussions of Early Prehistoric occupation of the Peace Region (Figure 6). The Smuland Creek site (GdQn-1) and site GdQm-2 are located at elevations of 805 and 830 metres a.s.l., respectively. The elevation of these sites lie within the range of elevations of the highest Glacial Lake Peace strandlines recorded to the north and west of Grande Prairie along the southern margins of the Saddle and Birch Hills and also along the southern margin of Saskatoon Mountain (Liverman 1991). The sites are located upon terrain that is transitional between rolling uplands to the south and the Peace River Lowlands to the north. The location of the sites within this transitional zone is further demonstrated by the southern limit of mapped glaciolacustrine sedimentary deposits that trends directly through the area (Andriashek 2001).

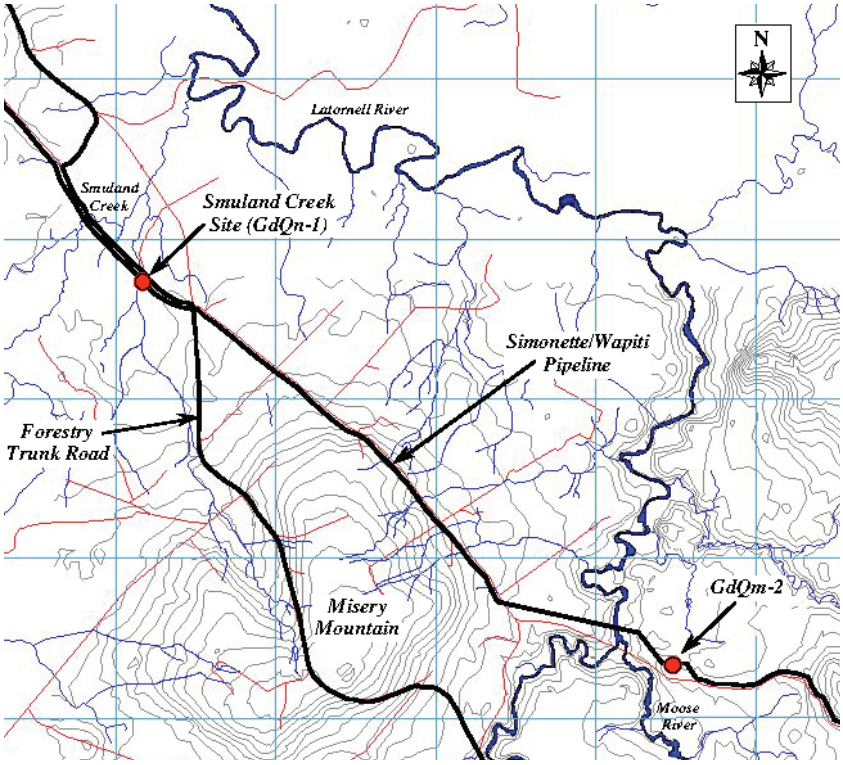

Figure 6. Location of the Smuland Creek site and site GdQm-2 along the Simonette-Wapiti pipeline.

