6 A Chronological Outline for the Athabasca Lowlands and Adjacent Areas

BRIAN O. K. REEVES, JANET BLAKEY, AND MURRAY LOBB

Since the early 1970s, archaeological studies in the Athabasca lowlands and the Birch Mountains have recorded a large number of sites that contain significant numbers of stone tools, including diagnostic artifacts, among them projectile points (fig 6.1). While some of the earlier studies originated in academic research, most of them have taken place in connection with proposed oil sands development or local or regional infrastructure projects. Our intent in this chapter is to outline, refine, and update the cultural chronology of the Lower Athabasca region in the light of existing studies and on the basis of the provincial database of archaeological sites.

PAST CHRONOLOGICAL STUDIES

The first generalized chronologies of the Athabasca lowlands and adjacent areas date to the mid-1970s and were based on reconnaissance surveys, test excavations, and detailed excavations carried out by Archaeological Survey of Alberta staff archaeologists Paul Donahue (1976), John Ives (1977), and John Pollock (1978b). The results of these studies were later summarized by Ives (1981). Detailed discussions of chronology also appeared in the Historical Resource Impact Assessment reports pertaining to two major oil sands leases, Shell's Alsands Lease 13 (Ronaghan 1981a, 1981b) and Syncrude Lease 22 (Van Dyke and Reeves 1984). Ives (1993) subsequently provided an in-depth discussion of the

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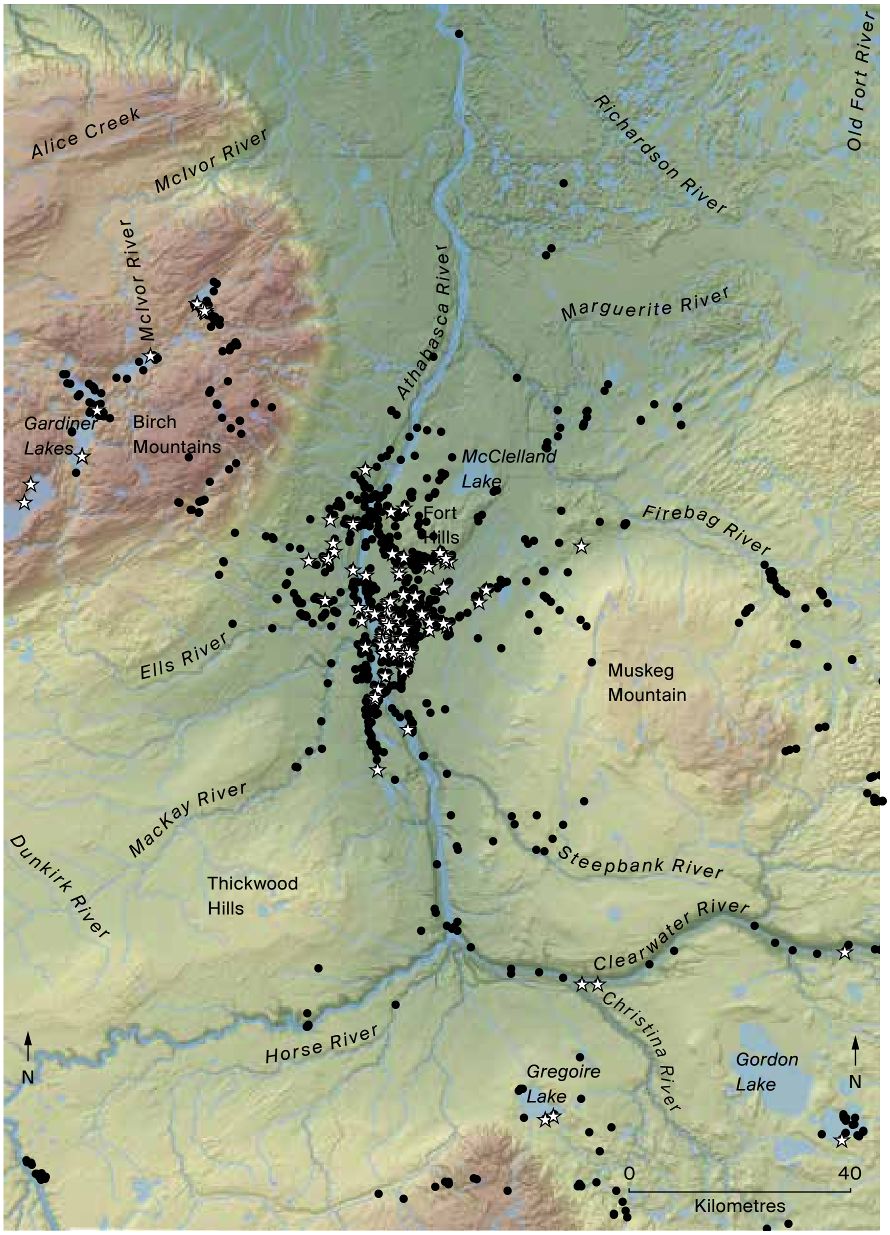
Figure 6.1. Lower Athabasca study area. Chronologically assignable sites are marked with a star.



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cultural chronology of the oil sands area in the larger context of the precontact history of northeastern Alberta.

Ives (1993) did not, however, attempt to develop a local cultural sequence, given that only limited chronological data were available at the time and were derived primarily from the Birch Mountains. Saxberg and Reeves (2003) were the first to develop a localized cultural sequence. Their proposed chronology was based upon the archaeological assemblages found in the 1998 and 1999 mitigative excavations carried out in connection with Syncrude's Aurora North mine project. These assemblages were recovered from the Lake Agassiz flood zone and, by means of a comparative analysis of projectile points, were dated to roughly 9,900 to 7,000 BP. The cultural chronology presented in this chapter is a refined and considerably expanded version of that proposed by Saxberg and Reeves.

METHODS

In researching this study, our primary goals were to locate and review published papers and unpublished archaeological permit reports that discuss and illustrate projectile points and other chronologically sensitive tools from the region and then to group these artifacts into a series of cultural complexes (see figs. 6.2 and 6.3). To organize the data, we constructed a database of the relevant sites and the tools associated with them and then generated a series of maps for the cultural complexes. We identified a total of 156 sites, site components, or isolated occurrences of artifacts that could be assigned to a specific cultural complex.

Once this review of the literature was completed, we conducted a search of site inventory forms, which identified sites associated with permits for which final reports had not yet been submitted but that we considered pertinent to our research. This search turned up an additional six sites at which projectile points had reportedly been recovered. We then contacted the consulting companies or permit holders to request further information and, if possible, images of the points, although little was forthcoming. In addition, a number of projectile points were recovered in mitigative archaeological studies carried out by Altamira in the early 2000s in connection with the expansion of Highway 63. Although the reports on this work were not available, we were able to conduct a detailed examination of the points, which had been archived at the Royal Alberta Museum (RAM).

The principal published works consulted were Ives 1981 and 1993, as well as Saxberg and Reeves's 2003 review paper. Ives's articles are particularly useful,

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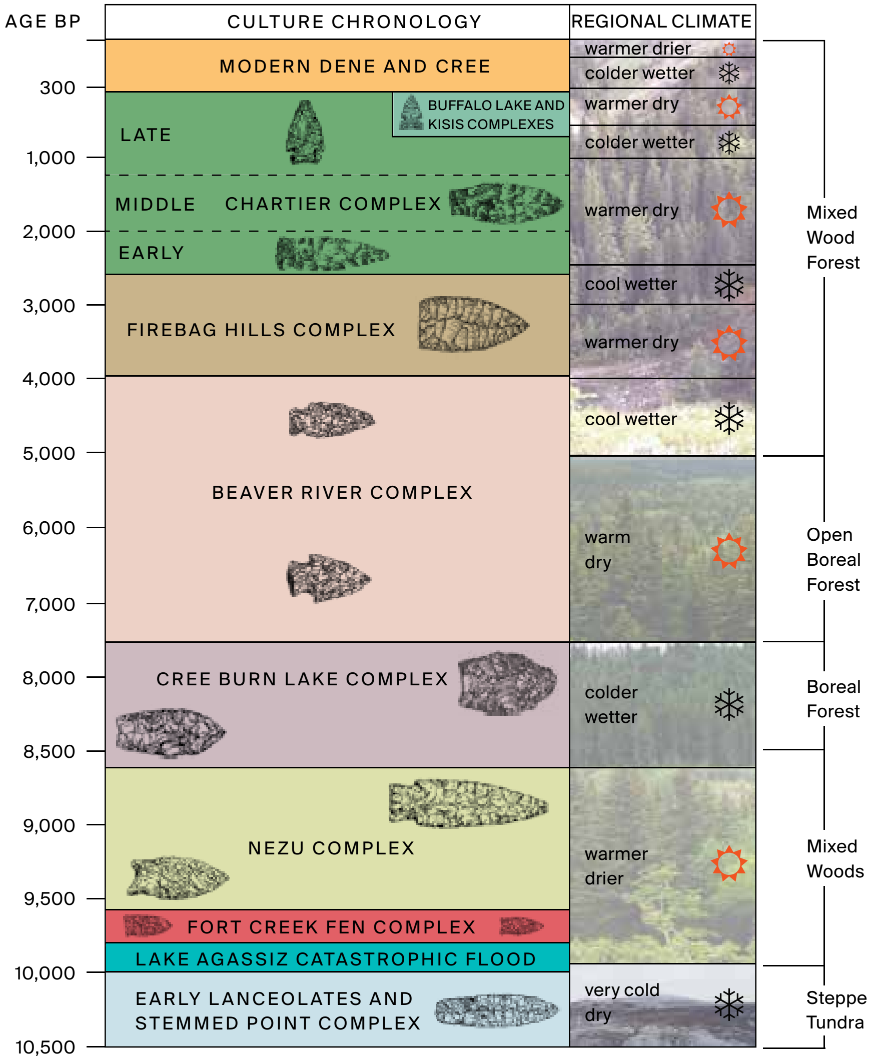

Figure 6.2. Cultural chronology of the Lower Athabasca region

for they contain information on and illustrations of projectile points recovered by Cort Sims during excavations in the mid-1970s at the Gardiner Lake Narrows site (HjPd-1) in the Birch Mountains.[1] HjPd-1 is a stratified site of key significance to the region, and yet no final report on it exists. Other relevant regional reconnaissance-level studies from the mid-1970s include Donahue's 1975 survey of the Clearwater and Athabasca rivers and the Birch Mountains (Donahue 1976), as well as Pollock's 1976 survey of the Clearwater and Christina drainages (Pollock 1978b). Another important but unpublished document from this time is Ives's

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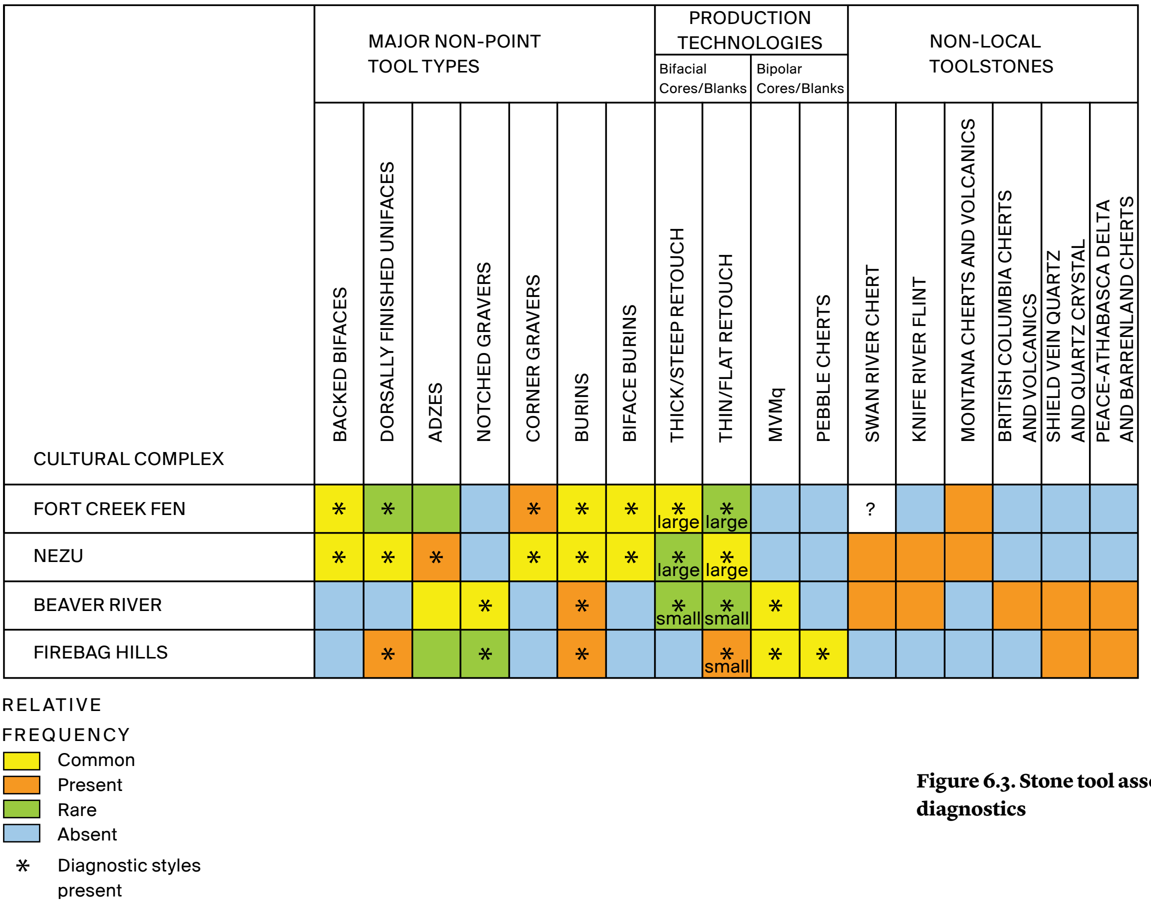

Figure 6.3. Stone tool assemblage diagnostics

(1977) permit report on his excavations at the Eaglenest Portage site (HkPa-4) in the Birch Mountains.

Over the past few decades, a great many archaeological permits have been issued in connection with Cultural Resource Management (CRM), Historical Resource Impact Assessment (HRIA), and Historical Resource Impact Mitigation (HRIM) studies. In comparison to their number, however, and to the number of shovel prospects excavated, relatively few of these studies have resulted in the recovery of diagnostic projectile points. Prior to the late 1990s, when extensive compliance work resumed, several studies did recover diagnostics. Notable among these were the 1973 HRIA of Syncrude Lease 17 (Syncrude Canada Ltd. 1973), the 1974 Beaver River Quarry studies (Syncrude Canada Ltd. 1974), the 1974 HRIA of Highway 63 (Losey, Freeman, and Priegert 1975), and the 1979

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HRIA of the Highway 63 approach to the Peter Lougheed Bridge (Gryba 1980), all on the west side of the Athabasca River. Significant studies on the east side of the Athabasca River included the 1974 surface survey of Shell Lease 13 (Sims and Losey 1975), although this report is unfortunately quite cursory and its illustrations of the artifacts recovered are less than satisfactory.

In the 1980s, the first relevant studies are the Alsands and Fort McMurray Energy Corridor HRIAs (Ronaghan 1981a, 1981b). The Bezya site (HhOv-73), a provincially significant site that was identified during the Alsands HRIA, was the first site at which evidence of microblade technology was discovered (Ronaghan 1981b). Subsequent excavations at the site by the Archaeological Survey of Alberta in the early 1980s (Le Blanc 1985; Le Blanc and Ives 1986) yielded a radiocarbon date but unfortunately did not recover any projectile points, nor did later mitigative excavations by Golder Associates Ltd. (Green and Blower 2005). The Bezya site is no longer unique, as mitigative studies have since indicated that microcores and microblades are associated with sites grouped with four cultural complexes: the Fort Creek Fen, the Nezu (Cody Complex), the Beaver River (Shield Archaic Tradition), and the Firebag Hills (Arctic Small Tool Tradition) (de Mille and Reeves 2010).

Studies over roughly the past fifteen years have considerably augmented the sample for the east side of the Athabasca River. These include studies associated with Shell Albian Sands' Muskeg River and Jackpine mines (Ronaghan 1997; Clarke 2002b; Clarke and Ronaghan 2000; Clarke and Ronaghan 2004; Green et al. 2006; Tischer 2004, 2005; Bouchert-Bert 2007); Birch Mountain Resources' Muskeg Valley Quarry and Hammerstone projects (Saxberg and Reeves 2004, 2006; Saxberg 2007; de Mille and Reeves 2009); Syncrude's Aurora North project (Shortt and Reeves 1997; Shortt, Saxberg, and Reeves 1998; Saxberg and Reeves 1998; Saxberg, Shortt, and Reeves 1998; Reeves, Bourges, and Saxberg 2009; Reeves et al. 2013a, 2013b, 2014a, 2014b, 2014c; Saxberg, Somer, and Reeves 2003; Somer 2005; Somer and Kjar 2007); and TransCanada's Fort McKay Mainline pipeline project (Wickham 2006a, 2006b). For the west side of the Athabasca River, studies associated with the Horizon Oil Sands Project, an undertaking by Canadian Natural Resources Limited (CNRL), have provided the first new chronological information since the pioneering studies of the 1970s (see Bryant 2004, 2005; Clarke 2002a; Tischer 2006).

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TOOL STONE TYPES AND TERMINOLOGY

Most readers are already aware that the vast majority of artifacts in the Athabasca lowlands are manufactured from a locally obtained material variously known as Beaver River Sandstone, Beaver River Silicified Sandstone, Fine-Grained Beaver River Silicified Sandstone, and Muskeg Valley Microquartzite (MVMq). The search for the source of the fine-grained variety has been of continuing interest since the beginnings of archaeology in the oil sands region. When the Beaver River quarry was excavated in 1974 (Syncrude Canada Ltd. 1974; Reardon 1976), it was discovered that the bedrock tool stone quarried at the site, a coarse Beaver River Silicified Sandstone, was not in fact the source of the small chipped stone tools found in excavations at the quarry-workshop; rather, these tools had been manufactured from a fine-grained variety of the stone. In the same year, that variety was shown to be common in assemblages from *t*he east side of the Athabasca River in the area of Shell Lease 13 (Sims and Losey 1975).

The search continued over the following two decades for a primary quarry source on the east side of the Athabasca River (see Fenton and Ives 1982, 1984, 1990; Ives 1993). While surface exposures of the coarse-grained variety were occasionally found, as were cobbles and boulder-sized occurrences of similar material (often at sites identified as workshops), a primary source of the fine-grained variety remained elusive. This changed in 2003, when Lifeways of Canada Limited carried out an HRIA in connection with Birch Mountain Resources' Muskeg Valley limestone quarry (Saxberg and Reeves 2004). During this assessment, two bedrock quarries of the fine-grained variety of the tool stone were identified, in an area now collectively known as the Quarry of the Ancestors (Saxberg and Reeves 2006; Saxberg 2007). Subsequent petrographic analysis of samples from the quarry determined that the material is best classified as a microquartz-cemented orthoquartzitic siltstone (De Paoli 2005). Saxberg, Reeves, and De Paoli have thus chosen to call it Muskeg Valley Microquartzite (MVMq), rather than Beaver River Sandstone.[2] Given that MVMq dominates the lowlands assemblages, in the discussions to follow we do not usually specify that a particular point or other artifact is manufactured of it. The reader should thus assume that, unless otherwise indicated, the tool stone type is MVMq.

The second most common tool stone from which artifacts are manufactured is quartzite of various kinds, exhibiting a range of colours and granule sizes and apparently recovered in cobble form. In the Lower Athabasca region, many of these varieties fall into Gryba's Northern quartzite category (Gryba 2001), which most commonly consists of high-quality brown and grey and silver-grey-white

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quartzites, sometimes with orthoquartz inclusions.[3] The specific sources for the cobbles are unknown, although one may lie in the Birch Mountains, where the assemblages are characterized by large amounts of grey quartzite of varying quality.

Salt and pepper quartzite is another variety, one that occurs primarily in sites on the west side of the Athabasca River (see Ives 1993). This material type was first identified during the HRIA of the proposed Canstar Project (McCullough and Wilson 1982), and large boulders of salt and pepper quartzite have since been identified in CRM studies connected with CNRL's Horizon Project, which incorporates portions of the former Canstar Project area. Salt and pepper quartzite is the dominant material type in tools and debitage recovered from these project areas (Clark 2002a; Bryant 2004, 2005; Tischer 2006). Curiously, however, this variety of quartzite is quite infrequent in sites that belong to the same cultural complexes but are located on the east side of the Athabasca River.

In addition, to MVMq and quartzite, a limited variety of silicified siltstones, cherts, and chalcedony tool stone types occur in Lower Athabasca artifact assemblages. Interestingly, they tend to be associated with tools other than projectile points and occur more frequently at sites belonging to post–Early Precontact period complexes, particularly the Firebag Hills Complex. The most common are pebble cherts, often found in Chartier Complex sites (although less so in the Firebag Hills Complex). Their secondary sources could be local proglacial and postglacial gravels, lag gravels, or erosional caps or chert conglomerate stringers in bedrock. In the Plains region to the south, these stringers are found in the Upper Cretaceous marine Bearspaw Formation, which appears to have been actively mined in the Neutral Hills and adjacent to Sullivan Lake in east-central Alberta (Brian Ronaghan, pers. comm., 2006). Our understanding of the Chartier Complex would be enhanced by determining the source(s) of these pebble cherts in the Lower Athabasca region.

One type of chert that appears occasionally, particularly in Beaver River and Chartier Complex sites, is Lake One Dune chert, which is common in collections from sites on Lac Claire (Stevenson 1981). This chert, which can be mistaken for MVMq, ranges from a blend of creamy white and grey to a dirty brown, with inclusions and fossil fragments. It is different both in texture and structure from the cherts at the Peace Point site (IgPc-2; see fig 6.4), which are nonetheless similar in colour, ranging from white to cream to brown (Stevenson 1986; Reeves, observation of the Lac Claire collections at Parks Canada, Winnipeg, 2004). At the Lake One Dune site (IgPc-9; see fig 6.4), the stone was obtained in sufficiently large enough pieces to fabricate large-sized (roughly 6 to 10 cm) lanceolate points.

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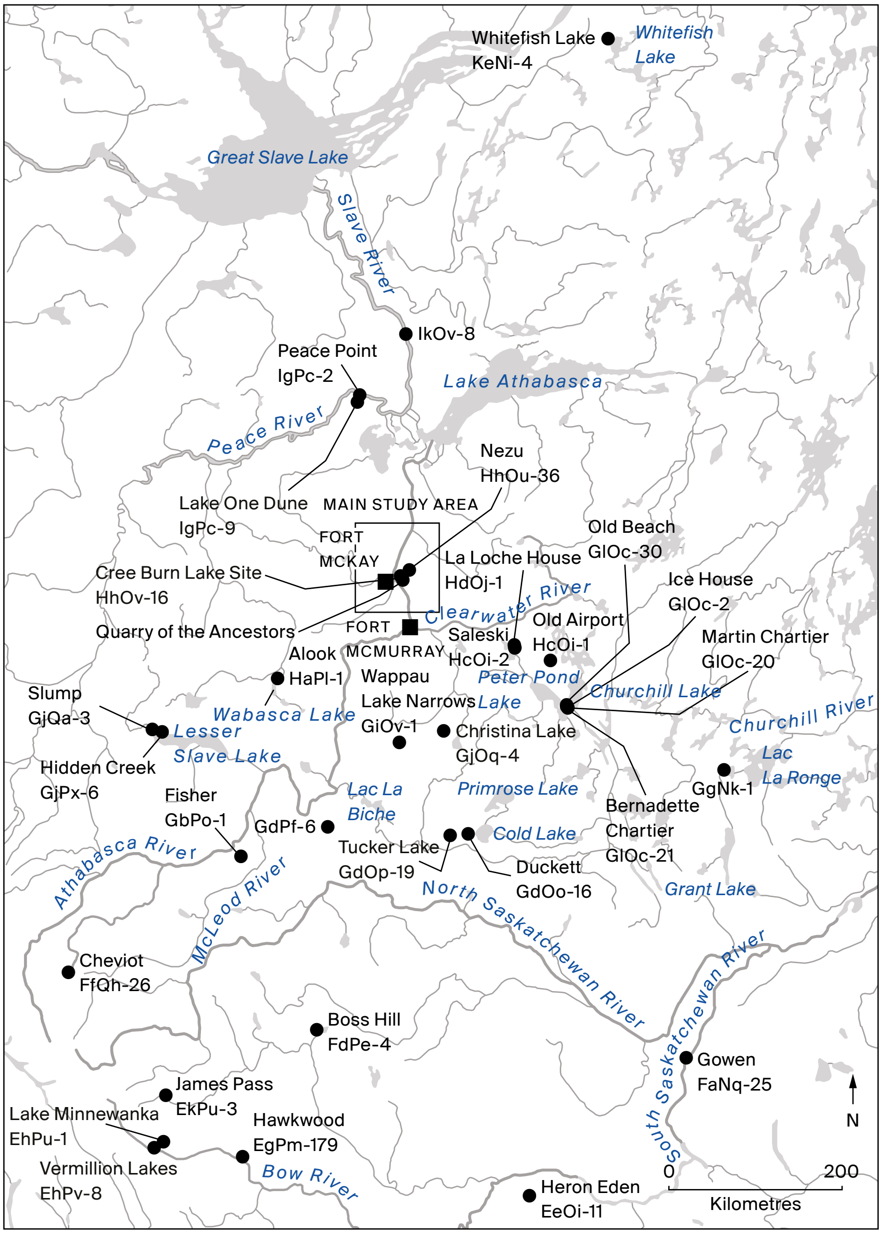

Figure 6.4. Sites in the region surrounding the Lower Athabasca valley. The main study area lies within the square. The broader region encompasses the Peace, Athabasca, and North Saskatchewan river basins and extends from as far north as Whitefish Lake, in the Northwest Territories, all the way south to the Bow River, as well as eastward into Saskatchewan.