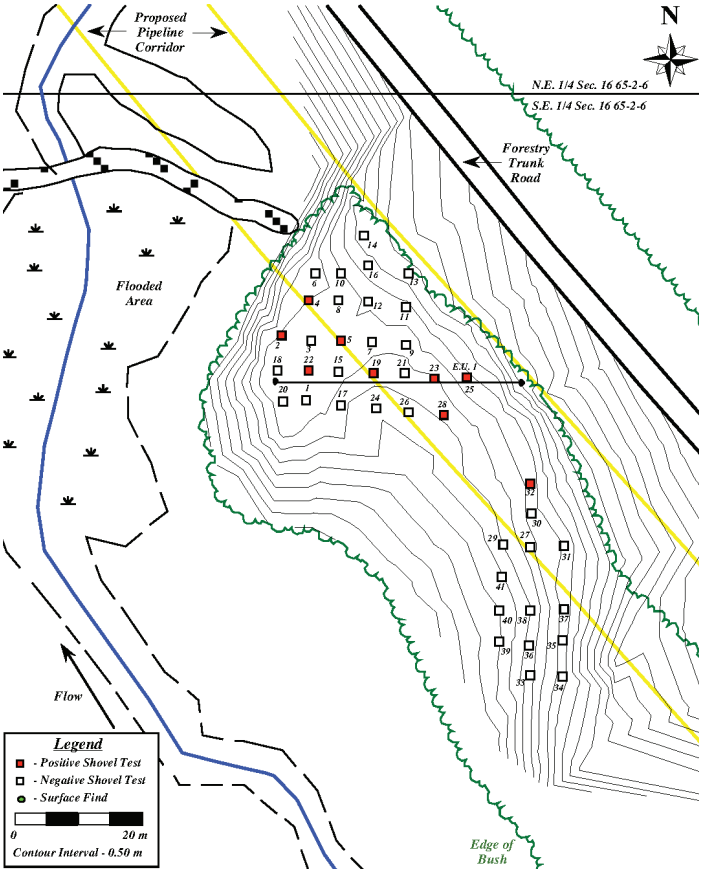

Figure 7. Sketch map of the Smuland Creek site. Note the location of positive and negative shovel tests and the proposed pipeline corridor.

The Smuland Creek site is situated directly southwest of the Forestry Trunk Road, approximately 1 kilometre south of the Latornell River and 2 kilometres north of Misery Mountain (Figure 6). The Forestry Trunk Road proceeds down the northern face of Misery Mountain along a distinct ridge feature that terminates just north of the site. This ridge feature would have provided a natural transportation corridor between the Peace River Lowlands and this southern upland area and may have represented a peninsular feature within early phases of Glacial Lake Peace. The site is situated along remaining portions of a southwest-facing terrace feature that overlooks a small, unnamed tributary of Smuland Creek (Figure 7).

The Smuland Creek site is a subsurface prehistoric lithic scatter. A total of 41 shovel tests were excavated at the site, and nine produced prehistoric archaeological materials (Figure 7). In keeping with the objectives of the CRM investigation, subsurface testing was kept to a minimum. Shovel tests were excavated upon a 5 metre grid in order to define the site dimensions while minimally disturbing the archaeological deposits. All artifacts were recovered from upper sections of the sedimentary profile within the top 15 centimetres of mineral sediment. For this reason, the site lacks well-stratified cultural deposits.

The density of archaeological materials appears to be low, as indicated by the checkerboard pattern of positive shovel tests across the site, and by the small number of artifacts discovered within the positive shovel tests. The site encompasses an area of approximately 60 metres by 25 metres. It is likely that the construction of several roads directly north of the Smuland Creek site disturbed portions of the original site area. However, most of the existing site area remains undisturbed with the exception of a narrow treeless corridor running north-south across portions of the flat northwestern terrace. The exact nature of this disturbance is unknown but it does not appear to have greatly affected existing sediments in this area.

The artifact assemblage is small and consists of one large quartzite projectile point fragment, one black chert unifacially-flaked graver tool made on a flake and ten lithic debitage flakes.

The large lanceolate projectile point base was constructed from a honey-coloured quartzite lithic raw material and displays intensive basal thinning (fluting), a concave basal margin, excurvate lateral margins and heavy lateral and basal edge grinding. These stylistic features are characteristic of projectile points belonging to the Fluted Point Tradition of the Early Prehistoric period. This culture-historical tradition represents the best evidence currently known for the earliest human occupation of Western Canada (Gryba 1988). The basal projectile point fragment also exhibits a semi-circular tortional break along one lateral margin that may be the result of an impact fracture.

The Peace Region projectile points that have been assigned to the Fluted Point Tradition display a tremendous range of variability (Figure 8). The variability inherent in the Peace Region fluted point assemblages is immediately recognizable in stylistic characteristics such as the form and intensity of basal thinning (fluting), degree of concavity of the basal margin and the amount of resharpening. Haynes (1982) observes similar stylistic variability in Clovis projectile points discovered in western regions of the United States, most notably the great variation observed among eight Clovis points found in association with a single mammoth skeleton at Naco, Arizona.

The late northern fluted or stubby fluted point type, represented by specimens from Charlie Lake Cave in British Columbia and the Matlock Site in Alberta (Figure 8), is characterized by numerous basal thinning flakes, deeply concave basal margins and extensive resharpening. The Smuland Creek site projectile point lies within the range of morphological variability demonstrated in Fluted Point assemblages of the Peace Region. However, the specimen is most unlike the stubby fluted point type. Instead, the projectile point displays morphological similarities with basally-thinned examples from other regions of Alberta (most notably the Christensen Phase projectile points from the Banff region [Fedje 1996]) that would fit comfortably within series of Clovis points from the northern plains (Frison 1978).