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We now turn to our outline of the cultural chronology, the primary focus of this chapter.

EARLY PRECONTACT PERIOD COMPLEXES (CA. 10,000 TO 7,750 BP)

The earliest evidence of human occupation in Alberta consists of projectile points typical of the Clovis and Folsom cultural complexes. As expressed in Alberta, these complexes, which are generally termed Early Palaeoindian, have been dated to the period from roughly 11,050 BP to 10,200 BP (see Peck 2011, 24–47). Early Precontact period archaeological complexes, which postdate the Clovis and Folsom complexes, are characterized by lanceolate points that may be broad- or narrow-bladed and stemmed or unstemmed. Generally considered to be Middle or Late Palaeoindian, these complexes span a period from about 10,000 BP to 7,750 BP. Around the end of this period, corner- and side-notched dart points first appear in sites in the Saskatchewan plains and parklands and in the Rocky Mountains to the south of the Athabasca region.

As noted above, in his discussion of the Early Precontact period in the Lower Athabasca region, Ives (1993, 9) did not propose a detailed chronology, given the limited projectile point data available at that time. Rather, he drew primarily on general comparisons of the lanceolate and stemmed points that had thus far been found in the area with points known from the Yukon, Alaska, and the Plains region to the south.

Saxberg and Reeves (2003) subsequently proposed three Early Precontact period complexes for the Athabasca lowlands, all of which postdated the Lake Agassiz flood: the Fort Creek Fen Complex (ca. 9,800–9,600 BP), the Nezu Complex (ca. 9,600–8,600 BP), and the Cree Burn Lake Complex (ca. 8,600–7,750 BP). Their constructs were based on the distinctive projectile points, as well as certain other key elements, in the assemblages recovered from excavations in sites on the east side of the Athabasca River associated with elevated landforms along the Aurora North utility corridor (Saxberg, Shortt, and Reeves 1998; Reeves et al. 2013a, 2013b, 2014a, 2014b, 2014c). Also reflected in this chronology were the results of studies from the 1970s and 1980s that had recovered projectile points from sites in the lowlands, such as the Beaver Creek Quarry excavations (Syncrude Canada Ltd. 1974) and the 1974 survey of Shell Lease 13 (Sims and Losey 1975).

Initial human settlement of the Athabasca lowlands and adjacent uplands, such as the Birch Mountains, was naturally controlled by the timing of deglaciation, the recession of flood waters, and subsequent repopulation of the landscape

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by plant and animal communities. Palynological data from sites such as Kearl Lake (see chapter 4 in this volume), as well the radiocarbon-dated spruce trees recovered in the late 1970s from the gravel and sand pit area at Syncrude's Mildred Lake facility (Van Dyke and Reeves 1984), indicate that pioneering spruce-dominated boreal forest communities were well established in the lowlands by about 10,200 to 10,000 BP. As we will see, the evidence is that humans were also present at this time.

Pre-flood (?) and Early Post-flood Lanceolate and Stemmed-Point Complexes

The earliest identifiable cultural complexes in Alberta are characterized by stemmed lanceolate projectile points, including the Agate Basin and Hell Gap styles, as well as by fluted points and points exhibiting basal thinning, that generally date in the range of about 11,000 to 9,500 BP. Basal thinning is a technique that results in attributes functionally similar to those produced by classic fluting, and such points have been grouped with those exhibiting true fluting to describe an Alberta variant of the Fluted Point Tradition (Gryba 2001). This tradition is attested at sites scattered throughout the central and southern regions of the province.

In assessing the evidence for the Athabasca lowlands, we must remember that the prime settlement areas, which would have lined the existing banks of the Athabasca and Muskeg rivers, were destroyed by the Lake Agassiz flood—which, at its maximum extent, submerged the Athabasca valley beneath water up to an elevation of roughly 300 metres above sea level. The earliest indications of human occupation within the Athabasca lowlands consist of water-rolled artifacts found both within and above the Lake Agassiz flood zone. In addition, a number of projectile points have been recovered from sites at or above the flood line, as well as in the Birch Mountains, that exhibit features typical of point styles that predate the flood.[4]

Water-rolled artifacts have been recovered in excavations at three sites located within the flood zone (HhOv-4, HhOv-163, and HhOv-173) and one (HhOu-52) in the Fort Hills (table 6.1 and fig 6.5). The three artifacts from within the flood zone might have been found elsewhere by later occupants of the area, who then transported them to these sites, or they might have been deposited at these sites by fluvial processes associated with the flood. The finds consist of three examples of water-rolled quartzite bifaces—from HhOv-4, a Nezu Complex campsite and workshop; from HhOv-173, an isolated find; and from HhOu-52, a Beaver River Complex campsite on Stanley Creek, on the south edge

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TABLE 6.1 Sites yielding pre-flood water-rolled artifacts and early lanceolate points

Borden no.	Elevation (masl)	Projectile points and or other diagnostic tools	Reference(s)
Water-rolled artifacts			
HhOv-4	280.71	Ovate quartzite biface	Mallory 1980, figure 4: a
HhOv-163	295.93	Athabasca quartzite Hell Gap stemmed point base	Saxberg, Shortt, and Reeves 1998; Reeves et al. 2013a
HhOv-173	303.00	Quartzite biface	Saxberg, Shortt, and Reeves 1998, plate 53: 1
HhOu-52	287.78	Quartzite biface	Somer and Kjar 2007, plate 53: d
Lanceolate points			
HiOu-34	300.54	Stemmed lanceolate point (fire-fractured)	Saxberg, Somer, and Reeves 2003, plate 74: a
HiOu-56	310.00	Megaquartzite broad-bladed stemmed lanceolate point	Somer 2005, plate 51: d
HhOv-132	295.35	Lanceolate midsection	Site inventory form
HhOv-174	301.33	2 lanceolate point fragments	Shortt, Saxberg, and Reeves 1998, plate 35: 6
HhOv-455	297.97	Black silicified siltstone Agate Basin lanceolate point	Tischer 2005, plate 72
HhOu-1	285.00	Hell Gap point stem	Sims and Losey 1975; Ives 1993, figure 2: c
HjPd-1	683.00	Tertiary Hills clinker Agate Basin point	Ives 1981; Ives 1993, figure 2: a
HkPa-4	714.00	Lanceolate point	Ives 1993, figure 2: g

of the Fort Hills—as well as the stem of a quartzite Hell Gap point snapped at the shoulders (plate 6.6: 6) from HhOv-163, another Beaver River Complex campsite. The only other Hell Gap point identified to date is a specimen also snapped across the shoulders that was recovered by Sims in 1974 from the surface at HhOu-1, the Shell Airstrip site on the Muskeg River (Ives 1993, figure 2: c; Sims and Losey 1975, figure 3), but it is unclear from existing descriptions whether this artifact is water-rolled.

In addition, six finds of lanceolate points that appear, from their stylistic features, to predate the flood have been recovered from sites at and just above the maximum flood level (300 metres above sea level) in various locales east of the Athabasca River.[5] Five of these six are point fragments that were discovered along the southern edge of the Fort Hills. These consist of:

- a fire-fractured stemmed lanceolate point, broken at mid-blade, with a damaged base from HiOu-34 (Saxberg, Somer, and Reeves 2003, plate 74: a)
- a snapped, brown megaquartzite stemmed point with excurvate blade edges from HiOu-56 (Somer 2005, 65 and plate 51: d)
- the mid-blade section, with excurvate lateral edges, of a finely made subparallel flaked lanceolate point from HhOv-132, a lithic scatter site located on a beach ridge (Reeves, personal examination of the collections

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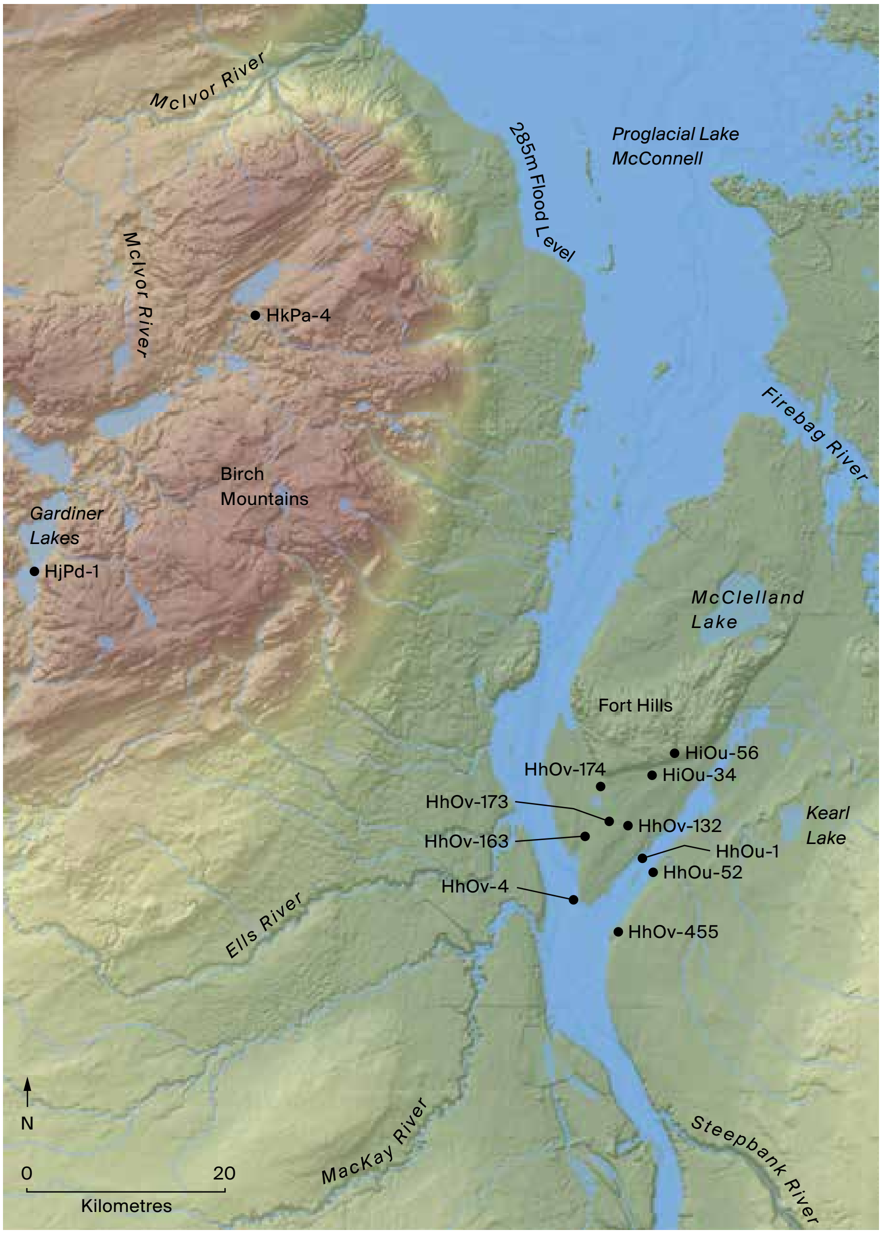

Figure 6.5. Sites yielding water-rolled artifacts or early lanceolate points (ca. 10,000 to 9,600 BP)

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at RAM, 2006)

- portions of two different lanceolate projectile points that were unearthed in a single shovel test at HhOv-174 (Shortt, Saxberg, and Reeves 1998, 10 and plate 35: 6)

The sixth find was made a little to the south, on the lower Muskeg River. In the course of compliance studies (Tischer 2004, 2005), during which a number of sites were identified at or above the flood line, a point fragment was recovered from HhOv-455, a small lithic scatter site (Tischer 2005, 153 and plate 72). It is a black silicified siltstone lanceolate point, 8.1 centimetres long. Tischer typed it as Agate Basin, as it compares most favourably with some of the "classic" specimens illustrated by Frison and Stanford (1982) from the Agate Basin type site. The probable source of the tool stone is the Palaeozoic-age black silicified siltstones and cherts found in the Rocky Mountains (Landals 2008; Reeves, Bourges, and Saxberg 2009).

In the Birch Mountains, early lanceolates are represented by a complete, finely finished Agate Basin point made of Tertiary Hills clinker (then known as Tertiary Hills welded tuff) that was excavated by Sims from the Gardiner Lake Narrows site, HjPd-1 (Ives 1981, figure 7: first row, first point on left; Ives 1993, figure 2a). These early points also include obliquely flaked lanceolates recovered from this site and from Eaglenest Portage (HkPa-4). (These are discussed below, under the Cree Burn Lake Complex.)

The above evidence clearly suggests an initial occupancy of the Lower Athabasca region possibly prior to, almost certainly coincident with, and clearly shortly after the Lake Agassiz flood of about 9,900 BP.[6] Lanceolate and stemmed points that fall within the range of variation found in the Agate Basin and Hell Gap types have been recovered in both primary and secondary contexts. Although the data are scarce, we suggest that the early occupants made only limited use of MVMq, given the probable impoundment of glacial outwash in the lowlands and the consequent submergence of sources of the stone, and that, should large sites be discovered above the flood zone, it is likely that the assemblages will be dominated by non-lowland quartzites. Exotic tool stones present are Rocky Mountain Palaeozoic black silicified siltstone and Tertiary Hills clinker. These are indicative of early distant trade, exchange, and movement networks of the first peoples to enter the region.

The Fort Creek Fen Complex (ca. 9,800 to 9,600 BP)

The Fort Creek Fen Complex was defined on the basis of 1998 excavations at two sites, HhOv-87 and HhOv-164, both located in the Aurora North utility corridor

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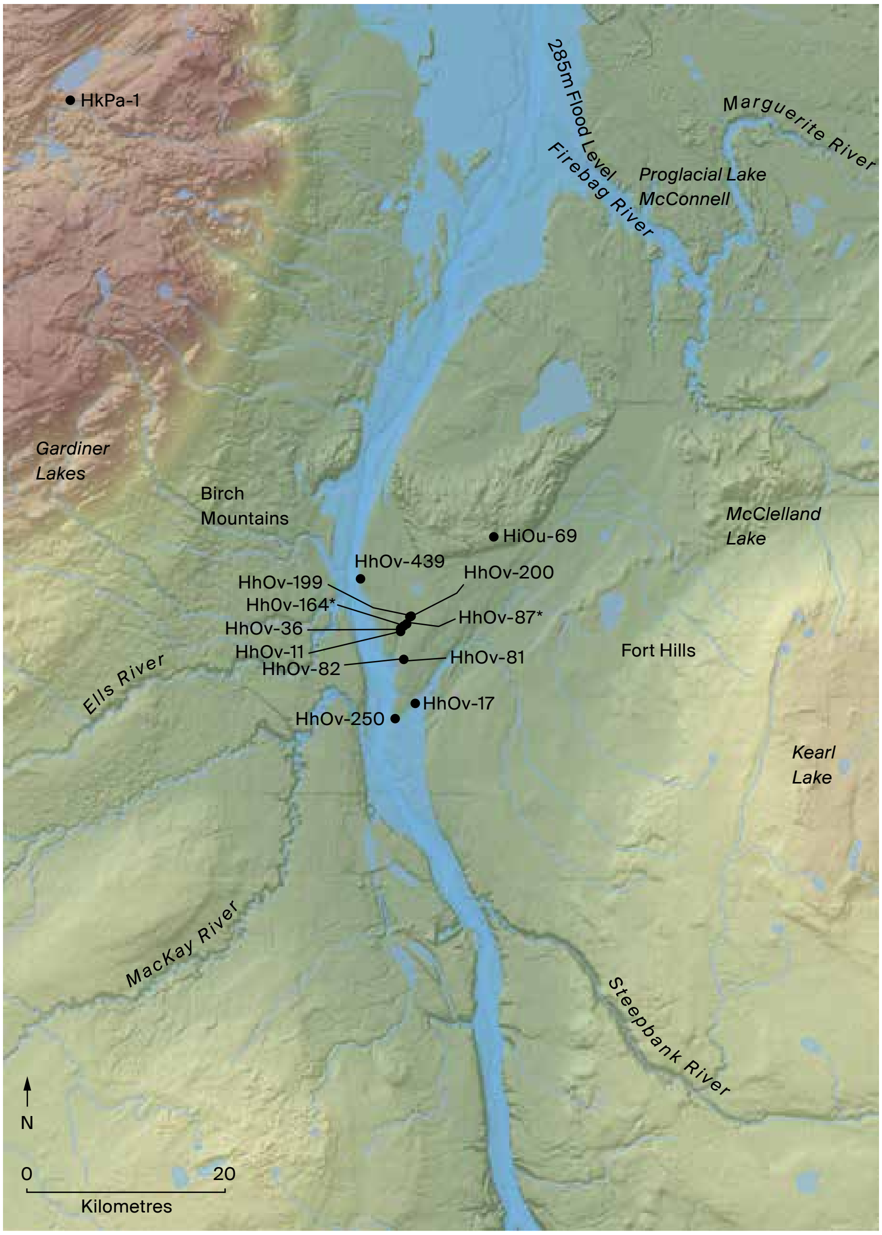

Figure 6.6. Fort Creek Fen Complex sites (ca. 9,800 to 9,600 BP). An asterisk indicates that a Scottsbluff point and/or Cody knife occurred on the same landform.

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northeast of Cree Burn Lake (fig 6.6). The most common type of point found—the Fort Creek Fen lanceolate—was a thin, broad-bladed, waisted form with constricted lateral edges and a straight to slightly concave base, sometimes with incipient side notches set within the lateral constrictions near the base (plate 6.1; Saxberg and Reeves 2003, 307–308). These points are comparable to points recovered from excavations at sites in the greater Yellowstone region that date to approximately 9,500 to 9,400 BP, including Barton Gulch (Davis et al. 1989; the Alder point type), Mummy Cave (Husted and Edgar 2002), and Medicine Lodge Creek (Frison 1991).

The Fort Creek Fen lanceolates are also similar in form and manufacture to points found in the region of the glacial Great Lakes. These include points associated with the Chesrow Complex in Wisconsin (Overstreet 1993) and the Hi-Lo Complex as expressed in southwestern Ontario, along the north shore of Lake Ontario, as well as elsewhere in the Great Lakes area (Ellis 2004; Jackson 2004; Stewart 2004). The Chesrow and the Hi-Lo are related complexes (Ellis 2004) and are considered to date to roughly 10,000 to 9,500 BP. The most recent point variants in these complexes include forms similar to the oil sands specimens, with shallow side notches set within the lateral constrictions above the base, that have been radiocarbon dated to as early as 9,600 ^{14}C yr BP (Ellis 2004, 64).

In addition to projectile points, Fort Creek Fen sites have yielded a number of other tools (table 6.2). Bifaces include a distinctive backed lanceolate-semi-lunar form that is also part of the Hi-Lo assemblage (Ellis 2004, 65 and figure 3-4: C). Fort Creek Fen end scrapers also share similarities with Hi-Lo end scrapers in their overall size and shape, and both assemblages are characterized by the absence of the finely finished dorsally retouched end scrapers that are found in later Nezu (Cody Complex) sites. Convex-edge side scrapers and marginally utilized and/or retouched flakes, generally manufactured from thick core or flake fragments and often backed, are again characteristic of both Fort Creek Fen and Hi-Lo assemblages. In addition, notches and denticulates occur in Fort Creek Fen assemblages (but not in Hi-Lo ones, although they may not have been recognized as such). Fort Creek Fen burins are produced on intentionally snapped or radially fractured biface blanks as well as flake blanks. Forms include dihedral, angle, and transverse burins; notched "Donnelly Ridge"–style flake burins are rare.

There is also some evidence of microblade technology. Small numbers of microblade cores and microblades were recovered from both HhOv-87 and HhOv-164. The blanks produced for microblade preforms are either wedge- or boat-shaped or else hemi-conical and can be further modified and used as formal wedge- or boat-shaped microblade cores (see plate 6.10: 1, 2) or as less

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TABLE 6.2 Fort Creek Fen Complex sites and diagnostic artifacts

Borden no.	Elevation (masl)	Projectile points or other diagnostic tools	Reference(s)
HhOv-11	294.00	backed bifaces	Reeves et al. 2014a
HhOv-17	276.13	Fort Creek Fen lanceolate point	Green et al. 2006, plate I: 23
HhOv-36	295.00	microblade core	Reeves et al. 2014a
HhOv-82	296.26	Stubby Fort Creek Fen lanceolate point	Clarke and Ronaghan 2004, plate HhOv-82-1
HhOv-87	297.90	2 Fort Creek Fen lanceolate points	Reeves et al. 2014a
HhOv-164	294.23	3 Fort Creek Fen lanceolate points, 2 Scottsbluff points, 1 Cody knife	Reeves et al. 2014a
HhOv-199	295.00	backed bifaces	Reeves et al. 2014a
HhOv-200	295.00	backed bifaces	Reeves et al. 2014a
HhOv-250	280.91	Fort Creek Fen lanceolate point	Reeves, examination at RAM
HhOv-439	284.77	Fort Creek Fen lanceolate point	Somer and Kjar 2007: plate 52: q
HiOu-69	313.00	Scottsbluff Type I point	Somer 2005, plate 51: e
HjPd-1	683.00	Fort Creek Fen point?	Reeves, examination at RAM
HkPa-1	716.84	Fort Creek Fen point?	Ives 1977, plate 21: j

formal face-faceted and pillar microblade cores. These blanks are derived from thick bifacial cores that are either transversely or longitudinally snapped or burinated. This technology is very comparable to that described by Fladmark (1985) for the Ice Mountain Microblade Tradition (Smith 1971, 1974) of the Mount Edziza–Telegraph Creek region in northwestern British Columbia.[7] Similar cores of Edziza obsidian have recently been recovered from the Finlay Reach of Lake Williston (Eldridge et al. 2008), as have points resembling Fort Creek Fen lanceolates (Reeves, personal examination of the Lake Williston collections; Eldridge et al. 2010).

Non-local tool stones are relatively uncommon in Fort Creek Fen assemblages. Out of the 51,594 pieces of debitage initially recovered at HhOv-87, only 26 were non-local, consisting of twenty chert and six Northern quartzite flakes.[8] The cherts here and at HhOv-164 are primarily black to brownish-grey varieties, often with a weathered cortex and most of unknown provenance. Montana cherts are very rare. In addition to Northern quartzites, the HhOv-164 assemblage contains examples of Athabasca quartzite (Landals 2008; Meyer, Roe, and Dow 2007; Reeves, Bourges, and Saxberg 2009).

In addition to HhOv-87 and HhOv-164, Fort Creek Fen Complex artifacts have been recovered from seven other sites in Syncrude's Aurora North project area (HhOv-11, HhOv-36, HhOv-82, HhOv-199, HhOv-200, HhOv-250, HhOv-439), as well as at HhOv-17, on the Muskeg River, and at HiOu-69, in the Fort Hills

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(see fig 6.6). In addition, there are two possible occurrences of Fort Creek Fen points at sites in the Birch Mountains (see table 6.2). At HhOv-439, a finely worked bifacial meat-filleting knife reacted positively to sheep antisera (Somer 2005).

In summary, we view the Fort Creek Fen Complex as representing the first post-flood archaeological reoccupation of the Lake Agassiz flood zone in the Athabasca lowlands. While the number of identified sites is small in comparison to the following Nezu Complex, suggesting a shorter temporal span for the occupation than for Nezu, some sites, such as HhOv-87 and HhOv-164, are large workshops or campsites with dense accumulations of MVMq debris. This may indicate that Fort Creek Fen Complex groups had access to large quantities of high-quality MVMq tool stone, which could have been obtained from MVMq blocks deposited by the Agassiz flood along the Athabasca River, or from as-yet-undiscovered primary outcrops along the river, or from the Quarry of the Ancestors, the higher portions of which would have been accessible when the water levels dropped below 290 metres above sea level.

Scottsbluff points were also found, although not necessarily in the same excavation loci as the Fort Creek Fen points, at HhOv-87 and HhOv-164, the latter of which also yielded a Cody knife. This suggests that these particular sites are transitional and that, by extension, the majority, if not all, of the Fort Creek Fen sites date within a few hundred years of each other, since they are relatively few in comparison to those of the Nezu Complex. We also note in passing that a Scottsbluff point and a Cody knife were recovered at Medicine Lodge Creek from site components containing waisted points similar to Fort Creek Fen forms (Frison 1991, figure 2.3; Frison and Walker 2007, figures 3.6 and 3.8).

The Fort Creek Fen Complex originated, in our view, in the Glacial Great Lakes region of northeastern North America, moving westward as early peoples travelled in watercraft across Glacial Lake Agassiz, probably sometime after 11,000 BP, during the lake's Moorhead Phase, when it drained into the Glacial Great Lakes and its water levels were relatively low. The fact that Fort Creek Fen lanceolates occur in collections from Agassiz beaches in the Swan River Valley of west-central Manitoba and adjacent Saskatchewan (David Meyer, pers. comm., 2008) indicates that these peoples were present in areas to the west of the lake.

Fort Creek Fen groups moved into the Athabasca lowlands shortly after the Lake Agassiz flood, during a period when Lake Agassiz continued to drain via its northwestern outlet into the Athabasca River and then into Glacial Lake McConnell, its waters entering McConnell through a broad delta that extended to south of the Fort Hills. At that time, an arm of Glacial Lake McConnell extended far up the Peace River valley to just downstream of the modern community of High Level. This may be the route by which the Fort Creek Fen groups

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reached the Upper Peace and the Rocky Mountain Trench, where they came into contact with northern British Columbian microblade users, thereby adding the Ice Mountain Microblade Tradition, the oldest microblade technology in northwestern North America, to their technological repertoire. This technology was, in turn, carried at least as far east as the Lower Athabasca, where its occurrence in the Fort Creek Fen Complex represents the first appearance of microblade technology in what is today northeastern Alberta.