The unifacially flaked graver tool was discovered within a shovel test located approximately 30 metres to the west of the projectile point. These simple graver tools are commonly found in association with Early Prehistoric sites within the United States and Canada. Similar graver tools were discovered within Palaeoindian levels at Sibbald Creek in Alberta. In addition, Fladmark (1981) noted the association of gravers and fluted points within the surface collected assemblage of the Bedier site situated in the Fort St. John region of British Columbia. As with the Smuland Creek site, the Bedier site assemblage is potentially mixed and may not represent a single occupation.

Given the previous association of these tool types within various other early archaeological assemblages, it seems reasonable to suggest that both the fluted projectile point and graver tool are associated with Early Prehistoric occupations of the site. These artifacts were recovered from opposite ends of the distribution of artifacts at Smuland Creek. This suggests that the Early Prehistoric component extends across the entire site area.

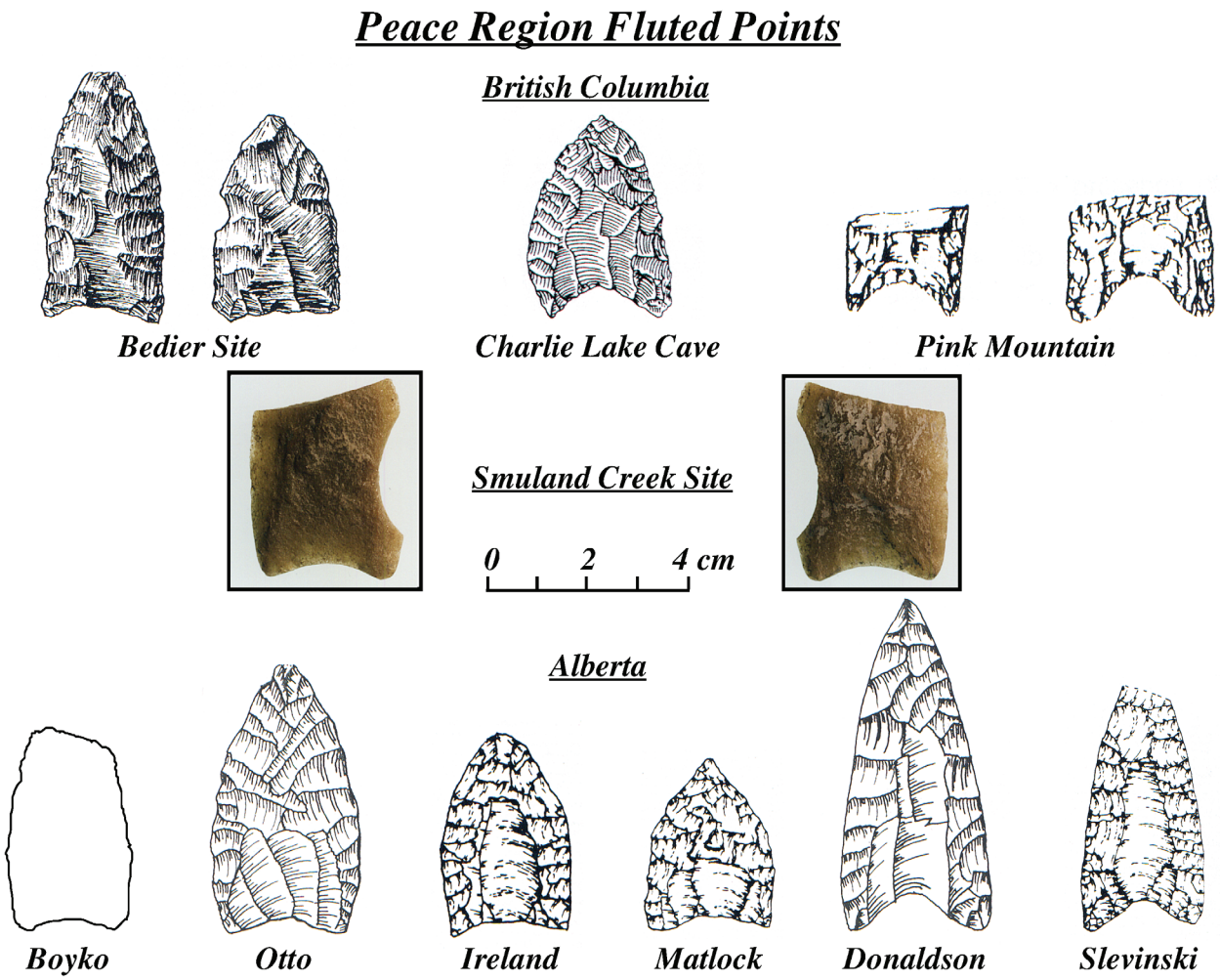

Figure 8. The Smuland Creek Site projectile point in comparison with fluted points from the Peace Region of Alberta and British Columbia.