Nezu Complex (ca. 9,600 to 8,600 BP)

The Nezu Complex—the regional expression of the Cody Complex in northeastern Alberta—was defined by Saxberg and Reeves (2003) and by Reeves, Bourges, and Saxberg (2009) primarily on the basis of the results of 1997 and 1998 excavations at the Nezu site (HhOu-36), now located on the middle reaches of the Muskeg River in the Aurora North tailings pond (fig 6.7). At the time of occupation, however, the site was situated on the shores of a lake known as Lake Nezu, which formed in the Muskeg valley as a result of the catastrophic Lake Agassiz flood of roughly 9,900 BP (but see Fisher and Lowell, chapter 2 in this volume, for a slightly younger estimate for the timing of this event). A total of 139 square metres, representing a little over 90% of the main site area, was excavated. Three discrete activity loci were defined, each measuring about 2 to 3 by 3 to 4 metres, which are thought to represent two tent-frame locales and an outside activity area. The large number of tools associated with these loci in comparison to other single-component Nezu Complex campsites in the Fort Hills suggests that these areas of the Nezu site were seasonally occupied a number of times. Evidence of tool caching and repeated reuse was found at Locus 2.

Blood antisera and faunal analysis indicate that a variety of big game and fur-bearing animals were hunted. At the Nezu site, for example, caribou antisera reactions occurred on seven artifacts, moose on two artifacts, deer on eight artifacts, bovid (bison) on four artifacts, rabbit on five artifacts, and bear on three artifacts. Fifteen of 579 small calcined bone fragments recovered were identifiable to species bear (6 specimens), beaver (1 specimen), canid (3 specimens), and bison (5 specimens).[9] This analysis suggests that the Nezu occupants used sinews or tissues from canids, lagomorphs, and cervids as hafting materials. The results support environmental reconstructions based on other lines of evidence (Bouchert-Bert 2007) of an open mixed forest interspersed with grasslands and wetlands. Multiple lines of evidence lead to the conclusion that the Nezu site was a fall caribou hunting camp reoccupied a number of

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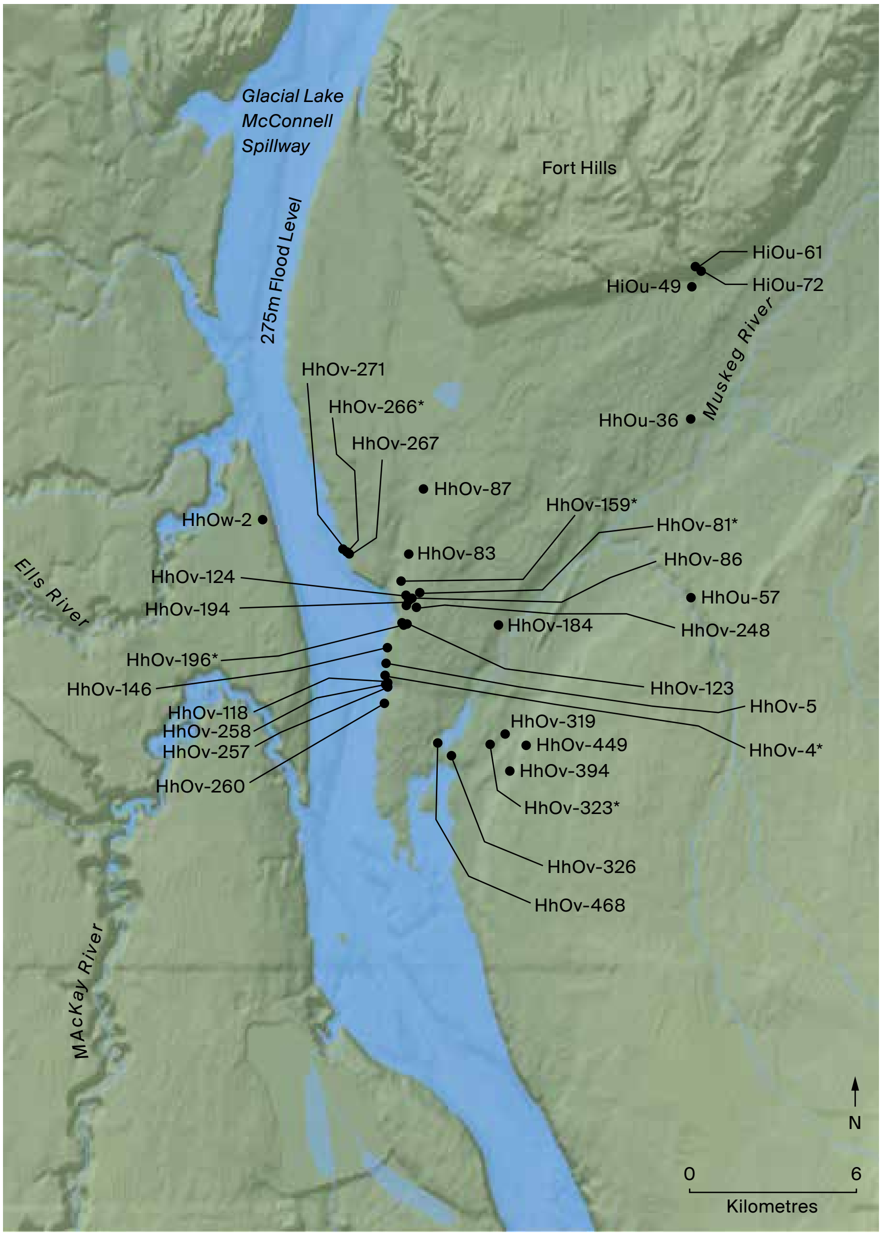
Figure 6.7. Nezu Complex sites (ca. 9,600 to 8,600 BP). An asterisk indicates the presence of Eden or other collaterally flaked points.



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times, possibly by a small extended family group (Reeves, Bourges, and Saxberg 2009).

To define the Nezu Complex, Reeves, Bourges, and Saxberg (2009) carried out a comparative analysis of the Nezu site artifact assemblage and other excavated Nezu Complex sites along the Athabasca escarpment and the Muskeg River valley (table 6.3), as well as making broader comparisons to Cody Complex assemblages to the south. This work is briefly summarized below.

Nezu Complex stemmed projectile points are classifiable as Scottsbluff Type I or Type II points (plate 6.2: 4–10) and narrow and broad-bladed Eden points (plate 6.3: 10–12). These styles may or may not occur at the same site. Point preforms are rare. "Fish-tailed" and waisted lanceolate points also occur infrequently at the Nezu site (plate 6.2: 1–3), as is the case at other Cody Complex sites to the south, such as the Horner site (see Bradley and Frison 1987, 226 and figure 6: 14). A number of snapped Scottsbluff points have been recycled as Cody knives. Cody knives, although uncommon, include both single- and double-shouldered types (plate 6.3: 6–9). A reworked convex-based Agate Basin point (see plate 6.6: 1) was recovered from HhOv-148.

Two types of drills (or perforators or awls) are present: T-butt (plate 6.3: 1) and Niska (plate 6.3: 3–5). Niska drills, named after the Niska site in southwestern Saskatchewan (Meyer and Liboiron 1990), are characterized by a defined subrectangular haft or butt, generally with hafting modifications.

The bifacial knife assemblage is characterized by thin, flat-flaked meat-filleting knives of specific shapes, including Nezu knives, as well as knives of an asymmetric ovate form and narrow- and broad-bladed subrectangular knives. Lanceolate and oval-shaped knives are rare. Heavy-duty tools include backed bifaces and notched axes of specific type (plates 6.4 and 6.5: 10 and 11). More expedient heavy-duty tools include bifacial choppers and quartzite cortical spall tools of specific type and manufacture that distinguish them from the chithos often associated with the Taltheilei Tradition.

There are two types of Nezu Complex adzes. The first type is made on prismatic or truncated flakes with distal end and lateral-edge retouch. The second type, which may be recycled microblade cores (plate 6.10: 3), is characterized by retouched dorsal surfaces. The Nezu adzes are smaller and more regularly shaped than the adzes in later cultural complexes.

Formed flake tools include dorsally finished ovate or teardrop-shaped "humped-back" end scrapers and thin-to-thick tabular dorsally unretouched end scrapers of specific type (plate 6.5: 1–9), as well as specifically formed single- or double-edged side scrapers. A variety of marginally utilized or retouched flakes occur in Nezu assemblages, some of which feature characteristic

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TABLE 6.3 Nezu Complex sites and diagnostic artifacts

Borden no.	Elevation (masl)	Projectile points or other diagnostic tools	Reference(s)
HhOu-36	285.45	Scottsbluff Type I points, Scottsbluff Type II points (1 of Northern quartzite)	Shortt, Saxberg, and Reeves 1998; Reeves, Bourges, and Saxberg 2009; Reeves et al.,2014b
HhOu-57	302.00	Scottsbluff base	Green et al. 2006, plate I-15
HhOv-4	280.71	Eden blade	Reeves et al. 2014b
HhOv-5	280.58	Possible Nezu hafted knife	Sims and Losey 1975, figure 3: f
HhOv-81	297.28	Broad-bladed Eden point	Clarke and Ronaghan 2004, plate HhOv-81-3
HhOv-83	293.93	Nezu tools	Reeves et al. 2014b
HhOv-86	294.32	Nezu tools	Reeves et al. 2014b; Clarke and Ronaghan 2004
HhOv-87	297.90	2 Scottsbluff points (type unspecified)	Clarke and Ronaghan 2000, plate I-8
HhOv-118	278.17	Nezu tools	Reeves et al. 2014b
HhOv-123	292.33	Scottsbluff base, 3 preform tips	Saxberg, Shortt, and Reeves 1998, plate 51: 3; Reeves et al. 2014b; Green et al. 2006
HhOv-124	293.09	Strangulated prismatic blade end scraper, Nezu tools	Shortt and Reeves 1997, plate 17: 7; Reeves et al. 2014b
HhOv-146	283.19	Scottsbluff Type I point, broad-bladed Eden point, Nezu adze	Reeves, examination at RAM
HhOv-148	293.00	Nezu tools	Reeves et al. 2014b
HhOv-159	292.02	Narrow-bladed Eden point	Reeves et al. 2014b
HhOv-184	283.11	Scottsbluff point, pink quartzite Scottsbluff stem, Nezu tools	Clarke and Ronaghan 2000, plates I-17 and I-18
HhOv-194	292.93	1 Scottsbluff point, 2 snapped Scottsbluff preforms	Saxberg, Shortt, and Reeves 1998; Reeves et al. 2014b
HhOv-196	290.53	Narrow-bladed Eden point tip	Saxberg, Shortt, and Reeves 1998; Reeves et al. 2014b
HhOv-198	285.00	1 Cody subrectangular knife, 1 Nezu end scraper	Reeves et al. 2014b
HhOv-248	295.55	Narrow-bladed collaterally flaked point tip	Clarke and Ronaghan 2004, plate HhOv-248-2
HhOv-257	273.00	Broad-bladed Eden point	Reeves, examination at RAM
HhOv-258	275.03	Scottsbluff Type II point stem, lanceolate point, Nezu tools	Reeves, examination at RAM
HhOv-260	276.00	Truncated microblade, burin spall	Reeves, examination at RAM
HhOv-266	278.95	2 Scottsbluff points, 1 broad-bladed Eden point	Reeves, examination at RAM
HhOv-267	280.35	Scottsbluff point, Nezu drill	Reeves, examination at RAM
HhOv-271	277.18	Stemmed obsidian point fragment	Reeves, examination at RAM
HhOv-319	281.91	Miniature Scottsbluff point, drill tip, Nezu tools	Saxberg 2007, plate B.19: e and f
HhOv-323	281.22	1 broad-bladed Eden point (positive test for proboscidian antisera), 1 Montana chert Scottsbluff point	Saxberg and Reeves 2004, plate 65: f; Saxberg 2007, plate B.22: a
HhOv-326	279.00	Nezu bifacial quarry blank	Saxberg 2007, plate B.27: a
HhOv-394	293.60	Nezu bifacial knife	Tischer 2004
HhOv-449	298.06	Scottsbluff point blade fragment	Wickham 2006b, figure 12
HhOv-468	278.00	2 Scottsbluff points (1 of red chert)	Wickham 2006b, figures 14 and 15
HhOw-2	291.31	Scottsbluff Type II point	Losey, Freeman, and Priegert 1975, 34; Ives 1993, figure 2: d
HiOu-49	294.00	2 Cody knives	Somer 2005, plate 51: f and g
HiOu-61	304.91	Nezu waisted point, Nezu tools	Somer and Kjar 2007, plate 53: i
HiOu-72	306.00	Cody knife	Somer and Kjar 2007, plate 53: c
HkPa-4	714.00	Cody knife?	Ives 1977, plate 2: k; Ives 1981, figure 7: row 1, fourth from left

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"fingertip"-shaped employable units (Knudson 1983) and include beaked and carinated gravers, notches, and denticulates. Wedges are extremely rare.

Marginally utilized or retouched flakes and intentionally snapped bifaces have been used or modified to serve as end gravers, corner gravers, pseudo-burins, and burins. Burins are quite common in some Nezu sites, particularly in Locus 2 of the Nezu site, and are thought to represent intensive processing of caribou antler. Flake burins include transverse, angle, and dihedral burins, often manufactured on specific secondary flake blanks with prepared platforms, and are backed. Notched Donnelly Ridge–style burins do occur. The range of variation in the Nezu burin assemblage is comparable to that found in Denali Complex sites in Alaska.

Nezu Complex tool production technology is based on the fabrication of large biface preforms or cores and a core reduction strategy designed to create bifacial rough-outs that, through the various stages of bifacial reduction, are shaped into knives, points, or drills. Secondary flake blanks derived from these cores appear to have been used or modified to serve as end and side scrapers, adzes, and a variety of marginally utilized or retouched flakes, including gravers and burins. Large primary and secondary decortication quarry flakes were also recovered, indicating a specific Levallois-style reduction technology similar to that identified by Knudson (1983) at the Cody Complex occupations at the McHaffie site. Along with bifacial reduction, these decortication flakes are a key part of the Nezu tool reduction and manufacturing strategies.

Nezu Complex microblade technology was first identified in 1997 in the Aurora North utility corridor HRIA (Shortt, Saxberg, and Reeves 1998; Reeves et al., 2014b). This technology is based on the transverse or longitudinal snapping or burination of biface cores to produce bifacially edged, boat-shaped or wedge-shaped microblade core preforms (see plate 6.10: 3 and 4 for illustrations of the former). The snap fracture or burination served as the core preform platform, and the thickest end usually as the core face, which could be further trimmed before microblade removal (plate 6.10: 4). Similar boat-shaped cores occur in the Ice Mountain Microblade Tradition (Fladmark 1985; Smith 1974), as well as in Denali assemblages, such as that at Dry Creek, in Alaska (see Powers, Guthrie, and Hoffecker 1983, figures 4.8: A and 4.15). The majority of Denali wedge-shaped cores are based on bifacially worked blanks, however, rather than on snapped or burinated biface blanks.

The frequency of the cores and microblades varies considerably among different Nezu Complex sites and seems to be inversely correlated with the frequency of stone dart points. This pattern perhaps reflects the use of microblades as side blades in dart or spear points made of caribou antler, rather than as the tip of a traditional stone projectile, as may have been the case for the Denali

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Complex in Alaska (Ackerman 2007, 168–170; Larsen 1968). Ackerman (2007) concluded that these composite side blade points may have been used at Denali sites, which are summer occupations, to hunt dispersed caribou during the summer, after the spring migration and before the herd reassembled in the fall. Perhaps the same was true of some of the Nezu Complex summer hunting practices in the Lower Athabasca region.

Nezu Complex sites contain a small percentage of non-local tool stones, usually found in exhausted and recycled or discarded tools. In addition to Northern quartzite, these stones include Swan River chert, Knife River flint, Bear Gulch obsidian, various Montana cherts from the South Everson (Bonnichsen et al.1992; Douglas 1991), Doggett (Roll 2003), and Helena (Knudson 1983) quarries, metamorphosed green argillite from the Waterton-Glacier region (Reeves 2003), and tourmaline chert from the central Canadian Rockies (Reeves 2003). Basalt is also present.

Nezu Complex artifacts have been recognized in a total of thirty-six sites in the Athabasca lowlands and Birch Mountains (table 6.3). Unusual or unique finds of particular interest include a probable bola stone recovered from HhOv-184 (Clarke and Ronaghan 2000, plate I-22). Another is an isolated Eden lanceolate point found at the Quarry of the Ancestors site HhOv-323 (Saxberg and Reeves 2004, plate 65: f) that reacted positively to elephant antisera (see plate 6.3: 12).[10] Nezu Complex artifacts have also been identified at four sites in the Aurora North Mine in the Stanley Creek area.

Only one Nezu Complex occurrence—HhOw-2, a small lithic scatter—has been identified on the west side of the Athabasca River (Losey, Freeman, and Priegert 1975, 28). A Scottsbluff Type II specimen was collected from the site (Losey, Freeman, and Priegert 1975, 34; see also Ives 1993, figure 2: d). The dearth of Nezu Complex sites on the west side of the river probably reflects the fact that, at the time, the shoreline was some distance west of today's river escarpment (compare figs. 6.7 and 6.8).

Nezu Complex artifacts are poorly represented in collections from the Birch Mountains. Diagnostic Nezu Complex points from the Gardiner Lake Narrows site, HjPd-1, were either not recovered or no longer remain in the collections housed at the RAM. However, Cody Complex materials are represented in the collections from HkPa-4. In addition to a probable oolitic Northern quartzite Cody knife observed by Reeves in the RAM collection (see Ives 1977, plate 2: k; see also Ives 1981, figure 7, row 1, fourth from left), these include a large, thin, finely flaked flake end scraper with a graver spur on the left lateral edge (see Ives 1977, plate 5, row C, first on left) and a flake knife manufactured of a thin slab of oxidized MVMq (see Ives 1977, plate 4: f).

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The Nezu Complex is the best represented of the all archaeological complexes in the Athabasca lowlands. It was during roughly the first half of Nezu Complex times (ca. 9,600 to 9,000 BP) that the waters of the Athabasca embayment lowered sufficiently to expose the main quarry areas at the Quarry of the Ancestors. The major mining and workshop activity at the Quarry of the Ancestors evidently also dates to the period of the Nezu Complex, and archaeological studies in the area of the quarry have further enhanced the numbers and the visibility of Nezu Complex sites in this region.

We suggest that the greater frequency of Nezu Complex sites reflects a longer period of occupancy in comparison to the other two Early Precontact period complexes, particularly Fort Creek Fen. The greater number of Nezu Complex sites could also mean that a more open, warmer, dryer environment was present during this time than was the case later, during Cree Burn Lake Complex occupations. In large part, this latter period correlates temporally with the negative climatic impact that the discharge of Glacial Lake Agassiz into Hudson Bay had on the northern hemisphere (see Alley and Ágústsdóttir 2005). A more productive subsistence environment, both terrestrial and aquatic, during Nezu Complex times could have resulted in a higher frequency of occupancy of the Lower Athabasca region during the warm season.

Nezu Complex territory extended into the Firebag Hills and to the headwaters of the Descharme River. Field studies in this region related to oil sands development have recorded three Nezu Complex isolated finds or artifact scatters and four other sites that are most probably Nezu or earlier in age (Reeves, Cummins, and Lobb 2008). To the southeast, Nezu occupation extends into the northwest precincts of Lake Agassiz. Cody Complex artifacts—some of which, in view of the colour and texture of the stone, are probably made of MVMq—are present in the collections from the Old Beach site (GlOc-30) at Buffalo Narrows (see fig 6.4).[11] Approximately 460 kilometres southwest of Buffalo Narrows lies the Cody Complex Heron Eden Bison Kill (EeOi-11), located near Kindersley, Saskatchewan (Linnamae and Corbeil 1993; Corbeil 1995). An MVMq Scottsbluff point and retouched MVMq flakes were among the artifacts recovered at the Heron Eden site, which dates to about 9,000 BP. Points fashioned from Knife River flint were also associated with the site.

A similar association was present in surface collections from locations near the towns of Boyle and Barrhead, 300 kilometres up the Athabasca River. GdPf-6, near Boyle (see fig 6.4), contained an MVMq Scottsbluff point, Alberta and Scottsbluff points made of Knife River flint, a Scottsbluff point of Peace River chert, and another of a Montana chert (GdPf-6 site inventory form). The Fisher site (GbPo-1; see fig 6.4), on an old shore of Shoal Lake near Barrhead, produced

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an MVMq Eden point, two Knife River flint Scottsbluff points, and obsidian artifacts. The obsidian would most probably have originated from either the Bear Gulch or the Obsidian Cliff quarries (see also Ives 1993, 26; Fenton and Ives 1982, 1990).[12]

Limited as it is, the tool stone evidence suggests that Nezu Complex peoples were seasonal residents of the Lower Athabasca region, which was situated at one extreme of a much larger trading network that characterizes the Cody Complex throughout the northwestern Plains. In Nezu Complex sites in the Lower Athabasca region, the presence of Swan River chert—a Cody Complex tool stone type found in the Alberta-Saskatchewan parklands (Bob Dawe, pers. comm., 2008)—as well as cherts that most probably originate in central and/or southern Montana indicates that the Nezu Complex occupants of the Lower Athabasca interacted seasonally with other Cody Complex groups in the parklands or lakelands of central Alberta and Saskatchewan. Such interaction is further suggested by the occurrence of Scottsbluff points manufactured of MVMq in Cody Complex sites in that region, such as Heron Eden.

As previously mentioned, the Nezu Complex is the regional expression of the Cody Complex, a culture that is clearly attested in areas of what is today the boreal forest ranging from northeastern British Columbia to northwestern Saskatchewan, as well as southward through the Northern Rockies to the greater Yellowstone region (Johnson and Reeves 2013). The patterns of occupancy are similar in Cody sites throughout the region, and evidence indicates that a broad spectrum of migratory and non-migratory game animals and smaller fur-bearers was harvested. Lakes were important seasonal settlement locales, and although no direct evidence exists, it is likely that fish were caught and fowl hunted, and food and medicinal plants were gathered. Particularly favoured tool stones were procured and traded over thousands of kilometres. That these early Cody Complex–related people in the Lower Athabasca region used watercraft as a means of transportation seems only logical given the generally forested nature of the landscape at that time and the extensive system of navigable lakes and rivers. Evidence for the use of watercraft by other Late Palaeoindian groups around the Great Lakes, for example, and in Late Palaeoindian sites in the Rocky Mountains, further supports this conclusion, as do Cody Complex occupations in the area of Yellowstone Lake.

On the basis of the distribution of MVMq Scottsbluff and Eden points, we suggest that Nezu Complex peoples spent the winter season along the edge of what were then parklands and lakelands and the northwestern precincts of Lake Agassiz to the south. Once the ice went out in the spring, they journeyed downstream along the Athabasca and Clearwater rivers in skin-covered boats to the Athabasca lowlands, where they spent the warm-weather months, returning to

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their wintering grounds in the south before freeze-up in the fall. While in the Athabasca region, they quarried MVMq, hunted a variety of big game (bison, deer, moose, caribou, and bear), and took smaller fur-bearers such as beaver. They travelled up into highlands such as the Birch Mountains and the Firebag Hills to hunt and probably fish. The ice cap was not far to the east and, while winters would have been extremely harsh, summers were probably warmer than they are today.

In their wintering grounds, Nezu Complex peoples resided with other Cody Complex groups who, as indicated by the occasional presence of Knife River flint and small quantities of tool stones from central Montana and the greater Yellowstone region, were in contact with other Cody groups along the western fringe of the Plains to the south during the warm-weather months. We presume that these groups interacted with more southerly groups, obtaining and exchanging tool stones and finished objects, and that some of this economic and cultural exchange subsequently reached Nezu peoples. Nezu hunters and groups may have joined in communal bison hunts, such as that at Heron Eden in southwestern Saskatchewan, which at this time was a mesic parkland landscape, rather than xeric grasslands (Beaudoin and Oetelaar 2003), and not far removed from the South Saskatchewan River or Lake Agassiz. Somewhere around 8,600 BP, however, the Nezu occupancy of the Athabasca lowlands came to an abrupt end, perhaps because of adverse climatic change. It was succeeded by the Cree Burn Lake Complex.

Cree Burn Lake Complex (ca. 8,600 to 7,750 BP)

The Cree Burn Lake Complex takes its name from Cree Burn Lake (Ronaghan 1981a, 1981b; Head and Van Dyke 1990; Shortt and Reeves 1997), an abandoned oxbow of the Athabasca River north of Fort McKay. The complex was initially defined by Saxberg and Reeves (2003) on the basis of the 1998 and 1999 excavations in the Aurora North utility corridor. The characteristic points are obliquely parallel-flaked lanceolates of the Lusk and Frederick types, as defined in the archaeological literature on the northwestern Plains and Rocky Mountains (Frison 1991; Reeves 1972; Driver 1978; Langemann and Perry 2002). Perpendicular parallel-flaked Agate Basin points occasionally co-occur. In the northern boreal forest area and the adjacent Barrenlands, obliquely parallel-flaked lanceolates are generally referred to as Northern Plano (Arnold 1985; Gordon 1975, 1996; Wright 1972a, 1972b, 1976).

Saxberg and Reeves (2003) initially proposed that the Cree Burn Lake Complex dated back to about 9,500 BP and thus overlapped with the Nezu

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Complex, co-existing with it in the Athabasca lowlands in the wake of the Lake Agassiz flood. They identified two sites in the immediate vicinity of Cree Burn Lake, HhOv-148 and HhOv-194, that they considered to contain early Cree Burn Lake components (Saxberg and Reeves 2003, 301). On the basis of technological analysis, however, both sites have subsequently been reclassified as Nezu Complex (Reeves et al. 2014b). The later sites grouped with the Cree Burn Lake Complex are characterized by a more opportunistic lithic technology, bipolar reduction, and a high degree of expediency in tool manufacture and use. Although some of the sites that we assign to the Cree Burn Lake Complex may be technologically earlier, as Saxberg and Reeves (2003) suggested, we are restricting the dating of the Cree Burn Lake Complex to post-Nezu occurrences of obliquely flaked lanceolate points.