Of additional significance is a debitage flake made from a white, vesicular fused material. Preliminary observation suggests that this raw material represents Tertiary Hills Clinker deposits reported by Cinq-Mars (1973) from the Keele River region of the Northwest Territories and later identified in northern Albertan archaeological sites by Ives and Hardy (1983). It is possible that other "white chert" artifacts reported from archaeological sites in the vicinity of the proposed pipeline (e.g., GeQo-1 located 11 kilometres northwest of the Smuland Creek site along Patterson Creek) represent the Tertiary Hills Clinker lithic raw material. As with all artifacts recovered from Smuland Creek, the compressed cultural stratigraphy leads to difficulties in conclusively demonstrating association of this exotic raw material with the Early Prehistoric component of the site.

A 1 by 1 metre evaluative unit was excavated along the east-west base line over top of the shovel test that produced the projectile point. Unfortunately, no further archaeological materials were recovered. Despite the negative results, information was obtained about the stratigraphic context of the site deposits (Figure 9). The basal unit consists of a poorly sorted, gravelly diamicton that was encountered between 70 and 110 centimetres below the surface. The disconformity between the diamicton deposit and overlying

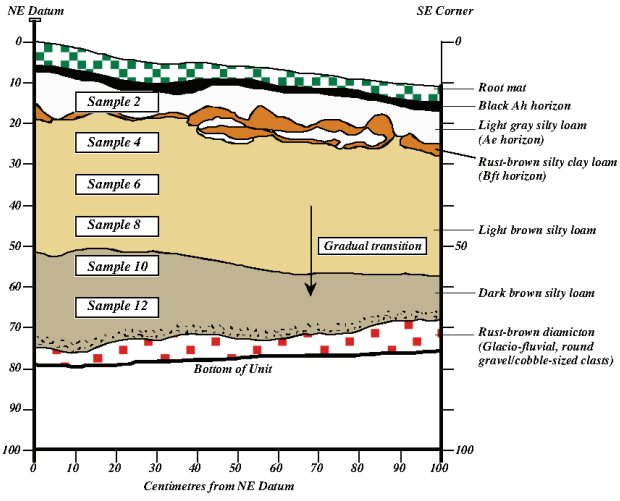

Figure 9. Stratigraphic profile of the Smuland Creek site. Note the location of samples obtained for particle size analysis.

post-glacial sediment is sharp. Above this disconformity was observed a thick, relatively well-sorted and massive sedimentary unit that extends from the basal diamicton to the top of the sedimentary profile. A gray Luvosolic soil has developed within upper portions of this sedimentary unit.

To facilitate particle size analysis, a sediment column sample was obtained from the eastern profile wall. A total of six samples were examined. Analysis of the sediment revealed a relatively homogenous silty loam to silty clay loam texture across the sedimentary unit (Figure 10). A high percentage of silt-sized particles and an absence of particles larger than fine to very fine sand was noted throughout the sedimentary unit. Slight textural changes include a slight rise in clay content and the elimination of sand-sized particles proceeding down the sedimentary profile.

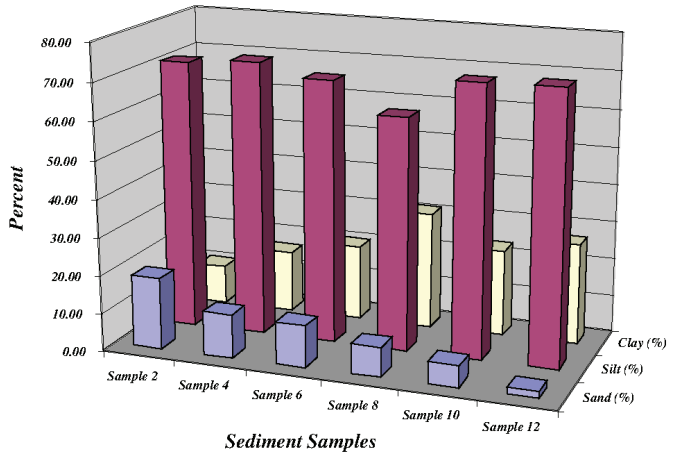

Figure 10. Results of particle size analysis conducted on six sediment samples from the eastern profile of evaluative unit 1.