Studies have identified a total of thirteen Cree Burn Lake Complex sites and other occurrences of obliquely flaked lanceolate points in the region (see table 6.4 and fig 6.8). The artifact assemblage and technological characteristics of the Cree Burn Lake Complex are not well defined regionally, however, as most of the points either occur in mixed stratigraphic contexts (as, for example, is the case for the three sites in the Birch Mountains, HjPd-1, HkPa-4 and HkPb-1) or are obliquely flaked lanceolates collected and recycled or discarded in sites along the Athabasca escarpment by later Beaver River Complex occupants. One of these—a classic Jimmy Allen point made of an opaque mottled grey and brown chert with black-coloured linear inclusions and light-coloured fibrous inclusions with heavily worn arrises (plate 6.6: 5)—was recovered from HhOv-193, a site otherwise assigned to the Beaver River Complex. An obliquely flaked lanceolate from HhOv-256, a site that was originally part of the HhOv-55 quarry (Wickham 2006a), has also been included in the Cree Burn Lake Complex. Excavations at HhOv-256 also recovered small, pitted anvil "nutting stones" and bipolar cores and wedges like those found at Beaver River Complex sites, however, suggesting that this site may have been dominated by a Beaver River Complex occupation.

Other sites of interest on the eastern Athabasca escarpment include the Cree Burn Lake site itself, HhOv-16, from which a snapped Early Precontact period lanceolate biface (Shortt and Reeves 1997, plate 17: 1) and snapped biface gravers were recovered. (The former reacted positively to caribou antisera, and one of the latter to deer antisera.) These snapped tools suggest a potential association with lanceolate point complexes, possibly the Cree Burn Lake Complex. At HhOv-167, not far south of HhOv-16, a lanceolate point (see plate 6.6: 7) was recovered during shovel tests (Saxberg, Shortt, and Reeves 1998, 28), as were a microblade core, microblades, and other tools and tool fragments. The lanceolate point, manufactured of what may be heat-treated Swan River chert, has been

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identified as a Mesa point on the basis of hand comparisons with casts of Mesa points (Kunz, Bever, and Adkins 2003).

Lanceolates are recorded from five sites on the western Athabasca escarpment (see table 6.4). Finds from early studies include a point from the Beaver River Quarry, HgOv-29 (Syncrude Canada Ltd. 1974, figure 6a: A; Ives 1993, figure 2b). Beaver River Complex artifacts were also found at this site, suggesting that the occurrence of the Cree Burn Lake Complex at HgOv-29 is similar to its occurrence at sites on the east side of the river. At least on the basis of the described artifacts, the other four sites (HhOv-2, HiOw-38, HiOw-52, and HiOw-30) appear to be part of the Cree Burn Lake occupations.

In the Birch Mountains, obliquely parallel-flaked lanceolate points have been recovered from three stratigraphically compressed sites. These include three manufactured of grey quartzite: two broken, then retipped, specimens from HjPd-1, the Gardiner Lake Narrows site (Ives 1981, figure 7, first row, second and third from the left; Ives 1993, figure 2: e, f), and one broken retipped specimen from HkPa-4 (Ives 1993, figure 2g). A retipped ground convex-based lanceolate, which Reeves observed in the RAM collections, came from HkPb-1 on Eaglenest Lake. It is manufactured from a dirty yellow brown chert.

Ives (1993, 9) draws comparisons between the three obliquely flaked quartzite lanceolates from the Birch Mountains and oblanceolate points from the Yukon and Alaska. While the Birch Mountain points do share certain similarities with these northern oblanceolate forms, they also generally fit within the range of variation for obliquely flaked lanceolates (excepting, perhaps, one of the Gardiner Lake Narrows specimens: see Ives 1993, figure 2: f) found in the both pre- and post-Cody lanceolate point complexes of the northwestern Plains and Rocky Mountains (Frison 1991; Reeves 1972; Husted and Edgar 2002; Johnson, Reeves, and Shortt 2004; Langemann and Perry 2002).

As noted above, the Cree Burn Lake Complex is not as well represented in the Athabasca lowlands and nearby Fort Hills as the temporally adjacent Nezu and Beaver River complexes (see tables 6.3 and 6.5). While the numeric differences may simply reflect differences in the length of occupancies, there also appear to be differences in site patterning between the Nezu Complex and the Cree Burn Lake Complex. Quite a few Cree Burn Lake Complex sites occur on the west side of the Athabasca River, in comparison to only one Nezu Complex site. On the eastern escarpment, the Cree Burn Lake Complex is poorly represented by primary sites (at least in the present sample): most occurrences appear to be secondary in nature and are associated with early Beaver River Complex sites. Nor does the Cree Burn Lake Complex appear to have an expression in the Quarry of the Ancestors. (There, very small lanceolate bases recovered from HhOv-305 are thought to be

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TABLE 6.4 Cree Burn Lake Complex sites and diagnostic artifacts

Borden no.	Elevation (masl)	Projectile points and other diagnostic tools	Reference(s)
HgOv-29*	256.00	1 lanceolate point, 1 point tip, 1 Agate Basin point	Syncrude Canada Ltd. 1974, figure 6: a
HhOv-2	297.00	Agate Basin point	Losey Freeman, and Priegert 1975
HhOv-16	292.98	Early period biface, snapped biface gravers	Shortt and Reeves 1997
HhOV-167**	273.67	1 Mesa point, microblades and/or microcores	Saxberg, Shortt, and Reeves 1998, plate 51: 1
HhOv-193*	277.00	Obliquely flaked Jimmy Allen point, of mottled grey and brown chert	Reeves et al. 2014c
HhOv-256**	274.54	Agate Basin point	Wickham 2006a
HhOv-445**	284.44	Blade midsection	Tischer 2005
HiOw-30	295.00	1 dark grey siltstone lanceolate point tip, 1 bipoint	Bryant 2004, plate III-5
HiOw-38	287.00	1 quartzite Agate Basin base, 1 Agate Basin point tip	Clarke 2002a, plate III-4
HiOw-52	318.00	Salt and pepper quartzite lanceolate point base	Bryant 2004, plate III-13
HjPd-1**	683.00	2 grey quartzite obliquely flaked lanceolate points, retipped	Ives 1981
HkPa-4**	714.00	Grey quartzite obliquely flaked lanceolate point, retipped	Ives 1993, figure 29
HkPb-1**	715.65	Dirty yellow chert lanceolate point	Reeves, examination at RAM

NOTE: The two sites marked with an asterisk (HgOv-29 and HhOv-193) are Beaver River Complex sites at which obliquely flaked lanceolate points were recovered. At sites marked with two asterisks, such points occurred in mixed stratigraphic contexts.

associated with the Firebag Hills Complex: see table 6.6.) In contrast, Cree Burn Lake Complex is seemingly better represented in the Birch Mountains than the Nezu Complex, with three occurrences as opposed to one. Possibly these differences in site patterning reflect a short-term variation in climate.

Neither Agate Basin nor Lusk points manufactured of MVMq have been reported south of the Lower Athabasca region. Obliquely flaked lanceolates of undescribed tool stone types occur at the Old Beach site (GlOc-30) on Buffalo Narrows at Peter Pond Lake, in nearby Saskatchewan (Millar 1983), and in dune field sites on the south shore of Lake Athabasca (Wilson 1981; Reeves, observation of collections at the Canadian Museum of Civilization, 1986). None of the points found in the Athabasca dune fields are manufactured of MVMq, however. Similarly, in his study of Northern Plano points from sites in the Mackenzie River area and Barrenlands and other point assemblages (such as that at Acasta Lake), Arnold (1985) did not identify any MVMq points. These data suggest that trade involving MVMq did not extend into these more northerly areas during Cree Burn Lake times. Perhaps the short-term but fast-acting adverse climatic events that took place at that time (see Alley and Ágústsdóttir 2005) marginalized seasonal settlement in the Athabasca lowlands, as similar adverse conditions may have done during the Little Ice Age.

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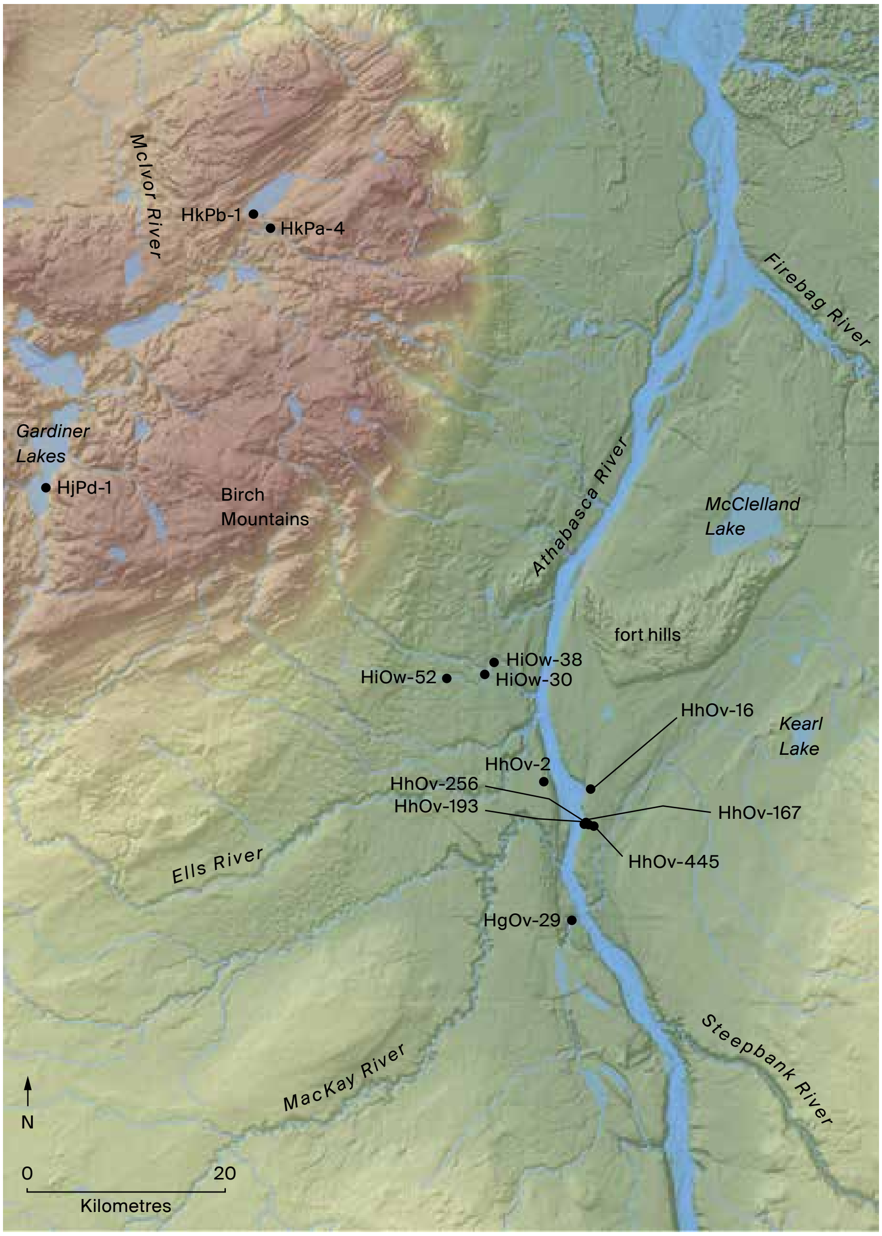

Figure 6.8. Cree Burn Lake Complex sites (ca. 8,600 to 7,750 BP)

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MIDDLE PRECONTACT PERIOD (PRE-TALTHEILEI) COMPLEXES (CA. 7,750 TO 2,650 BP)

During the Middle Precontact period, the Lower Athabasca region was dominated by two consecutive cultural complexes. The first of these was the Beaver River Complex, which endured for well over three millennia, from approximately 7,750 to 4,000 BP. The second was the Firebag Hills Complex, which existed from roughly 4,000 to 2,650 BP and immediately predated the appearance of the Taltheilei Tradition in the region.

Beaver River Complex (ca. 7,750 BP to 4,000 BP)

An early expression of the Beaver River Complex (ca. 7,750 to 7,000 BP) was proposed by Saxberg and Reeves (2003) to encompass the early side-notched dart point sites found during the 1998 and 1999 excavations in the Aurora North utility corridor (Reeves et al. 2014c). They took the name of the complex from the Beaver River Quarry, where excavations in 1974 first identified this style of point (Syncrude Canada Ltd. 1974). Later site components, containing side-notched points and/or Oxbow points, were not identified at the time of the Aurora North studies. Saxberg and Reeves (2003) chose a beginning date of about 7,750 BP for the Beaver River Complex. This date was based on the earliest dates for the appearance of large side-notched dart points at sites in the northwestern Plains and Rocky Mountains to the south, including the Hawkwood site in Calgary (Van Dyke and Stewart 1984), the James Pass site (Ronaghan 1993), and the Boss Hill site (Doll 1982) (see fig 6.4).

Although, as others have pointed out (see Green et al. 2006, for example), many of the side-notched points in the Beaver River Complex are comparable to side-notched specimens from the Gowen site at Saskatoon (Walker 1992) and other sites in the Upper Saskatchewan and Missouri basins, they also compare well to side-notched points illustrated by Wright (1972a) and Gordon (1996) from Shield Archaic sites to the northeast that date from about 6,450 to 3,500 BP. Lanceolate points also occur in early Beaver River sites (such as HhOv-112, plate 6.6: 2–4), as they do in early Mummy Cave sites in the Northern Rockies (Reeves 1972).

Oxbow and stemmed indented-base points (similar to Duncan points) occur in terminal Shield Archaic sites. Gordon (1996) has good radiocarbon control on his terminal Shield Archaic components. Stemmed indented-base points have been dated to 4,040 ± 125 ^{14}C yr BP (S-1435) at KeNi-4, on Whitefish Lake (Gordon 1996, table 9.1). We have therefore considered sites that contain Oxbow

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and/or stemmed indented-base points to represent the late expression of the Beaver River Complex and have selected 4,000 BP as the end date for the complex.

The Beaver River projectile point assemblage (table 6.5 and plate 6.7) includes side-notched dart points and occasional broad corner-notched dart points, as well as the Oxbow and stemmed indented-base points found in later components. The side-notched dart points include both square and rounded or pointed basal edge variations. In the context of the Northern Rockies of Montana and Alberta, these variations are known as Bitterroot and Salmon River Side-Notched points. Also present are side-notched points with convex bases, a variant found in Shield Archaic and age-equivalent sites in northern British Columbia and the Yukon. Square and convex-based narrow-bladed lanceolates may also occur, particularly in early components, some of which may be point preforms.

A number of biface types are present, most of which are produced on bipolar cores and blanks. Finished biface forms are the result of bifacial reduction and generally include:

- small-sized, thick asymmetric subrectangular, ovate, and trianguloid forms, which are sometimes backed
- subrectangular to subovate forms with one or more strongly convex-shaped edges
- backed bifacially worked bipolar cores with lateral edges and ends that resemble oversized side blades
- bifacially worked edge pieces.

The first category is less common than the others.

End scrapers include some that are manufactured on recycled Nezu Complex microblade cores, as well as small flake end scrapers that are sometimes notched and have graver spurs with retouch confined to the distal end and lateral edges. Dorsally finished forms are rare or absent. Flake side scrapers include a distinctive backed form with one worked lateral edge combined with an obliquely set distal working edge.

Also found are adzes and gouges that are relatively large in size. Frequently they are manufactured on bipolar core edge flakes and often appear to have been utilized as gravers or pseudo-burin blanks. Flake burins are present, particularly in early components, and include angle, transverse, and carinated forms. Notched burins are absent, and backed burins uncommon. One particular manufacturing technique for gravers and burins involves radially fracturing thin pieces

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TABLE 6.5 Beaver River Complex sites and diagnostic artifacts

Borden no.	Elevation (masl)	Projectile points and other diagnostic tools	Reference(s)
HcOs-3	478.00	1 Oxbow point, 1 quartzite dart point	Pollock 1978b, figure 43: 15 and 16
HgOv-29	256.00	Side-notched point	Syncrude Canada Ltd. 1974, figure 6: b
HgOv-31	251.00	Oxbow (?) point	Sims 1976, figure 12: c
HgOv-32	256.00	Side-notched point	Sims 1976, figure 12: b
HgOv-50	245.00	1 grey siltstone Duncan-like point, 1 quartzite side-notched dart point	Gryba 1980; Reeves et al. 2014c
HhOv-4	280.00	Side-notched point	Ronaghan 1981a
HhOv-17	276.13	Quartzite notched point base	Green et al. 2006, plate I-22
HhOv-16	292.98	3 Oxbow points, 1 small quartzite stemmed point	Ives 1993, plate I-28; Head 1979; Clarke and Ronaghan 2000
HhOv-55	271.00	Notched point tip	Wickham 2006b
HhOv-87	297.90	Northern quartzite side-notched point	Clarke and Ronaghan 2000, plate I-8
HhOv-112	280.25	Side-notched point, bipolar technologies	Reeves et al. 2014c
HhOv-113	282.35	3 side-notched points, bifacial knife, bipolar technology	Green et al. 2006; Unfreed 2001, plate 22
HhOv-146	283.19	Bedded volcanic side-notched point	Reeves, examination at RAM
HhOv-163	295.93	5 quartzite notched points, 1 black chert notched point	Reeves et al. 2014c
HhOv-191	283.26	Fishtail point	Green et al. 2006, plate I-55
HhOv-193	276.82	White orthoquartzite side-notched dart point, bipolar technology	Reeves et al. 2014c
HhOv-212	277.09	Side-notched point	Green et al. 2006, plate I-65
HhOv-265	280.00	Swan River chert side-notched point	Reeves, examination at RAM
HhOv-282	291.00	Quartzite side-notched point	Clarke 2002a, plate III-I
HhOv-302	280.59	Early Beaver River point base	Saxberg 2007, plate B.36
HhOv-305	282.48	2 side-notched points	Saxberg 2007, plate B.8: a and b
HhOv-308	280.54	Quartzite side-notched point	Saxberg and Reeves 2004, plate 65: d
HhOv-319	281.91	Oxbow point	Saxberg and Reeves 2004, plate 65: e
HhOv-332	282.24	Grey chert side- or corner-notched point	Saxberg 2007, plate B.29: a

of MVMq (about 12 mm thick) and using these pieces as gravers or burin blanks. Corner and end gravers as well as notches are common in the assemblages. One diagnostic type is notched flake corner gravers. Denticulates may occur.

Wedges are extremely common. Most are manufactured on bipolar cores, but some are made on thin, transversely snapped, recycled Nezu biface and point blade fragments, which were then worked on all four edges to produce a thin, discoidal-shaped tool. Sometimes the distinctive Nezu thin, flat flaking remains visible.

Quartzite, granodiorite, and diorite cobbles were used as hammer and anvil stones in bipolar reduction. Semicircular pitted "nutting stones," of roughly the same shape and size as cobbles and made of the same materials, sometimes with

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what appears to be red ochre staining, were also found in early Beaver River sites. One of these "nutting stones," from HhOv-112, tested positive for *Chenopodium.*

Bipolar reduction characterizes the core, flake, and tool blank manufacturing trajectory, as is clearly evident from the large numbers of bipolar cores and preforms, core edge fragments and flakes, finished tools such as backed bifaces, and flakes with bifacial edges and wedges, as well as cores and core fragments, found in many Beaver River sites in which tool fabrication and modification were major activities. This bipolar technology was designed to maximize the use of quarry pieces of a specific shape and size (including earlier Fort Creek Fen and Nezu Complex cores and tools), which were obtained either by mining or by collection from outcrops and/or earlier archaeological sites, to produce a wide set of tool blanks and tools. Much of the MVMq used is of low quality, suggesting that the high-quality, fine-grained MVMq that characterizes the earlier Nezu and Fort Creek Fen assemblages may have been largely mined out by Beaver River times.

Multifaceted microblade cores and numbers of microblades do occur in some sites. Primarily they are face-faceted and pillar, tabular, or, on occasion, conical in form (de Mille and Reeves 2009, plate 20: 5 and 6). They can be difficult to discriminate from bipolar cores and related debitage, as the latter often have microblade-like facets (as, for example, at HhOv-113; Green et al. 2006, plate I-40).

Beaver River Complex tool stones other than MVMq include Swan River chert and Northern quartzites. The tool stone pattern exhibits some significant differences from those of the earlier Nezu Complex, one of which is the small, but variable, amounts of various quartzes and vein quartzes of Canadian Shield provenance. These range from milky-white opaque to translucent varieties, and some contain muscovite flecks. Most of the material probably came from the Grandfather Quarry complex on Granville Lake in northern Manitoba (Brownlee and Sitchon 2010), as the Athabasca lowlands specimens are visually identical to specimens from these quarries (Kevin Brownlee, pers. comm. regarding HhOv-212 specimens, 2010). These tool stones were particularly common at HhOv-212.

Similar frequencies of these specific quartz varieties occur in the Beaver River Complex component at the Old Airport site (HcOi-1) and at Saleski Creek (HcOi-2), just east of Lac La Loche (Hanna 1982; Reeves, personal examination of the University of Saskatchewan collections, 2006). The high quality of the quartz tool stone at these sites and the lack of a pebble- or cobble-weathered cortex suggest to us that primary outcrops or large erratic boulders were accessed by Beaver River Complex peoples. The material may represent an exchange pattern between groups that wintered together in the Lac La Loche–Peter Pond Lake area, with some groups migrating to the northeast or down the Churchill River in

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summer, where they obtained the quartz, and others travelling to the Athabasca lowlands in summer, where they obtained MVMq. Then, upon their return to the wintering range, they could have exchanged tool stones in nearby encampments.

Other non-local tool stones appear in Beaver River components at HhOv-112, which is part of a very large, repeatedly occupied early Beaver River site complex that includes HhOv-17, HhOv-113, HhOv-193, and HhOv-212. Among these tool stones are Lake One Dune chert, black Peace River chert, specific varieties of copper-enriched chalcedonies and green cherts, and fine-grained volcanics (basalt, andesite, and rhyolite). Two small obsidian retouching flakes of visually different varieties recovered from HhOv-112 were sourced, one green in colour to Mount Edziza and the other to Batza Tena, suggesting that these non-local tool stones probably originated in northern British Columbia. The presence of these northern British Columbia tool stones suggests seasonal movement of water-craft-born groups who wintered in the upper reaches of the Peace River and, in the spring, travelled downstream to the Peace-Athabasca delta and then up the Athabasca, where they co-occupied areas with groups that had wintered in the Lac La Loche–Peter Pond Lake area and at the headwaters of the Churchill.

The Beaver River Complex is well represented in the Lower Athabasca region, with thirty-eight sites or site components so far identified, including a number at the Quarry of the Ancestors. One site of note is HiOu-55, located on Stanley Creek, on the south side of the Fort Hills, from which an Oxbow-like point and two convex-based, side-notched points were recovered, along with a possible McKean lanceolate (Somer and Kjar 2007, plate 52: d, f, g and e, respectively). The McKean lanceolate, which shows traces of fire burning, is the only such find that we are aware of from the Athabasca lowlands.

On the west side of the Athabasca River, the Beaver River Complex is represented at the Beaver River Quarry site (HgOv-29) by a typical early Beaver River side-notched point (Syncrude Canada Ltd. 1974, figure 6: B). It is further represented at three other nearby sites, including HgOv-50, at the Peter Lougheed Bridge, which also has a Firebag Hills component, and two other sites downstream, in the area of CNRL's Horizon Project.

A late Beaver River Complex occupation is represented at HcOs-3, located on Gregoire Lake, to the south of Fort McMurray (Pollock 1978b, 116–118). Excavations at the site yielded fine-grained, white quartzite Oxbow point, along with an MVMq dart point of the style found in Beaver River Complex sites (Pollock 1978b, figure 43: 15 and 16).

The Beaver River Complex is well attested to the north, in the Birch Mountains area, by finds from five sites (see fig 6.9). Most of the points from Beaver River Complex sites are manufactured of grey quartzite. The Gardiner

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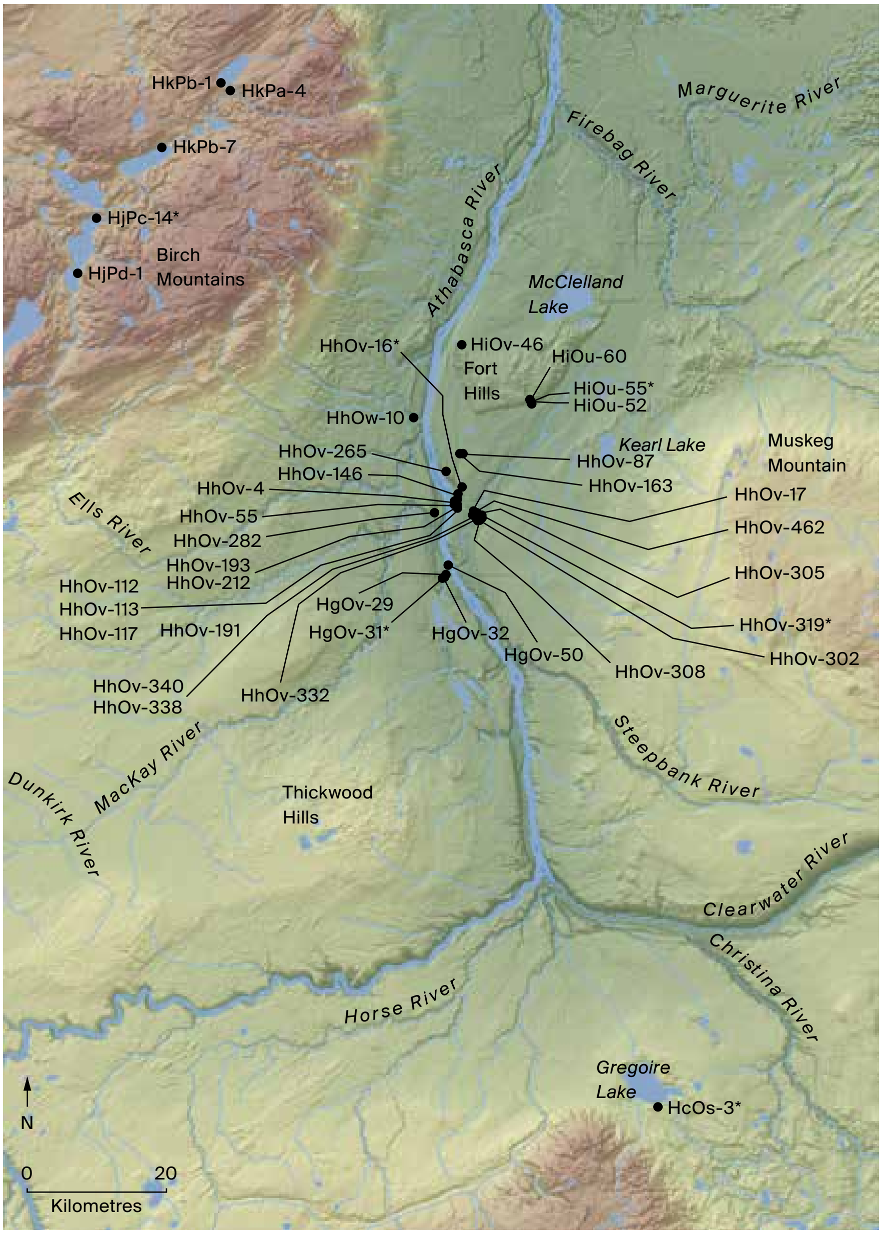

Figure 6.9. Beaver River Complex sites (ca. 7,750 to 4,000 BP). An asterisk indicates the presence of Oxbow or stemmed, indented-base points.

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Lake Narrows site (HjPd-1) contained both early and late side- and corner-notched dart points, including examples of the early form with a convex base (Ives 1993, figure 6, row 2, third and fourth from the left, and row 3, first and second from the left). In addition, the complex is represented to the east, in the Firebag Hills–Descharme River headwaters, by two isolated side-notched point finds, one manufactured of MVMq (Reeves, Cummins, and Lobb 2008).

The Beaver River Complex is thus well represented in sites in various areas of the Lower Athabasca region, both in the lowlands and in local uplands such as the Fort Hills, and the Birch Mountains. Quarrying and workshop activities continued at the Quarry of the Ancestors during the Beaver River period, which spanned over three millennia. During this time, there was probably a significant shift in settlement to the occupation of Athabasca River valley terraces and hospitable locales along the escarpment, such as Cree Burn Lake.

We view Beaver River peoples as a part of a larger, regionally focused group whose traditional territory extended southeastward at least as far as Peter Pond Lake. As had earlier inhabitants of the Lower Athabasca region, Beaver River peoples continued to make seasonal use of the Clearwater–Methye Portage–Lac La Loche route between Peter Pond Lake and the Lower Athabasca. MVMq is common in sites on Lac La Loche (see Fenton and Ives 1982, 1990) and Peter Pond Lake, and at Buffalo Narrows, and some of the MVMq side-notched points collected from surface surveys or test excavations date to the period of the Beaver River Complex. These include a side-notched point found in excavations beneath the main room of La Loche House (HdOj-1) (Steer 1977, figure 35: f), as well as points from Saleski Lake collected by David Meyer in 1978 (Reeves, personal examination of the University of Saskatchewan collections, 2006), from the Old Airport site (HcOi-1) on Saleski Creek, test-excavated by Hanna (1982), and from the Old Beach site (GlOc-30) at Buffalo Narrows (Millar 1983) (see fig 6.4).

MVMq side-notched points have not been reported for the Shield Archaic sites discussed by Gordon (1996), although the collections at the Canadian Museum of Civilization, both from these sites and from other sites of equivalent age in the Mackenzie region, have not yet been examined specifically for the occurrence of MVMq. As the presence of quartz tools demonstrates, however, Beaver River Complex peoples who resided in the Lower Athabasca area participated in the Shield Archaic Tradition of the northern boreal forest and the Barrenlands, interacting with culturally related groups situated farther north and west in the forests of the Upper Athabasca and Peace rivers. In addition, Beaver River peoples had contact with groups in the parklands and plains to the south. This is indicated not only by the early side-notched point styles and specific

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biface types but also by the presence of bipolar reduction technology (Kasstan 2004; Low 1997; Walker 1992), which is associated in those regions with the working of quartzite and cobbles and pebbles of chert.

As noted above, the appearance of Oxbow points at a number of sites in the Lower Athabasca basin, as well as at other locations such as the Alook site (Sims 1981), La Loche House (Steer 1977), the Old Airport site, Saleski Creek (Hanna 1982), and the Old Beach site (Millar 1983; see fig 6.4), is more likely to represent the adoption of this point style by regionally resident groups, as it does in the Northern Rockies and on the northern British Columbia plateau, than the appearance of hunters from the Plains. Of interest, however, is the apparent absence in these northern forests of McKean lanceolates or other features of the McKean Complex of the northwestern Plains and Rocky Mountains. As noted above, one fire-burned point from HiOu-55 in the Fort Hills is stylistically similar to a McKean lanceolate. In addition, a stemmed, indented-base point recovered from HgOv-50 bears some resemblance to a Duncan point, another characteristic style of the McKean Complex. These artifacts may best be regarded as evidence of possible contact between the cultural traditions represented by the Beaver River Complex and Plains cultures.

Firebag Hills Complex (ca. 4,000 to 2,650 BP)

The Beaver River Complex was succeeded by a technologically, and presumably linguistically and culturally, unrelated complex that we call the Firebag Hills Complex. It is part of the larger Pre-Dorset Arctic Small Tool Tradition of the northern edge of the boreal forest and the Barrenlands, which has been dated to 3,450 to 2,650 BP in these areas (Gordon 1996). Ives (1981) was the first to recognize the stylistic similarities between points from the Birch Mountains and Arctic Small Tool Tradition lanceolates (see also Van Dyke and Reeves 1984). We take the name of this complex from the Firebag Hills, an area that straddles the Alberta-Saskatchewan border north of the Clearwater River. Archaeological studies in that region (Reeves, Cummins, and Lobb 2008) have identified a number of the tools distinctive of the Arctic Small Tool Tradition as discussed by Gordon (1975, 1996).

The Firebag Hills tool assemblage (table 6.6 and plate 6.8) includes thin, triangular-shaped points or end blades, lateral blade and side-blade insets, and small, notched points. Other tools include finely made spurred end scrapers, micrograyers (sometimes notched and often manufactured on prismatic microblades), transverse and mitt burins, microblades, and microcores (plate 6.10: 7–9). The non-MVMq tool stone assemblage includes a high-quality,

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TABLE 6.6 Firebag Hills Complex sites and diagnostic artifacts

Borden no.	Elevation (masl)	Projectile points and other diagnostic tools	Reference(s)
HdOs-2	254.00	Graver point, scrapers (black chert)	Donahue 1976
HgOv-29	256.00	Side-notched point	Syncrude Canada Ltd. 1974, figure 6: b
HgOv-50	245.00	Peace River chert end blade; FBH assemblage	Reeves et al. 2013b
HgOv-85	240.00	FBH assemblage	Reeves et al. 2013b
HiOu-14	293.00	Microblades, microcores, gravers	Saxberg, Somer, and Reeves 2004
HiOv-89	303.19	Microblades, microcores	Unfreed 2001, HiOv-89 site inventory form (05-328)
HiOw-44	293.00	End scrapers (some quartzite)	Clarke 2002a
HiOw-37	291.00	Bifaces, end scraper (quartzite)	Bryant 2004, 2005
HiOw-39	272.00	End scraper, micrograver (salt and pepper quartzite)	Tischer 2006
HiOw-43	265.00	Chalcedony side-notched point	Tischer 2006, plate 16
HhOt-32	313.00	Brown quartzite side-notched point base	Bouchet-Bert 2007, plate 33
HhOu-56	308.00	Small notched point, 3 bifaces or point tips	Green et al. 2006, plate I-9
HhOv-3	274.99	Notched burin	Sims 1977
HhOv-18	280.00	2 side-notched points	Ronaghan 1981b, plate 23: 1 and 2
HhOv-73	294.32	Multiple tools (cherts and quartzites)	Ronaghan 1981b; Le Blanc 1985; Le Blanc and Ives 1986; Green and Blower 2005
HhOv-78	285.79	Small notched point	Clarke and Ronaghan 2004, plate HhOv-78-1
HhOv-87	298.00	Small notched point, of chert (isolated find)	Reeves et al. 2014a
HhOv-304	278.00	2 side-notched points, 2 lanceolate side blades, microtools, and other tools (quartzite)	Saxberg 2007; de Mille and Reeves 2009
HhOv-305	282.48	Lanceolates	Saxberg and Reeves 2004, plate 65: a and b
HhOv-307	281.89	Lanceolate point	Saxberg 2007, plate B.11: a
HhOv-324	277.00	Notched graver, end scraper	Saxberg 2007
HhOv-364	277.00	Brown quartzite lanceolate point	Tischer 2004, plate 155
HjPc-14	646.00	Two ovate points, side blades (quartzite)	Donahue 1976, plate XII: g and h
HjPd-1	683.00	Thin lanceolate point (quartzite)	Ives 1993, figure 5
HkPa-4	714.00	Thin lanceolate point (quartzite)	Ives 1993, figure 5
HkPb-1	715.65	Black chert side-notched point	Ives 1993; Reeves, examination at RAM

honey-to-brown-coloured Northern quartzite, as well as other varieties of that stone; pebble cherts, including black and olive green; and a distinctive banded cream-and-white chert that appears to be the same as that described by Gordon (1996) as a diagnostic Pre-Dorset tool stone type. Bipolar technology associated with the reduction of Northern quartzite or chert pebbles dominates. The frequency of MVMq varies, with sites on the Athabasca River, such as HgOv-50 and HgOv-85, containing small amounts of poor-quality MVMq. Both sites also contained some fire-cracked rock, suggesting that they might represent early-spring occupations by groups returning to the lowlands who had not yet accessed, or could not yet access, the Quarry of the Ancestors (Reeves et al. 2013b).

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The Firebag Hills Complex is represented in the Lower Athabasca region by twenty-six sites (see fig 6.10). At this time, the tree line was both latitudinally and altitudinally depressed relative to its present position. The region may therefore have been either within or adjacent to the main wintering range of the Beverly caribou herd and thus seasonally occupied by Pre-Dorset Tradition peoples who followed the migrations of this herd between its wintering grounds at the edge of the boreal forest and its summer habitat in the Barrenlands to the north (Gordon 1975, 1996).

The Bezya site (HhOv-73) is assigned to the Firebag Hills Complex. Located more or less midway between the Athabasca and Muskeg rivers some 4 kilometres northeast of Cree Burn Lake, the site was discovered in 1980 during shovel prospecting on an elevated knoll located in Alsands Lease 13 (Ronaghan 1981b: 88–99). Ronaghan's initial studies, as well as those of Le Blanc in 1982 and 1983 (Le Blanc 1985; Le Blanc and Ives 1986), recovered microblades and microcores, core tablets, and a notched transverse burin and other tools but no projectile points. Twenty-five faunal fragments were found and were radiocarbon dated to 3,990 ± 170 ^{14}C yr BP (Beta-7839). More recently, in 2000 and 2003, Golder Associates Ltd. (Green and Blower 2005) carried out mitigative excavations, as the site would be destroyed in the development of Shell's Albian Sands Muskeg River Mine open pit. While they did not find any projectile points, they did recover a number of other tools, which include a typical Pre-Dorset knife that, as illustrated by Green and Blower (2005, plate III-1), compares favourably with one illustrated by Gordon (1996, figure 8.7, KeNi-4: 125 and KeNi-4: 263).

To date, the Firebag Hills Complex is very poorly represented at sites along the escarpment on the east side of the Athabasca River, generally by isolated finds such as a small, side-notched dart point made of brown-and-white chert from HhOv-87 (plate 6.8: 11). This weak representation appears to reflect a transitory occupation of the escarpment and a preference for lower terraces within the river valley. In contrast, the Firebag Hills Complex is well represented at the Quarry of the Ancestors site complex on the Muskeg River, where it was identified at five sites. Among the sites of interest is HhOv-304, located on a ridge on the northwest margin of the Quarry of the Ancestors (Saxberg 2007; de Mille and Reeves 2009). Excavations at the site—a large workshop and campsite characterized by a number of distinct occupational loci—yielded a number of points. Two lanceolate points were recovered from Locus 6. One is a thin, finely crafted lanceolate point, over 5 centimetres in length but broken in manufacture (plate 6.8: 8). Lanceolate points of this nature are common in Pre-Dorset occupations in the Barrenlands (Gordon 1975, 1996), although Arctic archaeologists tend to call them "end blades." The other was also broken in manufacture (plate 6.8: 7; see

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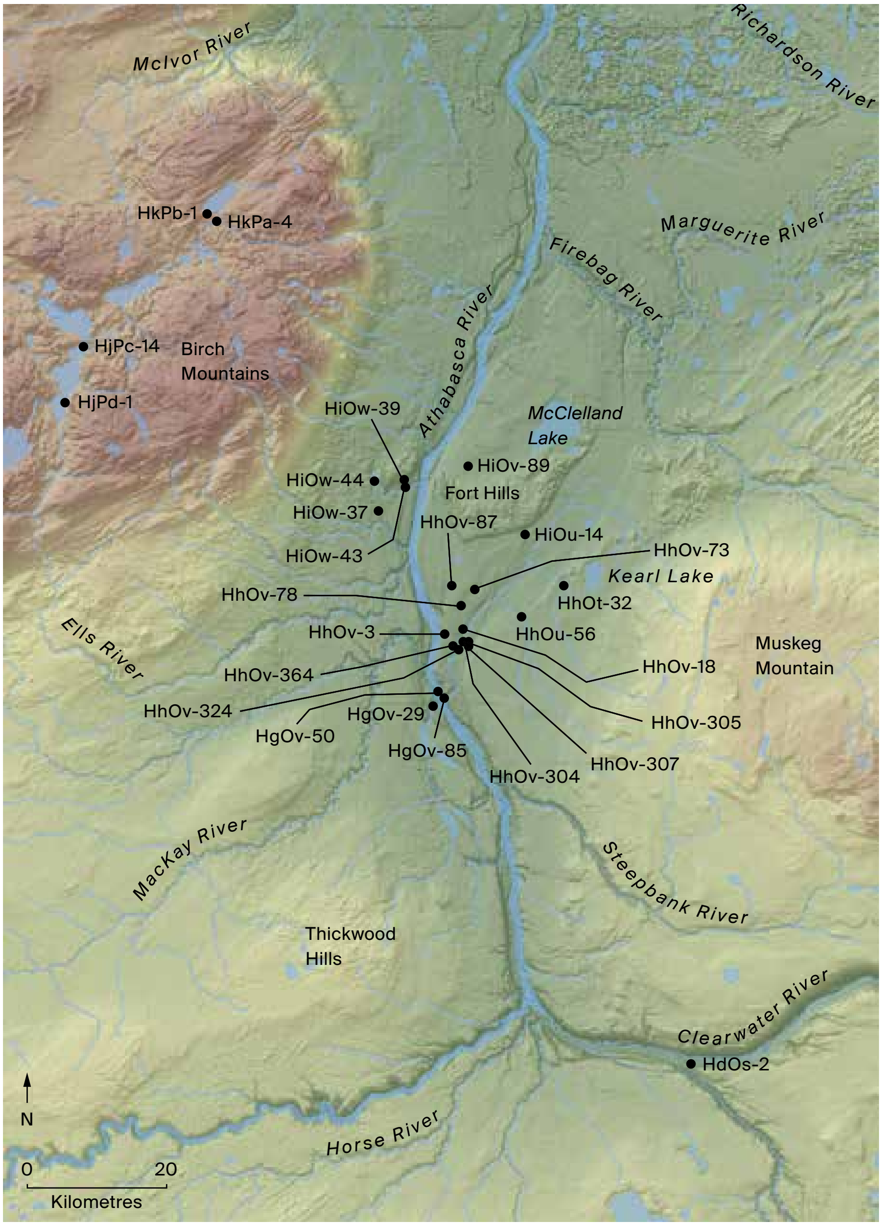
Figure 6.10. Fire Bag Hills Complex sites (ca. 4,000 to 2,650 BP)



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also de Mille and Reeves 2009, plate B.1: a and c). In addition, a small, stemmed point was recovered (plate 6.8: 13), along with a side blade (de Mille and Reeves 2009, plate B.1: e and g, respectively).

Side-notched points from Locus 6 are represented by a complete side-notched quartzite point (plate 6.8: 14; see also de Mille and Reeves 2009, plate B.1: b), as well as a side-notched point snapped diagonally across the shoulders and a large side-notched convex point made of black chert that appears to have been recycled and reworked as a knife (de Mille and Reeves 2009, plate B.1: d and f). A variety of other tools, including microblades and microgravers and notched microblade gravers, were also found in Locus 6. Although MVMq overwhelmingly dominated the Locus 6 assemblage (99.78%), 202 non-MVMq artifacts were recovered, a number of which were tools.

Two small, side-notched point bases (plate 6.8: 12; Saxberg 2007, plate B.5: a and b), one of which was manufactured of orange-brown quartzite, were recovered from Locus 1 and Locus 2 at HhOv-304. Locus 1 also yielded a number of notched graving tools manufactured on microblade and microblade-like flakes (plate 6.8: 9 and 15–18; Saxberg 2007, plate B.7), which Saxberg (2007, 33) notes are "formally and functionally similar to notched 'burin-like' tools found at Dorset sites in the Canadian Arctic." These tools also occur in the Pre-Dorset sites (Gordon 1996, figure 8.6: KjNb-7: 11-95). HhOv-304 also contained a small, finely crafted spurred end scraper of brown megaquartzite similar to styles found in Gordon's Pre-Dorset sites. Positive reactions were obtained to deer antisera on an awl fragment and to cat antisera on a scraper.

Other sites of interest in the Muskeg drainage are two campsites, HhOv-18 (Ronaghan 1981b), situated not far north of the Quarry of the Ancestors, and HhOu-56, located to the east, on Jackpine Creek. Excavations at the latter (Green et al. 2006) recovered a blade fragment of a small, corner-notched point (Green et al. 2006, plates I-8 and I-9) and the tips of three small, thin projectile points or bifaces, which may be lateral blade inserts (Green et al. 2006, plate I-9). These specimens are comparable to those illustrated by Donahue for HjPc-14 (Donahue 1976, plate XII: l and m). Other tools include end scrapers, a micrograver manufactured on a microblade (Green et al. 2006, plate I-11), wedges, and a bipolar microblade core (Green et al. 2006, plate I-14).

The Firebag Hills Complex is represented by two sites in the Fort Hills, HiOu-14 and HiOv-89. Of interest is an obsidian flake sourced to Mount Edziza, which was recovered from HiOu-14, located at the mouth of Stanley Creek. HiOu-14 also contained microblades and microcores (plate 6.10: 9), wedges, a micrograver, and bipolar split pebbles of black chert (Saxberg, Somer, and Reeves 2004, 35–37; Somer 2005). Another probable Firebag Hills Complex site is

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HiOv-89 (Unfreed, Fedirchuk, and Gryba 2001; Younie 2008). Excavations at this site recovered a number of microblade cores, microblades, burins, and other tools. Pebble cherts were dominant.

Six Firebag Hills components have been identified on the west side of the Athabasca River (see fig 6.10), including HgOv-50, located on the 10-metre-high river terrace at the Peter Lougheed Bridge. Further to the south, the Firebag Hills Complex is also represented on the Clearwater River in the artifact assemblage collected by Donahue in 1975 from HdOs-2, located on an 8-metre-high terrace (Donahue 1976, 49–50). Two of the unifaces that he illustrates are dorsally unretouched triangular to subrectangular end scrapers, possibly with graver points (Donahue 1976, plate IV: e and f). According to Donahue (1976, 51), another uniface had a burin-like scar.

The Firebag Hills Complex is represented at four sites in the Birch Mountains. Thin, lanceolate-shaped points of grey quartzite recovered from Gardiner Lake Narrows (HjPd-1) and Eaglenest Portage (HkPa-4) were recognized as being "similar to Arctic Small Tool tradition artifacts from the central Northwest Territories" (Ives 1993, 12 and figure 5). Other sites of interest include HjPc-14, on Big Island Lake, test-excavated by Donahue, where a charcoal concentration yielded an age of 3,610 ±120 ^{14}C yr BP (RL-5333; Donahue 1976). Among the artifacts Donahue recovered were two ovate points (Donahue 1976, plate XII: g and h), both manufactured of grey quartzite, which fit well into the Firebag Hills Complex. From Donahue's description (1976, 102), side blades are also present, although they are illustrated in his thin biface category.

Another site in the Birch Mountains is Satsi (HkPb-1), on Eaglenest Lake, where a small black chert side-notched point was collected that fits within the range of variation for side-notched points found in the Firebag Hills Complex (Reeves, personal examination of the collections at RAM). A smudge pit was also found in test excavations at the site and was radiocarbon dated to 2,795 ± 85 ^{14}C yr BP (S-2174; Ives 1993, 11). Microblades and microcores have not been identified at sites in the Birch Mountains, however, in contrast to Firebag Hills Complex sites in the lowlands, including those in the Fort Hills. Given that evidence of the manufacturing and use of microblades was also present in the earlier Beaver River and Nezu complexes in the lowlands, the absence of such evidence from the Birch Mountains suggests to us a difference in hunting strategies between these areas.

As noted earlier, the Firebag Hills Complex also occurs in the area of the Firebag Hills and Descharme River headwaters, where it is represented in ten sites, as reflected by its distinctive tool kit (Reeves, Cummins, and Lobb 2008). Millar (1983) illustrates three unnotched triangular points from sites at Buffalo

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Narrows that fit comfortably with those associated with the Firebag Hills Complex.

In view of the relatively short temporal duration of the Firebag Hills Complex (roughly 1,500 radiocarbon years), its presence in the Lower Athabasca region appears to have been fairly intense in comparison to the following Chartier Complex, which endured for well over two millennia. The contrast may reflect a local intensification of occupancy and resource harvesting during the Firebag Hills period in response to a climatic event that resulted in the southward shift in the tree line and thus in the seasonal range of the Beverly caribou herd (Gordon 1975, 32–56).

LATE PRECONTACT PERIOD: THE CHARTIER COMPLEX (CA. 2,650 TO 300 BP)

The Chartier Complex is the regional representative of the Taltheilei Tradition in the Lower Athabasca–Lac La Loche–Peter Pond Lake region (see fig 6.4). This complex, first proposed by Millar (1983), takes its name from the Martin Chartier (GlOc-20) and Bernadette Chartier (GlOc-21) sites on the Kisis Channel at Buffalo Narrows (Millar 1983; Millar and Ross 1982). Excavations at these and nearby sites in the early 1980s indicated the presence of major Taltheilei occupations spanning the entire duration of the Taltheilei Tradition. Some 10% to 15% of the tool assemblage is manufactured of MVMq, indicating a significant relationship between Taltheilei Tradition occupations there and those in the Lower Athabasca (Reeves, personal examination of the University of Saskatchewan collections, 2006).

In the boreal forest and Barrenlands, the Taltheilei Tradition follows the Pre-Dorset Tradition and is generally understood to represent the precontact Dene occupation of the region. On the basis of changes in artifact types and styles, the tradition can be divided into three successive phases: the Early (2,650 to 1,800 BP), the Middle (1,800 to 1,300 BP), and the Late (1,300 to 200 BP) (Gordon 1996).[13] The Late Taltheilei is characterized by both spear or dart points and arrow points.

In general, the Taltheilei stone tool assemblages from the Lower Athabasca region fit well with those described by Gordon (1996) and Le Blanc (2005), and the reader is referred to these, as well as to Ives's reports on site HkPa-4, in the Birch Mountains (Ives 1977, 1985), for descriptions and illustrations. Among the tools and technologies useful in identifying Taltheilei sites in the Lower Athabasca region is the bipolar split chert pebble technology (discussed below

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for HgOv-107) and the presence of elongated, bi-pointed, leaf- or lanceolate-shaped bifacially worked adze-like tools, which are characterized by plano-convex transverse sections. Other typical tools include chithos. Care must be taken in discriminating these tools from the cortical spall tools found in the Nezu Complex (Reeves, Bourges, and Saxberg 2009).

The Chartier Complex is on the whole well represented in the Lower Athabasca region, with a total of twenty-five sites, site components, or isolated occurrences assigned to this complex (table 6.7 and fig 6.11). However, it does not appear to be represented along the eastern escarpment of the Athabasca River, which probably reflects the focus of the great majority of studies to date on the higher terraces and the river escarpment benchlands above these terraces rather than on the lower river terraces. That the latter were occupied, however, has been known since 1975, when, during the course of his canoe-based reconnaissance of the Athabasca River, Donahue (1976, 55) located a site (HhOv-29) on a low terrace of the river, where he recovered split black chert pebbles, a black chert uniface, and some MVMq flake and core fragments. Donahue also recorded a site (HgOv-33) on a low terrace near Saline Lake that had "metal" in it and an MVMq biface (Donahue 1976, 51 and plate V: g). (Unfortunately, the "metal" is not described in the report's artifact analysis.) The only other find is an isolated lanceolate bipoint at HgOv-92, a site situated on the edge of a highway borrow source 2.3 kilometres north-northeast of the Peter Lougheed Bridge (site inventory form, Archaeological Research Permit 00-175). The point, examined by Reeves at the RAM, compares favourably with Middle Taltheilei specimens illustrated by Gordon (1996, figure 5.2: see, for example, KjNb-7: 2-38).

The Chartier Complex may be somewhat better represented in the Muskeg River drainage by two isolated finds (HhOt-14, HiOs-2) in the vicinity of Kearl Lake, as well as farther downstream at HhOu-50, located at the mouth of Jackpine Creek, and possibly southwest of the Quarry of the Ancestors, at HhOv-391 and HgOv-107. HhOu-50 artifacts include a small arrow point of the general Prairie Side-Notched style (plate 6.9: 2; see also Clarke and Ronaghan 2000, plate I-4), typical of the forms found in Late Taltheilei sites on Peter Pond Lake (Reeves, personal examination of the University of Saskatchewan collections, 2006).