The analysis suggests that the majority of sediments situated above diamicton at the Smuland Creek site represent glaciolacustrine deposits. This is expected considering the location of the site along the southern margin of the glacial lake basin and its elevation below the highest recorded strandlines of Glacial Lake Peace. As observed elsewhere in upland setting of the Grande Prairie area (Liverman 1991), the ice proximal glaciolacustrine sediments probably represent a short period of deposition immediately following deglaciation. Since the site is situated in an upland setting away from a major river valley, the sediment supply from sources other than the ice front would be minimal.

An increase in sand-sized particles within the top 15 centimetres of mineral sediment may indicate post-glacial reworking of the upper portions of this sedimentary unit by early wave action and later by aeolian or fluvial processes during the post-glacial time period.

Archaeological deposits at the site are compressed within the top 15 centimetres at the top of this glacio-lacustrine sedimentary column. For this reason, and the associated difficulties of obtaining radiocarbon dates from such sedimentary contexts, it is not presently possible to demonstrate a firm association between this early occupation and early Bessborough Phase shorelines of Glacial Lake Peace.

The potential for association of archaeological sites with early glacial lake shorelines in the area is further demonstrated by the discovery of GdQm-2. The site is situated at an elevation of 830 metres a.s.l., approximately 25 metres in elevation above Smuland Creek site. The site sits on a linear terrace feature situated along upper portions of a north-northwest facing upland ridge approximately one kilometre to the east-southeast of the Latornell River valley. The terrace feature is relatively flat and extends over 200 metres to the east of the site along the northern margin of the pipeline right-of-way. The terrain slopes steeply downward from the site area providing uninterrupted views to the north along the Latornell River watershed.

The general morphology of this upland terrace, together with the presence of well-sorted, massive medium to coarse-grained sand and lag gravel deposits within shovel tests and the disturbed right-of-way, suggest that this feature may represent a remnant strand line of Glacial Lake Peace. This hypothesis is supported by the elevation of the ridge at 830 metres a.s.l. which closely matches elevations of the highest Glacial Lake Peace strand lines recorded to the north of Grande Prairie (Liverman 1991). In addition, no geomorphological evidence was noted that would support alternative processes responsible for the formation of this linear terrace feature. The terrace is continuous over a significant distance, therefore was not formed as a result of colluvial slumping events along the northern margin of the ridge. In addition, no evidence for modern or ancient drainage systems was observed in the immediate site area. Furthermore, the ridge does not represent the margin of a smaller, closed drainage basin that may have resulted in the formation of the terrace by more isolated lacustrine wave action at some later time during the postglacial time period. The evidence strongly suggests that the extensive terrace feature represents an early strand line of Glacial Lake Peace.

Site GdQm-2 is represented by a small, partially disturbed surface and subsurface scatter of lithic materials. Artifacts were recovered as surface finds and within positive shovel tests, trending in an east to west direction along the existing terrace edge. Twenty-five shovel tests were excavated at the site, of which only three proved positive for prehistoric artifacts. All cultural materials were confined to the top 20 centimetres of mineral sediment. Thus, the cultural stratigraphy at this site is also compressed.

The lithic assemblage is small and includes one pink quartzite biface fragment, three small quartzite cobble cores, and 24 quartzite debitage flakes and shatter. Another core of poor quality metamorphic raw material was discovered within intact deposits in association with the quartzite biface fragment and numerous quartzite flakes. No diagnostic artifacts were recovered from GdQm-2.

The CRM objectives of this investigation prevented an intensive examination of the archaeological and geological deposits at GdQm-2. Shovel tests were excavated upon a 5 metre grid in order to define the site dimensions while minimally disturbing the archaeological deposits. Further intensive subsurface testing and geomorphological examination is required to obtain chronological and stratigraphic evidence that would conclusively demonstrate the association of this landform with Bessborough Phase shorelines of Glacial Lake Peace. Of equal importance and difficulty would be the chronological association of the archaeological site with this ancient shoreline. It is clear that such a strandline feature could have been used at any time during the post-glacial time period.