The HgOv-107 assemblage (Saxberg and Reeves 2006, 35–36) lacks projectile points but contains a number of bipolar split black chert pebbles and bipolar flakes worked and/or used as tools (Saxberg and Reeves 2006, plate B.3). This site could be an earlier Firebag Hills Complex occupation, as some burins are present (although no microcores or microblades). However, the bipolar split black chert pebble industry resembles that represented at Late Taltheilei sites in the Birch Mountains, such as Eaglenest Portage (HkPa-4; Ives 1977, plate 13),

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TABLE 6.7 Chartier Complex sites and diagnostic artifacts

Borden no.	Elevation (masl)	Projectile points and other diagnostic tools	Reference(s)
HeOn-1[a]	283.87	Dart point, split black chert scrapers	Pollock 1978b, figure 38: 1
HdOr-1	256.00	Dart point, split black chert scrapers	Pollock 1978b
HcOn-3[b]	478.00	Split black chert pebbles, Avonlea dart point	Pollock 1978b
HcOs-1	477.00	Late Taltheilei arrow point, Avonlea arrow point, point tip, point base, split black chert pebbles	Pollock 1978b
HgOv-22	297.00	Side-notched dart point, barbed bone point, chitho, split pebbles	Syncrude Canada Ltd. 1973
HgOv-33	232.69	Biface	Donahue 1976, plate V: g
HgOv-92	274.63	Lanceolate bipoint	HgOv-92 site inventory form (00-175)
HgOv-107	301.00	Split black chert pebbles	Saxberg and Reeves 2006
HhOt-14	318.00	Late Taltheilei dart point	Clarke 1998, figure IV-4
HhOu-50	282.94	Late Taltheilei arrow point	Clarke and Ronaghan 2000
HhOu-73	303.02	Corner-notched arrow point	Somer and Kjar 2007, plate 52: p
HhOv-29	241.00	Split black chert pebbles	Donahue 1976
HhOv-294	302.93	Split black chert pebbles	Saxberg, Somer, and Reeves 2004
HhOv-391	291.00	Dart point	Tischer 2004, plate 176
HhOw-20	299.00	Side-notched point	HhOw-20 site inventory form (04-094)
HiOs-2	360.60	Bipointed leaf-shaped biface, adze	HiOs-2 site inventory form (04-375)
HiOv-57	331.00	3 lanceolate points	Saxberg, Somer, and Reeves 2004, plate 21: b, c, and d
HiOv-140	321.21	Adzes	Saxberg, Somer, and Reeves 2004
HiOw-50	295.56	Slightly stemmed lanceolate point	Bryant 2005, plate II-4
HiPd-2	741.28	Quartzite Late Taltheilei arrow point	Brian Ronaghan, pers. comm.
HiPe-2	723.66	Quartzite Late Taltheilei arrow point	Brian Ronaghan, pers. comm.
HjPd-1	683.00	Early to Middle Taltheilei points, bipointed side scraper or adze	Ives 1981, 1993; Reeves, examination at RAM
HkPa-4	714.00	Late Taltheilei dart points, bipointed side scraper, adze (quartzite)	Donahue 1976, plate X; Ives 1977, 1981, 1993
HkPa-11	714.00	Dart points (quartzite)	Donahue 1976, Plate IX: h
HkPb-1	715.65	Dart points (quartzite)	Donahue 1976, Plate X: h

[a] Date of 1735 ± 35 ^{14}C yr BP (NMS-1275) on charcoal from hearth (Pollock 1978b, 44)

[b] Date of 570 ± 115 ^{14}C yr BP (NMS-1274) on calcined bone fragments (Pollock 1978b, 80)

and at the Slump and Hidden Creek sites on Lesser Slave Lake (Le Blanc 2005; see fig 6.4), as well as at Late Taltheilei sites at Peter Pond Lake, in Saskatchewan (Reeves, personal examination of the University of Saskatchewan collections, 2006). We consider the bipolar split black chert pebble industry to be a Late Taltheilei diagnostic, which was probably introduced through contact with Late Avonlea and Old Women's groups to the south, whose technologies

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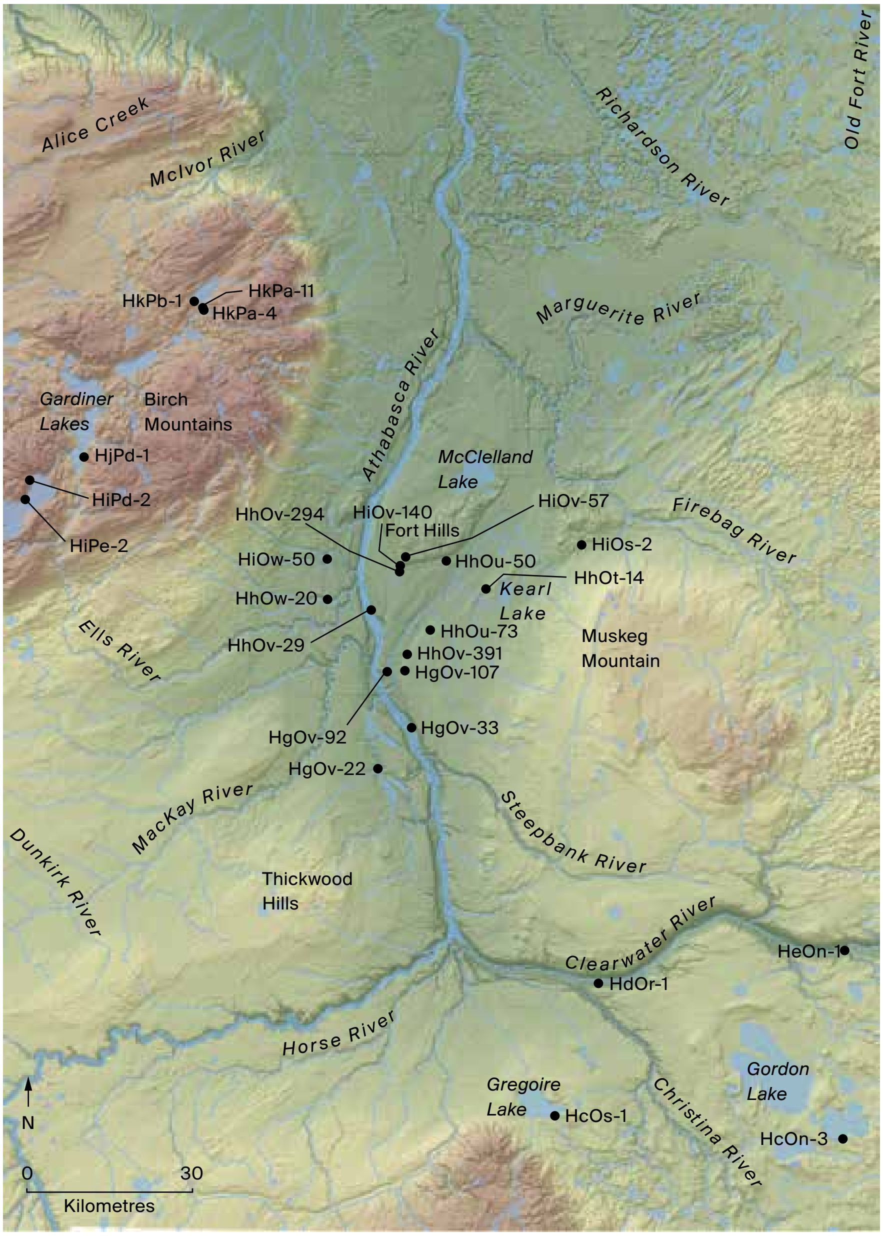
Figure 6.11. Chartier Complex sites (ca. 2,650 to 300 BP)



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include a significant bipolar split black chert pebble industry known as the Rundle Technology (Reeves 1969).

The Chartier Complex is represented at four sites along the south edge of the Fort Hills (HiOv-57, HiOv-140, HhOu-73, and HhOv-294). Three lanceolate points were recovered from HiOv-57 (plate 6.9: 3–5; see also Somer, Saxberg, and Reeves 2004, 3941), one of which reacted positively to striped bass antisera, suggesting the use of a member of the *Perciformes* order of fish (such as perch, walleye, pike).These points compare favourably with Middle and Late Taltheilei forms illustrated by Ives for the Birch Mountains and by Gordon for the Barrenlands (see Ives 1993, figure 6; Gordon 1996, figures 4.4 and 5.4). A Late Taltheilei small, well-finished grey quartzite arrow point (plate 6.9: 1) was recovered from excavations at HhOu-73, which Somer and Kjar (2007, 71–73) rightly argue is best described as an Avonlea type. A number of Taltheilei arrow points from sites in northeastern British Columbia (see, for example, Driver et al. 1996, figure 9k; Eldridge et al. 2008. figure 80: a–e; Spurling 1980, 284, figure 40d) and in the Spence River Complex of the Mackenzie drainage (Morrison 1984, figure 2: a and b, for example) generally conform to the template characteristic of the early Avonlea horizon, as was the case for arrow point styles in other cultural groups peripheral to the northwestern Plains when first adopting bow and arrow technology (Reeves 2003).

On the west side of the Athabasca River, the first probable Taltheilei point recovered in the region was found at HgOv-22 during the 1973 HRIA of Syncrude's Lease 17 (Syncrude Canada Ltd. 1973, 98). Other Taltheilei tools identified during this study included a chitho and a number of split black chert pebbles. Losey also collected a fine example of a complete unilaterally barbed bone point (Syncrude Canada Ltd. 1973, 92). Other Taltheilei finds include a Middle Taltheilei point at HiOw-50 (Bryant 2005, plate II-4) and, at HhOw-20 (a campsite), a "small side-notched point of grey northern quartzite," to which Gryba and Tischer (2005) assigned a Late Prehistoric age.

The Chartier Complex is represented at two sites on the Clearwater River, HeOn-1 and HdOr-1. Test excavations at the Gros Roche site (HeOn-1), located on a portage, uncovered a basin-shaped hearth lined with limestone cobbles from which a sample of charcoal was dated to 1,735 ^{14}C yr BP ± 105 (NMS-1275; Pollock 1978b, 44). An MVMq dart point body fragment was also recovered at the site (Pollock 1978b, figure 38: 1). The faunal remains were dominated by mallard duck, representing 13.0%, followed by beaver (4.9%), muskrat (2.2%), red squirrel (1.1%), and canid, moose, and northern pike (each 0.5%). Most large mammal remains were unidentifiable, suggesting that they were being

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intensively processed for marrow and bone grease and/or that only the meat was being brought back from the kills.

Pollock also found a Late Chartier Complex site on Gypsy Lake. Testing at HcOn-3 recovered sixty-one pieces of carbonized and calcined bone fragments (unidentifiable), which yielded a date of 570 ± 115 ^{14}C yr BP (NMS-1274; Pollock 1978b, 80). Five of the artifacts recovered were bipolar split black chert pebble tools (Pollock 1978b, figure 40: 1–5). Prager (in Pollock 1978b, 157) suggests that the site may have been a short-term fishing camp, as the only identifiable remains were those of northern pike.

HcOs-1, located on Gregoire Lake, also contains Middle and Late Taltheilei occupations. Tools recovered included a Late Taltheilei–style arrow point and a small, poorly made Avonlea-style arrow point (Pollock 1978b, figure 43: 1 and 2), the latter manufactured of a semi-translucent grey-white chert. The site also yielded various dart point fragments, one of which was the convex base of a dart made of Lake One Dune chert (Pollock 1978b, figure 43: 5; Pollock misidentifies it as MVMq). Black chert pebble wedges, end scrapers, spalls, and cores were also found.

The Chartier Complex is well represented in the Birch Mountains, particularly in the excavations at the Gardiner Lake Narrows (HjPd-1) and Eaglenest Portage (HkPa-4) sites (see fig 6.11). A number of Early to Middle Taltheilei dart points from HjPd-1 are among the stemmed, side- and corner-notched points illustrated by Ives (Ives 1981, figure 7; Ives 1993, figure 6). Also present in the HjPd-1 collections at the RAM is a typical Taltheilei-style bipointed side scraper or adze. Middle to Late Taltheilei sites in the Birch Mountains include HkPa-11, on Clear Lake, and HkPb-1, on Eaglenest Lake, from which quartzite dart points with broad corner notches and convex bases were recovered (Donahue 1976, plates IX: h and XI: h). Two additional sites, HiPd-2 and HiPe-2, were identified more recently by Ronaghan and Ives during a post-fire inventory of Namur Lake and proved to contain two small, typical Late Taltheilei arrow points of grey quartzite and salt and pepper quartzite, respectively (Brian Ronaghan, pers. comm., 2007).

Ives's excavations at Eaglenest Portage (HkPa-4) indicate that it contains a major Middle to Late Taltheilei occupation. He obtained a radiocarbon date of 1,030 ± 110 ^{14}C yr BP (DIC-720) from charcoal collected from the surface of a buried organic horizon (Ives 1985, 32–33). Ives illustrates a range of dart points from the site, a number of which are quartzite (see Ives 1981, figure 7; Ives 1993, figure 6, top row); those illustrated include specimens that we assign to the Beaver River Complex. Late Taltheilei dart and possible arrow points were also recovered from Eaglenest Portage by Donahue, who discovered and tested the site in 1975. These included both stemmed and corner-notched forms, including

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a specimen with the typical Late Taltheilei rounded basal edge–straight base configuration (Donahue 1976, plate X: i; see also Ives 1981, figure 7, second row, second from the right). Specimens like this have been found elsewhere in the Athabasca lowlands, as well as at Buffalo Narrows and other sites in northwestern Saskatchewan and at Lesser Slave Lake, in Level 2 of the Slump site (Le Blanc 2005, figure 48: d).

Ives illustrates four smaller projectile points from Eaglenest Portage that he considers to be arrow points (Ives 1993, figure 7; see also Ives 2003, figure 6). The points include one manufactured of black chert, one of brown quartzite, one of Lake One Dune chert, and one of salt and pepper quartzite (see Ives 1993, figure 7: a–d). We would classify these as Late Taltheilei dart points rather than arrow points. The basal edge–base configurations of these points fit better within the range of variation illustrated by Gordon (1996) for Late Taltheilei dart points than with the Late Taltheilei arrow points recovered from the Lower Athabasca basin, including sites on Namur Lake, the Buffalo Narrows sites at Peter Pond Lake, and the Slump and Hidden Creek sites at Lesser Slave Lake (Le Blanc 2005, figures 48 and 68). Ives does illustrate a small arrow point (Ives 1981, figure 7, row 2, fourth from left). The site provenance is not given, but the point bears a close resemblance to the Avonlea-style arrow point (plate 6.9: 1) recovered from HhOu-73 in the Fort Hills, discussed above.

Ives recovered a number of other typical Taltheilei tools from the HkPa-4 excavations, including a bipointed side scraper or adze made of MVMq, a well-formed subrectangular cortical-backed quartzite cortical spall tool, and a considerable number of bipolar split black chert pebbles (see Ives 1977, plates 4b, 16b, and 13, respectively). Ives also examined the tool stones present in the HkPa-4 assemblage (Ives 1977, 18–20; see also Ives 1985, 33–35). Interestingly, MVMq—represented in 12 out of 91 (13.2%) of the formed tools—constituted only 4.5% of the total assemblage. Salt and pepper quartzite represented 2.0%, other chert 6.0%, and black chert 2.8% of the assemblage, which was dominated by quartzite (69.6%). In considering these percentages, however, the reader should bear in mind that, in our opinion, all of the earlier cultural complexes, except for the Fort Creek Fen Complex and possibly the Nezu Complex, are represented in the HkPa-4 artifact assemblage.

In summary, in terms of site distribution, the presence of the Chartier Complex in the Lower Athabasca region roughly corresponds to that of the preceding Firebag Hills Complex, with good representation in the Fort Hills and Birch Mountains, possibly somewhat poorer representation in the Muskeg River area, and quite limited representation along the eastern escarpment of the Athabasca River (see fig 6.11). As we suggest for the Firebag Hills Complex, the

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groups who occupied the area during the period of the Chartier Complex appear to have focused on the lower terraces within the river valley, as indicated by Donahue's finds of over thirty years ago. It is to these potential locales, many of which are eroding out along the river, that we need to direct archaeological attention if we are to characterize the full extent and nature of a seasonal Chartier Complex occupation of the Lower Athabasca River.

Temporal trends in Chartier Complex occupations, if any exist, between the Early and Middle Taltheilei and the Late Taltheilei in the Lower Athabasca basin are not yet discernible. At least to date, Late Taltheilei arrow points seem less well represented than dart points. However, if not merely the result of the sampling, this may simply reflect the fact that the use of unilaterally barbed bone and antler points, which do not preserve well, became more common during the Late Taltheilei in the Athabasca lowlands, as it did among Dene peoples in the southwest Yukon (Hare et al. 2004). In addition to the specimen recovered from HgOv-22 noted above, portions of these bone tools have also been found at the Alook site (HaPl-1) at Wabasca Lake (Sims 1981, figure 4: l) and in Level 2 at the Hidden Creek site on Lesser Slave Lake (Le Blanc 2005, figure 65).

The peoples of the Chartier Complex clearly used MVMq for stone tool manufacture, in some locales quite extensively, as is evident from the sites in the Fort Hills area, where MVMq entirely dominates the Chartier Complex assemblages. This suggests access to large amounts of the material. However, we have yet to find any conclusive evidence that these peoples occupied the Quarry of the Ancestors. There, the most recent evidence of use, in the form of projectile points and other tools, is associated with the earlier Firebag Hills Complex. In contrast to the Fort Hills area, MVMq is not the major tool stone at Chartier Complex sites in the Birch Mountains. There, assemblages are dominated by grey quartzites, reflecting a local, but as yet unidentified, source for this tool stone, which also occurs extensively in earlier cultural complexes in the Birch Mountains.

At Chartier Complex sites on Lac La Loche and Peter Pond Lake, MVMq represents 10% to 15% of the formed tool assemblage (Reeves, personal examination of the University of Saskatchewan collections, 2006). This suggests that the precontact Dene peoples of the region continued to rely significantly on this material and thus had direct access to its source. Evidently, then, Chartier Complex groups travelled back and forth between the Birch Mountains–Lower Athabasca area and the Lac La Loche–Peter Pond Lake area, presumably via the Methye Portage and the Clearwater River. We suggest that this continues a basic regional land use pattern dating back 9,000 years or more. How geographically extensive or chronologically varied this pattern is in the Churchill and adjacent drainages in northwestern Saskatchewan remains to be determined. However,

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some 200 kilometres southeast of Buffalo Narrows, a blocky, split-pebble wedge of MVMq and two MVMq flakes were found at GgNk-1, a campsite located on a point of land where the Montreal River exits Sikachu Lake (Hanna 2004). This occurrence suggests that the pattern of travel and trade extended well downriver from Buffalo Narrows during Taltheilei times.

The geographic extent of MVMq usage also remains to be determined. There has been no systematic archaeological survey of precontact sites along the Athabasca River upstream of the Clearwater River. As Sims (1981) noted, MVMq is present at the Alook site (HaPl-1), a stratified site located at the head of North Wabasca Lake west of the Lower Athabasca in the Peace River basin (see fig 6.4). In addition to preserved organic faunal material, including copious amounts of fish bones, the site contains a major Middle to Late Taltheilei occupation. Interestingly, according to Sims (1981), MVMq represents less than 1% of the tool stone assemblage. The Alook site has not been revisited in some forty years, and, if it still exists, a major excavation should be undertaken at it.

Southward into the headwaters of the Christina River and tributaries of the Beaver River, MVMq has been reported in association with a Late Taltheilei point recovered from GjOq-4, a site located on a relic shoreline at the east end of Christina Lake (site inventory form, Archaeological Research Permit 07-186) (see fig 6.4). In areas north of the oil sands, however, the distribution of MVMq at Taltheilei sites appears to be very limited. It is absent at Peace Point and Lake One Dunes in Wood Buffalo National Park (Reeves, personal examination of the collections at Parks Canada, Winnipeg).[14] Archaeological studies south of Fort Smith associated with the once-proposed Slave River Hydro Project recovered two secondary and four flake fragments of MVMq from IkOv-8 (McCullough 1984; see fig 6.4), which may or may not be associated with the Taltheilei Tradition, as no diagnostics were found. These data suggest that Chartier Complex peoples had little interaction with those precontact Dene groups who traditionally occupied the Peace-Athabasca delta, Lake Athabasca, or the Slave River areas and that trade involving MVMq did not extend that far north.

The yearly round of the peoples of the Chartier Complex and other Taltheilei Tradition regional complexes was clearly tied to fish-bearing lakes. We suggest that these groups occupied the Athabasca lowlands and the Birch Mountains primarily during the frost- and snow-free seasons and generally wintered not in the Lower Athabasca basin but on Lac La Loche, Peter Pond Lake, and adjacent lakes and locales. We further suggest that, once spring arrived, Chartier Complex groups would travel via the Methye Portage to the Birch Mountains and Athabasca lowlands to hunt and fish and to quarry MVMq, returning via the Methye Portage before freeze-up.

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At no time in the past would MVMq quarries have been accessible in the winter, in view of frozen ground and snow cover. Consequently, before moving to winter quarters, precontact groups who resided in the Lower Athabasca region would have had to stockpile MVMq blanks for the manufacture of small formed tools or smaller tool blanks over the coming winter. It may even be, then, that the Chartier Complex sites located on the south slopes of the Fort Hills represent the wintering sites of a few families who had stockpiled MVMq and remained in the area to manufacture tools over the winter. The evidence we recovered indicates that ample supplies of MVMq were available and little conservation of the material took place, as is reflected by the high proportion of waste material present at sites. In contrast, the Chartier Complex sites on Peter Pond Lake have very low frequencies of MVMq core fragments, shatter, and debitage, of the sort relating to primary tool production, and a high frequency of small-sized debitage, of the sort produced by resharpening and retouching tools. This suggests that finished tools and final-stage tool preforms were prepared before groups left the Athabasca lowlands.

The Chartier Complex appears to have drawn to a close sometime before the establishment of the inland fur trade, given that, to the best of our knowledge, no trade goods dating to the fur trade era have been found either in Chartier Complex sites or as isolates in the Lower Athabasca region. Perhaps the absence of such goods is simply the result of sampling, but it does seem to indicate that precontact Dene peoples had abandoned the Lower Athabasca region by the time the fur trade arrived there. Alternatively, it is possible that local and regional bands were decimated by the first smallpox epidemic recorded in oral history, which spread through the tribes of the Upper Missouri and Saskatchewan Plains and Rocky Mountains in the early 1730s (Reeves and Peacock 2001), or by earlier epidemics that, on the basis of archaeological evidence and radiocarbon dating, are thought to have swept through northern North America beginning in the sixteenth century (Reeves 2009). The onset of Little Ice Age conditions around roughly the same time may well have been another significant factor in the marginalization of the Lower Athabasca region toward the end of the Late Precontact period.

Thus far, the Late Taltheilei Tradition is the only Late Precontact occupant of the Lower Athabasca region to be firmly identified. In the Peter Pond Lake–Buffalo Narrows area of Saskatchewan, however, two Late Precontact–period ceramic complexes have been identified, which are distinct from Late Taltheilei occupations in the same area: the Buffalo Lake Complex, radiocarbon dated in the range of about 730 to 480 BP, or AD 1200 to 1500 (Young 2006, 218), and the Kisis Complex (Paquin 1995), which is related to the Selkirk Composite (ca.

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AD 1300 to 1700) and represents the ancestral culture of the Western Woods Cree (Meyer 1987; Meyer and Russell 1987). Whereas, as noted above, in the Chartier Complex components at Peter Pond Lake, MVMq constitutes 10% to 15% of the tool stone, MVMq is absent from these two complexes. Moreover, in contrast to the typical Taltheilei arrow points, with their low, pointed or rounded basal edges, the small, side-notched arrow points associated with these two ceramic assemblages are characterized by well-defined high, rectangular-shaped basal edges. Many of these points are manufactured of salt and pepper quartzite, which dominates the tool stone assemblage at these ceramic sites, leading Young to conclude that a local source had been discovered and was used extensively by the occupants of these ceramic complexes (Patrick Young, pers. comm., 2005). Evidence thus suggests that groups who produced ceramics were present in this region of Saskatchewan at roughly the same time as the Dene peoples of the Late Taltheilei occupations, who did not.

In Alberta, ceramics have been found at the Wappau Lake Narrows site (GiOv-1; see fig 6.4), 65 kilometres north of Lac La Biche, which Pollock (1978a, 53–54) suggests may represent precontact or protohistoric occupations by Cree-speaking groups. The probability is reasonably high that ceramics will eventually be discovered at locales such as Gypsy Lake to the north, where Pollock (1978b) found sites that appeared to be relatively recent, although he did not recover any time-diagnostic artifacts. Targeted research at these locales is required before we can say with any certainty whether groups of Cree speakers were present in the Lower Athabasca region prior to contact.

CONCLUDING REMARKS

In the preceding sections we have presented a revised chronological outline for the precontact archaeological record of the Lower Athabasca region. Our constructs build on the work of previous researchers, notably Ives (1981, 1993), Van Dyke and Reeves (1984), and Saxberg and Reeves (2003), who have undertaken the task of synthesizing the accumulating archaeological record, or parts thereof, for the oil sands region. The current round of oil sands regulatory approvals that began in the late 1990s has increased by many orders of magnitude the archaeological database for the oil sands region, particularly within the area formed by the Agassiz flood. In years to come, as additional sites are excavated, no doubt there will be challenges to our chronology. Hopefully, these will be based on solid comparative archaeological analysis rather than on generalized comparisons of single specimens.