4. Conclusions

Despite a long history of archaeological investigation in the Peace Region of Alberta and British Columbia, the inventory of Early Prehistoric sites and, more specifically, those belonging to the Fluted Point Tradition, remains very small. This observation is compounded when considering the even smaller number of sites discovered within undisturbed archaeological contexts. The paucity of early assemblages may be related to the small number and size of human groups that populated the region during the Late Pleistocene time period. It has also been suggested that current methods of archaeological site prospection and predictive modeling in the Peace Region tend to consider only modern physiographic and hydrological information. The reduced efficiency of these survey methods and models for predicting site settings within drastically different landscapes of the Late Pleistocene may also contribute to the low discovery rate of archaeological sites belonging to the Fluted Point Tradition.

The CRM survey of the Simonette/Wapiti pipeline focused not only upon river and creek crossings but also on elevational ranges of known glacial lake strandlines in the Grande Prairie area. The purposeful search for glacial lake strandlines and associated archaeological materials proved successful in the discovery of the Smuland Creek site (GdQn-1). Preliminary testing at the site resulted in the recovery of a small artifact assemblage representative of the Fluted Point Tradition. The site represents the first undisturbed component of the Fluted Point Tradition discovered within Alberta portions of the Peace Region. The compressed cultural stratigraphy at the site leads to difficulties in obtaining chronometric dates for the Early Prehistoric occupation and in demonstrating discrete prehistoric occupations. However, the Smuland Creek site has not received intensive excavation. It is possible that datable hearth features exist within archaeological deposits at the site.

The projectile point recovered from the Smuland Creek site falls within the range of variability of the fluted point examples known from the Peace Region. However, the point base bears the least resemblance to the deeply concave-based and extensively resharpened late northern fluted or stubby fluted points represented at sites such as Charlie Lake Cave. Instead, the projectile point shares morphological similarities with basally-thinned examples from other regions of Alberta (most notably, the Christensen Phase projectile points from the Banff region [Fedje 1996]) that compare more closely to classic Clovis fluted points from the northern plains (Frison 1978). The inadequate sample sizes and undated nature of fluted point assemblages from the Peace Region debilitate culture-historical interpretations of the observed typological variability.

The geographic location of the Smuland Creek site demonstrates the use by Early Prehistoric human groups of upland areas situated to the south of the Peace River Lowlands. The elevation of the Smuland Creek Site lies within the range of elevations of the highest glacial lake strandlines recorded in the Grande Prairie area. What remains to be demonstrated is the exact timing of these upland occupations and their potential association with early shorelines of Glacial Lake Peace.

The evidence is lacking to conclusively demonstrate the association of the Smuland Creek site and site GdQm-2 with early Bessborough Phase shorelines of Glacial Lake Peace. The possibility for such an association is weakly supported by the natural and cultural stratigraphy at the Smuland Creek site, which displays an Early Prehistoric archaeological component situated within the uppermost portions of a glaciolacustrine sedimentary unit. In addition, the GdQm-2 site has been identified along a potential strandline feature of the Bessborough Phase of Glacial Lake Peace. On the other hand, it is certain that the landforms upon which these sites are located would have provided attractive locations for Early Prehistoric occupation long after the downdrainage of Glacial Lake Peace. The majority of fluted point occurrences in the region were recovered from areas situated in the bottom of the glacial lake basin at elevations below 700 metres a.s.l. This demonstrates the

presence of the Fluted Point Tradition in the Peace Region following the major downdrainage events of Glacial Lake Peace. Furthermore, it is not presently known whether the short-lived and catastrophic nature of the Bessborough Phase of Glacial Lake Peace and the unstable environmental conditions associated with the immediate post-glacial time period were amenable to early human occupation of the region. Future detailed excavation at these and other sites may provide the archaeological, geological and chronometric information required to sufficiently address these questions.

Clearly, not enough is known about the timing of glacial lake formation and the initial peopling of the Peace Region to rule out their possible association. This is particularly the case for the critical time period between 14,000 and 11,000 yrs BP when access to the Peace Region was available to populations from both the north and south. It is possible that early populations entered the region at a time when early stages of Glacial Lake Peace were still in existence. For this reason, it would be advisable to direct future archaeological surveys in the region to focus also upon upland areas with elevations closely associated with the early margins of Glacial Lake Peace. This practice would facilitate mapping of the successive strandline features of Glacial Lake Peace and may lead to the discovery of additional, potentially stratified, Early Prehistoric sites.

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