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The 10,000-year archaeological record thus far recovered has its inherent problems, most notably the almost universally shallow surface archaeological deposits, the general lack of stratified sites with well-separated components, and the paucity of organics or clearly defined, charcoal-rich archaeological features that could provide radiocarbon dates, coupled with the suspect nature of some of the radiocarbon dates obtained to date. Fortunately, it appears that, in the Athabasca lowlands (as elsewhere), precontact cultural complexes rarely reoccupied precisely the same spot on the escarpments overlooking the river valley or the same elevated feature inland, with the result that there is a relatively limited mixing of the archaeological record. In contrast, in the Birch Mountains, where the pattern is typical of that often found in the Rocky Mountains to the southwest, focal settlement sites occur with shallow deposits, and the archaeological remains within them span some 9,000 years.

Some of the limitations of the oil sands record may eventually be overcome with the development of new chronometric techniques capable of dating artifacts manufactured of siliceous materials and with both continued and refined application of blood-trace analysis to artifacts, including ancient DNA analysis. We expect that detailed technological analysis of the recovered assemblages, which goes beyond the level of analysis currently available, will certainly reveal significant new information.

Except for those set aside as Provincial Historic Resources (Cree Burn Lake, Beaver River Quarry, and the Quarry of the Ancestors), the principal archaeological sites in the oil sands area have been lost or will be lost during this latest round of resource development. While mitigative excavation studies have recovered samples, of varying sizes, from these sites, archaeologists will not be able to return to these sites to collect additional samples or to make use of new methodologies and techniques that are sure to develop in the coming decades.

Except for the protected sites, twenty years from now, or perhaps in as little as a decade, the primary sources of archaeological data regarding the Athabasca lowlands region will be gone. Given that this resource will vanish, should we not be taking a larger and longer view and striving to ensure that, for those sites that remain within the oil sands region, recovery and interpretation is maximized? What industry has proposed, for example, by way of environmental compensation for wetlands and wildlife habitat lost to oil sands development, including the protection or restoration of significant wetlands and wildlife habitat outside development areas, is a worthy beginning. The same can and should be applied to archaeological sites, which are a non-renewable resource. In return for their loss, industry should commit to protecting other significant sites in the boreal forest and make funds available for research and study.

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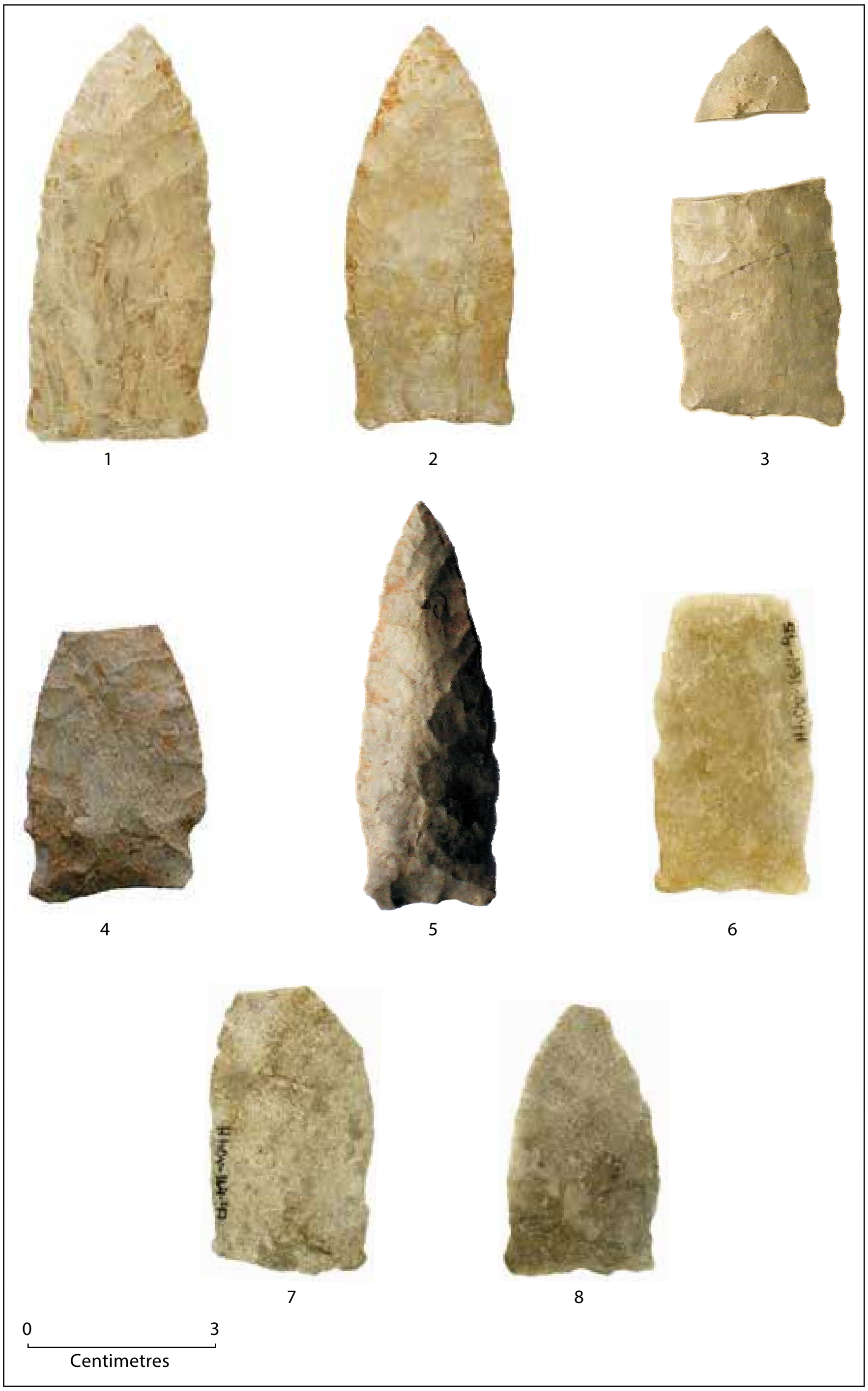

Plate 6.1. Fort Creek Fen Complex projectile points

1 HhOv-87: 3983 Fort Creek Fen lanceolate
2 HhOv-87: 3984 Fort Creek Fen lanceolate (positive reaction to rabbit antisera)
3 HhOv-17 Fort Creek Fen lanceolate
4 HiOu-69 Hi-Lo point
5 HhOv-439 Fort Creek Fen lanceolate
6 HhOv-164: 45 Fort Creek Fen lanceolate, grey quartzite
7 HhOv-164: 47 Fort Creek Fen lanceolate, Northern quartzite (positive reaction to deer [base] and moose [blade] antisera)
8 HhOv-164: 14135 Fort Creek Fen lanceolate, oolitic Northern quartzite

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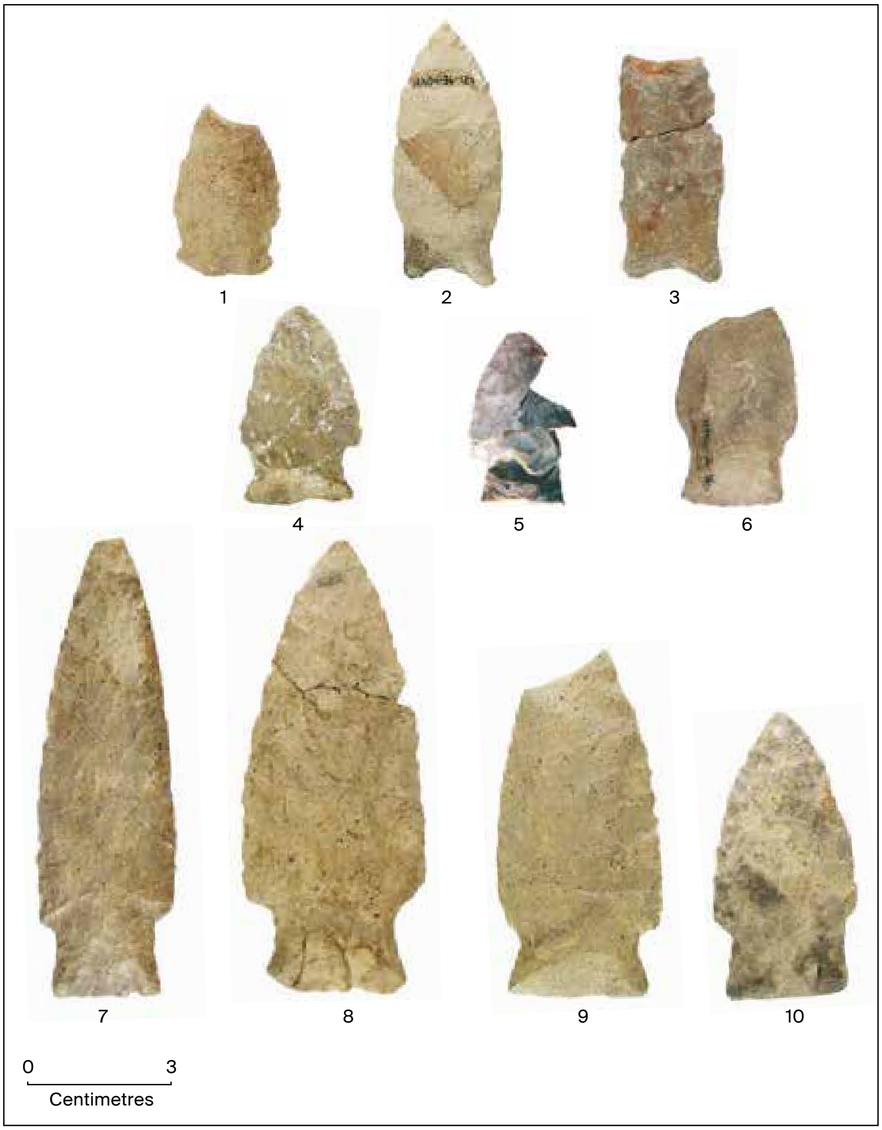

Plate 6.2. Nezu Complex projectile points

1 HhOu-36: 126 broad-bladed lanceolate with hafting modifications (positive reaction to moose and deer antisera)
2 HhOu-36: 113 fish-tailed point (positive reaction to caribou antisera)
3 HhOu-36: 6 concave-base lanceolate (positive reaction to deer and caribou antisera)
4 HhOv-164: 46 Scottsbluff Type I point
5 HhOv-323: 1561/3959 Scottsbluff Type II point, Montana chert
6 HhOu-36: 140 Scottsbluff Type II point, Northern quartzite
7 HhOu-36: 150 Scottsbluff Type II point (positive reaction to bovid and rabbit antisera)
8 HhOu-36: 159 Scottsbluff Type I point (positive reaction to caribou antisera)
9 HhOu-36: 2 Scottsbluff Type I point (positive reaction to rabbit antisera on haft)
10 HhOu-36: 1 Scottsbluff Type II point

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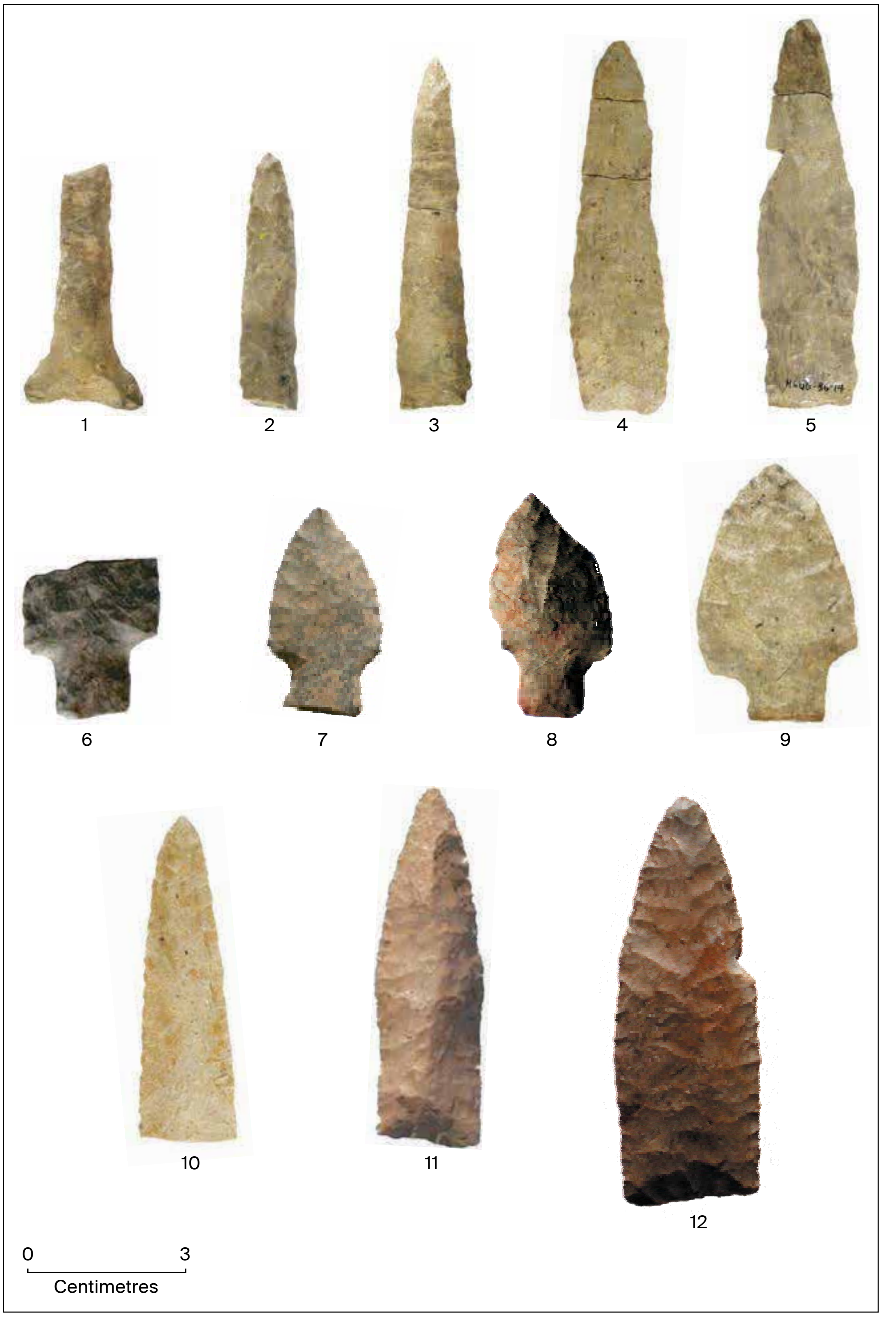
Plate 6.3. Nezu Complex drills, Cody knives, and Eden points

1 HhOu-36: 151 "T-butt" drill (positive reaction to rabbit antisera)
2 HhOu-36: 8 drill stem (positive reaction to bear antisera)
3 HhOu-36: 9, 10 Niska narrow broken lanceolate drill refit (positive reactions to caribou antisera on both fragments)
4 HhOu-36: 11 Niska lanceolate square-based drill
5 HhOu-36: 88 Niska lanceolate square-based drill (positive reactions to deer and rabbit antisera)
6 HiOu-49 Cody knife
7 HiOu-49 Cody knife
8 HiOu-72 Cody knife (positive reaction to deer antisera)
9 HhOv-164: 14134 Cody knife
10 HhOv-4: 166 narrow-bladed Eden blade fragment (positive reaction to canid antisera)
11 HhOv-81: 3 broad-bladed Eden point
12 HhOv-323 broad-bladed Eden point (positive reaction to elephant antisera), an isolated find at the Quarry of the Ancestors



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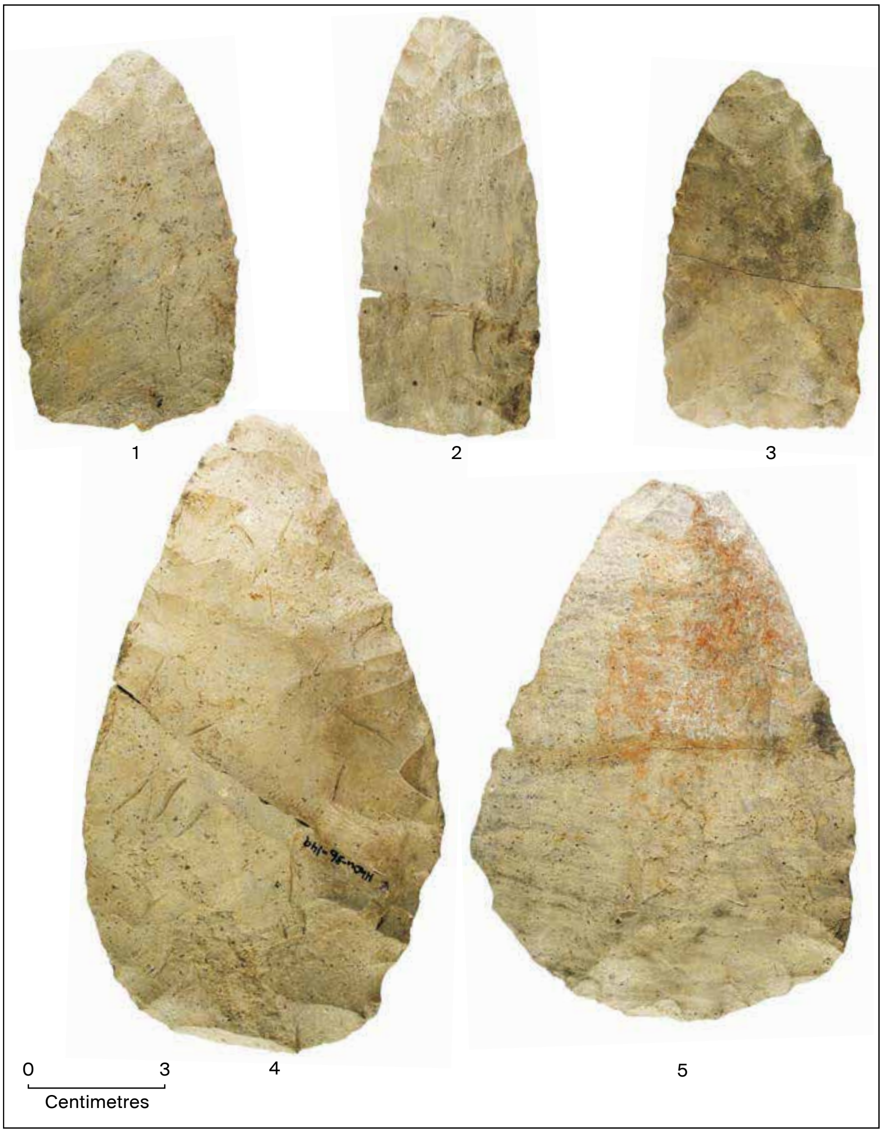

Plate 6.4. Nezu Site (HhOu-36) knives and bifaces

1 **HhOu-36: 17 Nezu knife (positive reaction to bovid antisera)**
2 **HhOu-36: 110, 111 Nezu knife refit**
3 **HhOu-36: 18, 19 Nezu knife refit (positive reaction to bovid antisera on both fragments)**
4 **HhOu-36: 62, 149 ovate biface refit**
5 **HhOu-36: 52, 2091 axe refit**

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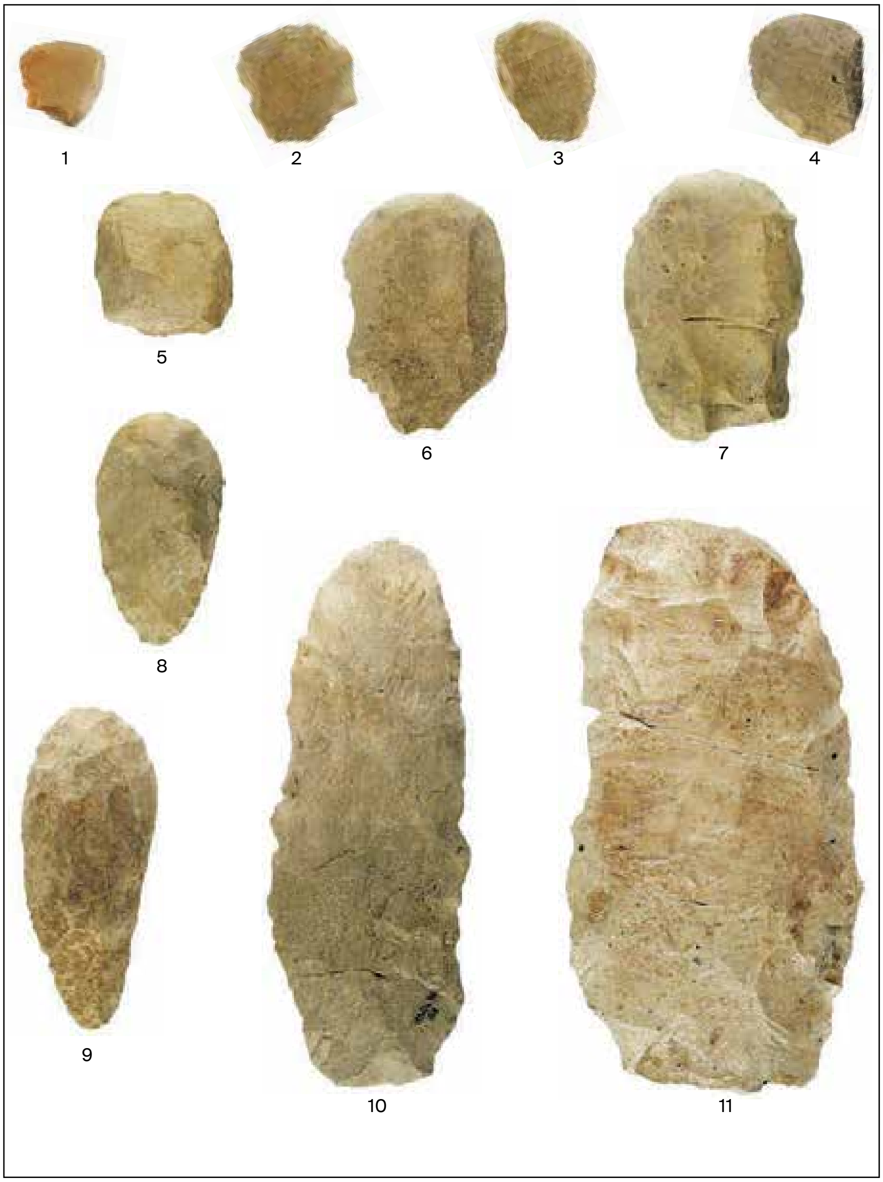
Plate 6.5. Nezu Site (HhOu-36) end scrapers and knives

1 **HhOu-36: 125 small end scraper (positive reaction to cat antisera)**
2 **HhOu-36: 163 small end scraper**
3 **HhOu-36: 141 small end scraper**
4 **HhOu-36: 198 small end scraper**
5 **HhOu-36: 107 large end scraper**
6 **HhOu-36: 93 large end scraper**
7 **HhOu-36: 25 large end scraper (positive reaction to bear antisera)**
8 **HhOu-36: 97 dorsally finished "teardrop" elongated end scraper**
9 **HhOu-37: 96 dorsally finished "teardrop" elongated end scraper**
10 **HhOu-36: 158, 37 Nezu rectangular knife refit (positive reaction to bear antisera)**
11 **HhOu-36: 39, 40, 41 backed Nezu knife refit**



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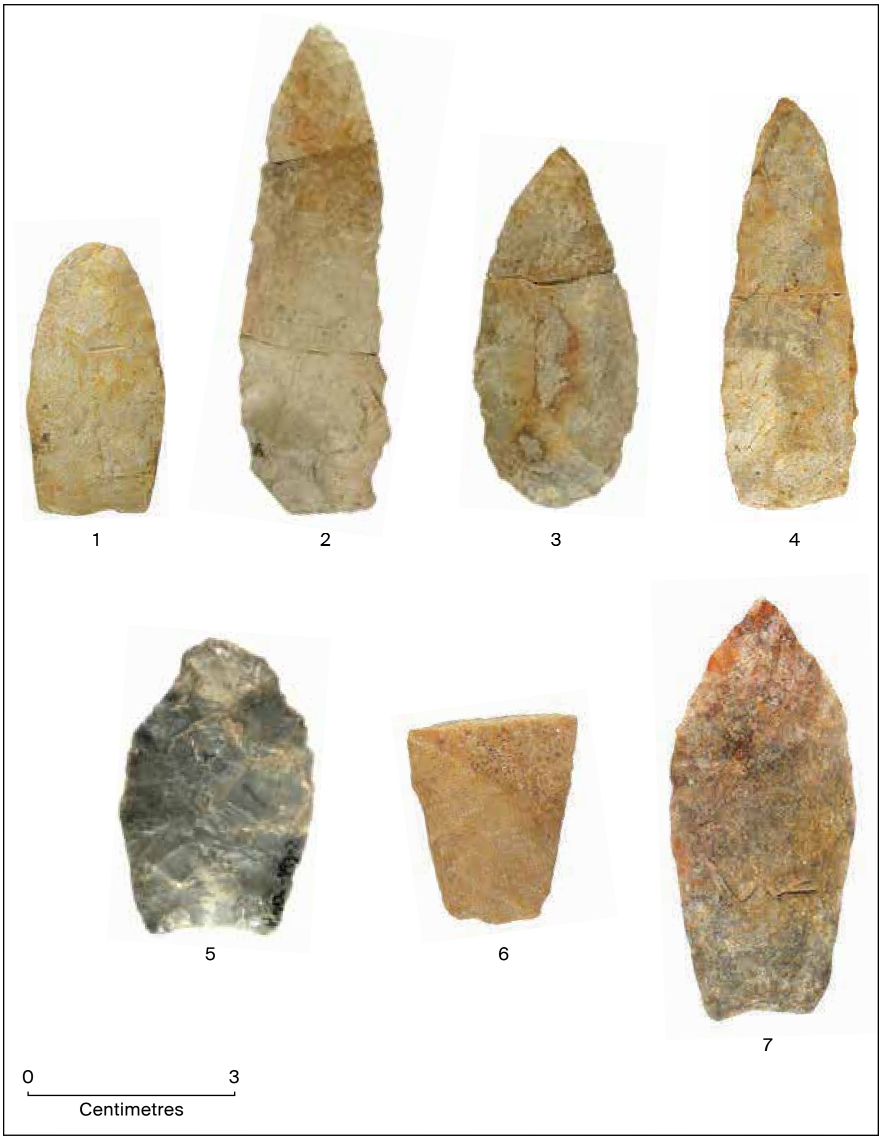

Plate 6.6. Lanceolate projectile points

1 HhOv-148: 23 reworked Agate Basin point
2 HhOv-112: 14000, 13999, 13998 lanceolate point, snapped during finishing
3 HhOv-112: 4, 3190 convex-based lanceolate point
4 HhOv-112: 3 lanceolate point snapped during the thinning process
5 HhOv-193: 2 Jimmy Allen point, mottled grey and brown chert
6 HhOv-163: 26 water-rolled Hell Gap stem, Athabasca quartzite
7 HhOv-167: 714 Mesa point, possibly manufactured of heat-treated Swan River chert

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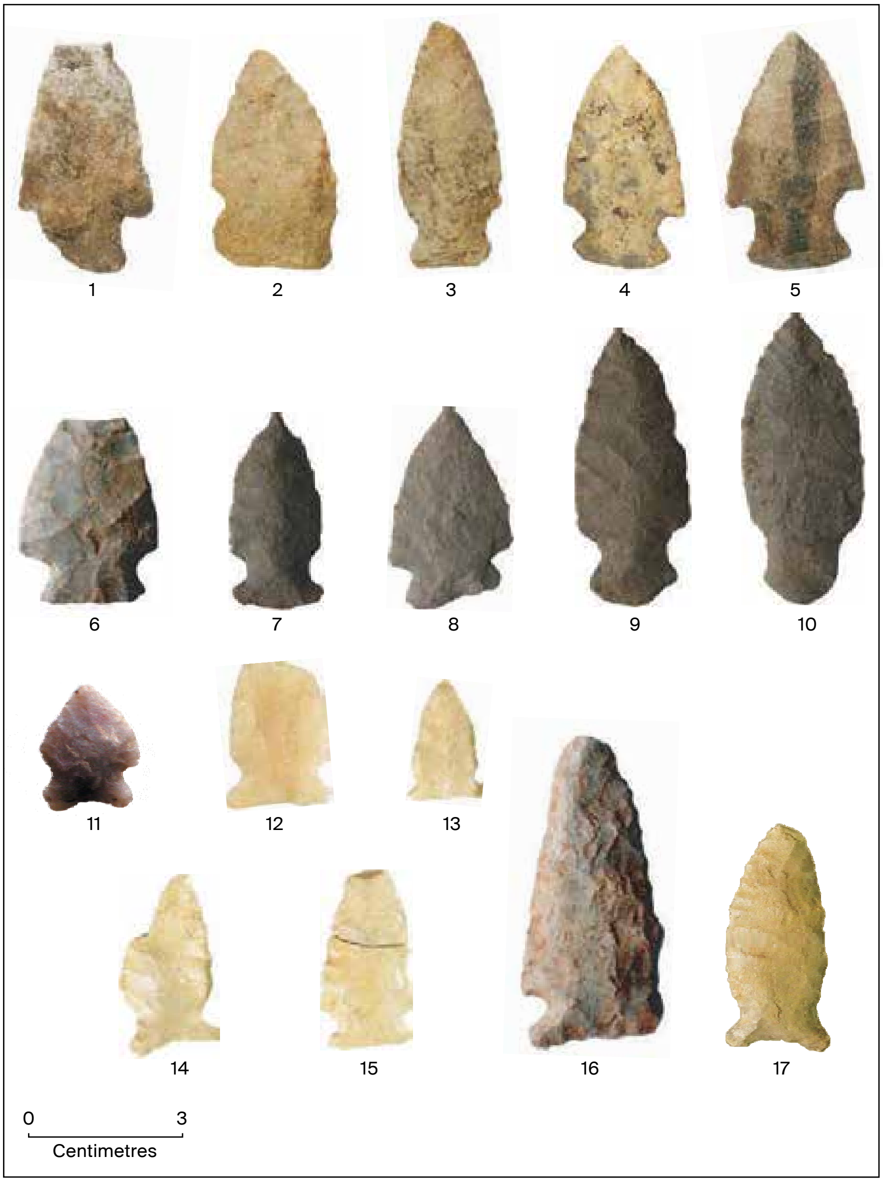
Plate 6.7. Beaver River Complex dart points

1 HhOv-163: 27 Northern quartzite dart point
2 HhOv-163: 21 Northern quartzite dart point (positive reaction to bear antisera)
3 HhOv-163: 16 dart point
4 HhOv-163: 19 dart point
5 HhOv-163: 25 banded brown and black orthoquartzite dart point
6 HhOv-332: 2031 dart point
7 HhOv-349: 8712 grey chert dart point (positive reaction to deer antisera)
8 HhOv-340: 8713 dart point
9 HhOv-340: 8715 dart point
10 HhOv-340: 8714 dart point
11 HhOv-319 quartzite Oxbow point
12 HhOv-212: 4867 Northern quartzite point
13 HhOv-113: 9166 dart point
14 HhOv-113: 61308 dart point
15 HhOv-113: 68597, 68049 dart point refit
16 HhOv-305: 9544 side-notched point
17 HhOv-191: 14, 159 fish-tailed point



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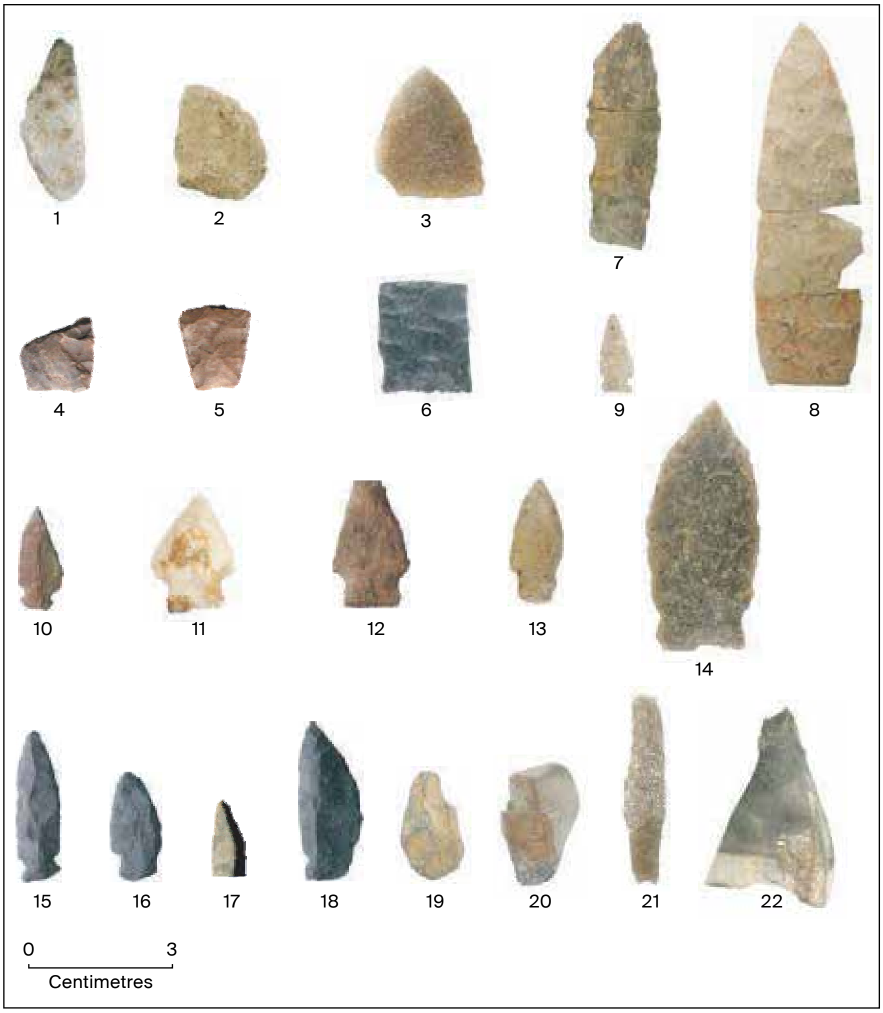

Plate 6.8. Firebag Hills Complex artifacts

1 HgOl-8 quartzite side blade
2 HhOl-32 side blade
3 HhOk-11 quartzite end blade
4 HhOv-305 end blade
5 HhOv-305 end blade
6 HgOv-50: 141 Peace River black chert end blade
7 HhOv-304 end blade
8 HhOv-304 end blade
9 HhOv-304 notched graver
10 HhOv-324: 1628 notched graver
11 HhOv-87: 3985 brown and white chert point
12 HhOv-304: 2759 point
13 HhOv-304 point
14 HhOv-304 quartzite point
15 HhOv-304 notched graver
16 HhOv-304 notched graver
17 HhOv-304 notched graver
18 HhOv-304 notched graver
19 HhOl-25 chert mitt burin
20 HgOl-10 grey chert burin
21 HhOk-28 honey brown quartzite micrograver on prismatic microblade
22 HhOk-20 grey and white banded chert micrograver

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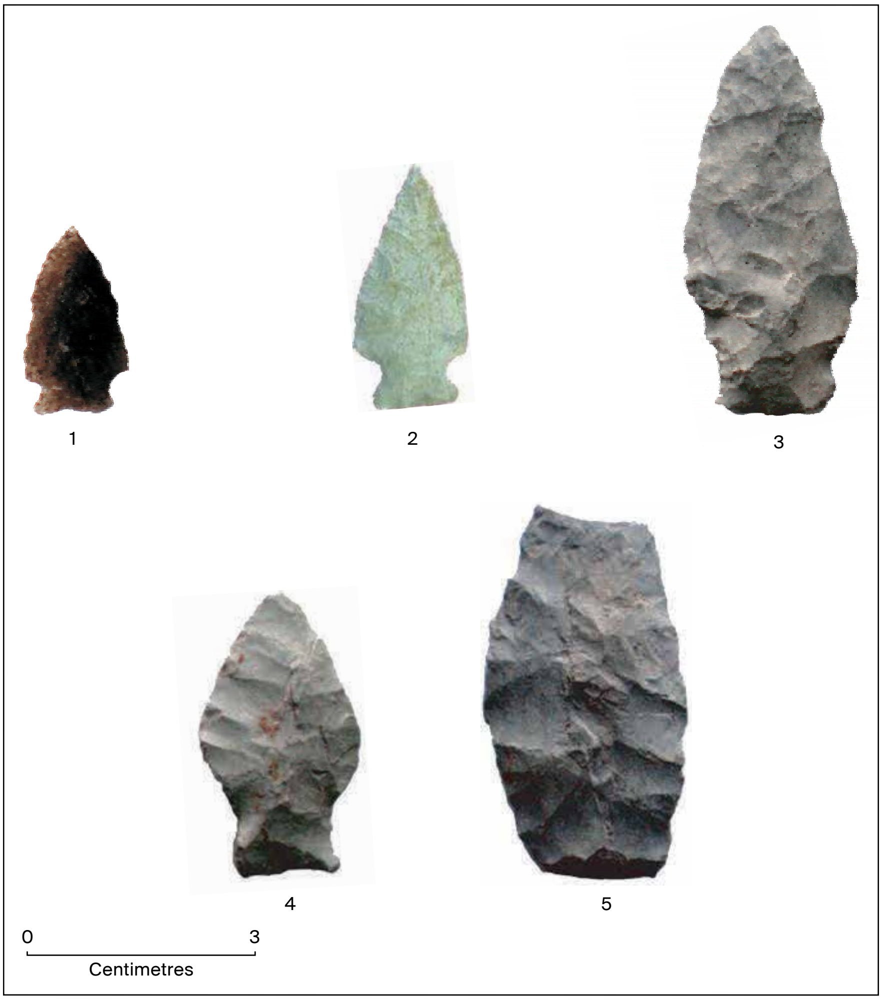
Plate 6.9. Chartier Complex projectile points

1 HhOu-73 grey quartzite Avonlea-style point
2 HhOu-50 Prairie Side-Notched-style point
3 HhOv-57 stemmed Middle Taltheilei dart point
4 HhOv-57 stemmed Middle Taltheilei dart point
5 HhOv-57 stemmed Middle Taltheilei dart point



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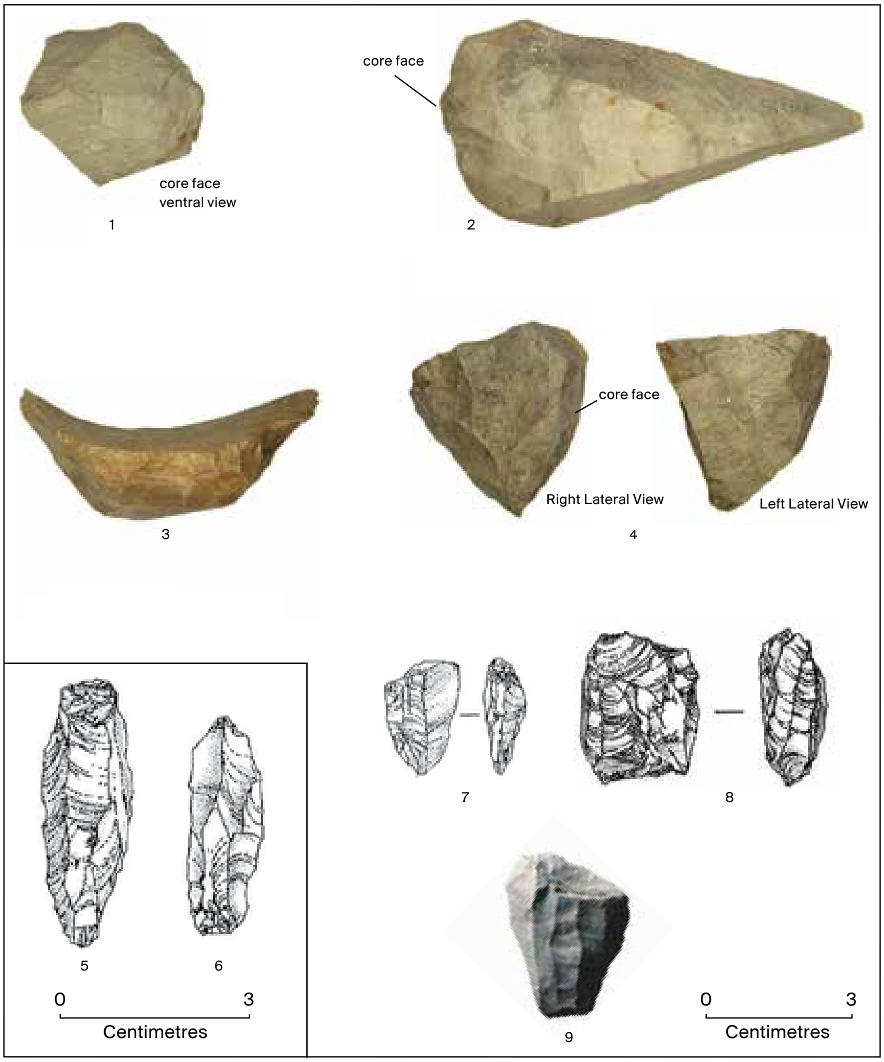

Plate 6.10. Microblade cores

Fort Creek Fen Complex

1 **HhOv-164: 11576 boat-shaped microblade core; transversely snapped core face, ventral view, manufactured on a thick burinated or snapped biface blank**

2 **HhOv-164: 804 wedge-shaped microblade core, ventral view, manufactured on a thick burinated biface blank**

Nezu Complex

3 **HhOv-83: 2392 exhausted boat-shaped microblade core recycled as an adze, left lateral view**

4 **HhOv-194: 235 transversely snapped boat-shaped preform, manufactured on a thick snapped or burinated biface blank**

Beaver River Complex

5 **HhOv-121: 887 pillar microblade core, bipolar manufacture**

6 **HhOv-332: 5242 pillar microblade core, bipolar manufacture**

Firebag Hills Complex

7 **HhOv-462: 1270 wedge-shaped microblade core**

8 **HhOv-462: 12789 wedge-shaped microblade core**

9 **HiOu-14: 897 microblade core fragment or possibly a rejuvenation tablet**

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NOTES

1 These excavations were sponsored by the University of Alberta's Boreal Institute for Northern Studies, later the Canadian Circumpolar Institute. Unfortunately, during the years that the collections were housed at the University of Alberta, they became impoverished. These collections now reside at the Royal Alberta Museum.

2 Saxberg and Reeves (2004) initially called this material Muskeg Valley Silicified Limestone, given the close proximity of one of the quarries to outcrops of Waterways Formation limestone and the apparent silicification within that formation. However, further study indicates that the MVMq in fact occurs in the base of the McMurray Formation. It originated as detrital sediment and can be considered a silty facies of Beaver River Sandstone (De Paoli 2006). Tsang (1998) mapped the distribution of Beaver River Sandstone in the area.

3 The usefulness of Gryba's Northern quartzite category has unfortunately been somewhat diluted by researchers using it as a catch-all for grey-white quartzites of varying quality found in northern Alberta.

4 The recovery of water-rolled artifacts offers clear archaeological evidence of the Lake Agassiz flood, which is discussed in some detail in chapters 1 and 2 of this volume. With respect to the date of the flood (or floods), we would point to the lack of evidence for primary occupations within the flood zone prior to the appearance of the Fort Creek Fen Complex around 9,800 BP. The relatively high elevation of the Fort Creek Fen sites—slightly below the maximum flood level of 300 masl—suggests that these occupations occurred very near the beginning of the recession of the flood waters, which in turn lends support to the date of 9,900 BP originally proposed by Smith and Fisher (1993).

5 The elevation of sites is an important consideration in the models proposed by Saxberg and Reeves (2003) and by Clarke and Ronaghan (2004) (see also Green et al. 2006). Site elevations provided in this chapter were determined using the Government of Alberta's Digital Elevation Model (DEM), a three-dimensional, 10 x 10 metre cell-size digital representation of surface topography freely available through the province's spatial data distributor, AltaLIS. The DEM features 5-metre accuracy for 90% of the data set and includes elevation data to the centimetre. This level of precision, which is derived mathematically by the software, is based on the 1:60,000 aerial photography of the province in conjunction with surveyed benchmarks. Using ArcGIS 9.1, elevations were extracted on the basis of the UTM coordinates for each site provided in the site database maintained by the Historic Resources Management Branch of the Alberta government.

6 In addition to the evidence from the Lower Athabasca region itself, two points found further afield suggest that human beings were present in the region prior to the flood. Both are early styles, and both are manufactured of MVMq, a stone that occurs naturally only in the area of the Lower Athabasca. One is a small, basally thinned point from the Duckett Site (GdOo-16) on Ethyl Lake, not far from Cold Lake (see Ives 1993, 25n4; McCullough 1981, figure 17: 1). The other is a fluted point identified in a collection from a site near High Prairie, to the west of Slave Lake (Bob Dawe, pers. comm., 2008). Although radiocarbon dates are not available, these points indicate that local variants of the Fluted Point Tradition were present in the Lower Athabasca basin prior to 10,000 BP.

7 The Ice Mountain Microblade Tradition is the regional expression, in northern British Columbia, of the Dyuktai Microblade Tradition of northeastern Siberia, which appeared in the unglaciated regions of Eastern Beringia some 13,000 years ago (Holmes 2001).

8 Further mitigative studies at HhOv-87 were carried out in 2009 and 2010. In 2009, excavations in both existing and new loci, covering a total of 232 square metres, led to the recovery of 91,171 lithic items and 7,261 faunal remains. In addition, Nezu and Beaver River Complex materials were recovered and a probable Late Taltheilei occupation

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identified. This new evidence has significantly expanded our understanding of the sequence of occupations at HhOv-87 and our ability to interpret the activities that took place at the site (Roskowski and Netzel 2011). The 2010 studies investigated two new loci on the southeastern dog legs of the site. These excavations, which covered 44 square metres, identified a possible Chartier Complex occupation as well as Fort Creek Fen and Beaver River Complex occupations (Roskowski and Netzel 2012).

9 Whether the Early Precontact period occupants of the Lower Athabasca region also fished or harvested wildfowl remains an open question. We presume that they did and that this seasonal activity was part of the broad-spectrum pattern of resource harvesting represented at the Nezu site. This pattern is similar to that associated with Cody Complex sites in Yellowstone National Park, which include summer sites along lakeshores as well as on an island in Yellowstone Lake that would have been accessible only by canoe (Johnson and Reeves 2013). Similarly, in eastern Wyoming, the Cody levels at the Hell Gap site, which again reflect summer occupations, contain evidence of a variety of fauna (Knell 2007). A broad-spectrum adaptive strategy that incorporates fishing and fowling is also represented in in Cody Complex sites in Wisconsin (Kuehn 2007), as well as in contemporaneous and earlier sites in Alaska (Yesner 2007). As Knell (2007), Kornfeld (2007), and others point out, although Cody sites do tend to be dominated by bison, there has perhaps been an overemphasis on the role of communal bison hunting in subsistence activities.

10 The point is a collaterally flaked Eden-style point within the Cody Complex. It probably dates to roughly 9,000 BP or, at the outside, to 9,500 BP. If this is the case, and if we accept the blood residue analysis as correct, then we are either left with a late survival most probably of mastodon in the forested lands of the Lower Athabasca region adjacent to the shrinking ice cap, or else we must assume that the point had come into contact with a 500- to 1,000-year-old piece of proboscidian flesh or hide fortuitously preserved in a permafrost deposit. Radiocarbon dates as late as 9,000 ^{14}C yr BP have been obtained on mastodons (see, for example, Dreimanis 1968; Harington 2003), although most of these have been discarded. The possibility does exist, however, that small populations could have survived in the spruce-dominated forests of the Athabasca lowlands and adjacent northwestern precincts of Glacial Lake Agassiz.

The proboscidian antisera used in this analysis, which was performed by PaleoResearch, was the same as that prepared using a fresh blood sample collected by Lee Bement from the Tulsa Zoo to evaluate the potential for mammoth and other blood antisera on a Clovis point recovered in situ from a site in Oklahoma. A positive reaction was obtained (Lee Bement, pers. comm., 2008). We would also note that in a blood residue study of fluted points from Eastern Beringia, two of the specimens taken from five fluted points found at the Point, Lisburne, and Girls Hill sites reacted positively to elephant antisera (Loy and Dixon 1998, table 2). Other species identified on fluted points from various sites include bison, sheep, bear, caribou, and muskox. Some researchers have questioned the mammoth results: for example, Fiedel (2007, 5) cites his own paper (Fiedel 1996), which predates the completed Loy and Dixon study. However, we see no particular reason to consider the results suspect, given that the earliest dates for human occupation overlap with the latest dates for mammoth (Guthrie 2006; Boulanger and Lyman 2014). Accepting Bement's results from Oklahoma, there is no reason, other than that the date suggested by the style of the point is too late for the generally accepted date for the extinction of mastodons, for the HhOv-323 result to be rejected (Boulanger and Lyman 2014, Froese 2014).

11 Earlier cultural complexes, as reported by Millar (1983), are represented at Buffalo Narrows in private collections from the Old Beach Site. The finds include Early Precontact period lanceolates, which, according to Millar (1983, 39), represent the Plains

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Plano Tradition: "Most resemble Agate Basin, Plainview or Frederick varieties. Other types include: small lanceolate points with straight, parallel stems and square bases." The former, illustrated in Millar's plate 1, include obliquely flaked lanceolates characteristic of the Cree Burn Lake Complex and Scottsbluff bases typical of those found in the Nezu Complex. Millar (1983, 66) notes that some were made of "fine-grained chert and Knife River Flint." Millar's plate 1 also includes what may be a Cody knife. What appears to be an Alberta point was collected from the Nordstrom site located in the town of Buffalo Narrows (David Meyer, pers. comm., 2008).

12 To the best of our knowledge, the Scottsbluff point from Boyle is the farthest upstream find of MVMq in the Athabasca drainage to be documented to date. In 1997, studies in connection with the proposed Cheviot mine identified Early Precontact period components as well as flakes of MVMq at site FfQh-27, on Harris Creek, a tributary of the McLeod River near Mountain Park, on the edge of the Front Ranges (Kulle and Neal 1998). Reeves questioned this identification, however, as a local variety of sparkly silicified siltstone that is not uncommon in the foothills of the Upper Athabasca may resemble MVMq. In 2006, Reeves relocated the artifacts in the RAM collections and determined that they were not MVMq but the suspected local silicified siltstone. Cody Complex artifacts, including some manufactured of Knife River flint, have been documented at the Cheviot site (FfQh-26; see fig 6.4), which is also on Harris Creek (Meyer et al. 2007). Nezu knives of Athabasca quartzite have also been recovered in the outer foothills to the east, on southern tributaries of the Athabasca (Meyer, Reeves, and Lobb 2002; Meyer, Roe, and Dow 2007).

13 Gordon divides what we regard as the Early Taltheilei Tradition into two phases: Earliest (2,650 to 2,450 BP) and Early (2,450 to 1,800 BP). However, we are not convinced that these two phases can be clearly distinguished.

14 In 2004, Reeves examined the Peace Point site collections at Parks Canada in Winnipeg with the goal of determining whether there was any MVMq in the collections, which there was not. An additional goal was to examine the microblade core and related artifacts recovered from the site (see Stevenson 1986). These are of some interest as, to the best of our knowledge, they would be the only such artifacts yet found in a Taltheilei Tradition site. Unfortunately, the artifacts were unavailable, on loan to Parks Canada at Wood Buffalo National Park. However, according to unsigned notes left in the artifact number locations, the core was not a microblade core. The Peace Point collections that Reeves examined are dominated by evidence of the bipolar reduction of small pebbles of Peace River chert, resulting in the production of very large numbers of small, parallel-sided flakes, debitage and exhausted bipolar pebble cores, and wedges with parallel-sided flake scars. This technology is the same as that associated with the Chartier Complex bipolar black chert pebbles, which can produce microblade-like cores and flakes. Hence, the notes to the effect that no microblade technology was present at the Peace Point site were probably correct.

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