POST-GLACIAL HUMAN COLONIZATION OF SOUTHERN ALASKA: THE ARCHAEOLOGY OF TRAPPER CREEK

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ABSTRACT

The migratory route for the Pleistocene colonization of the Americas by humans has been debated among North American archaeologists and antiquarians since before the Revolutionary War. It remains the most contentious question in archaeology today. When and by what path did the first people spread throughout the continent? Here, we report updated results from the middle Susitna Valley in southcentral Alaska near the community of Trapper Creek. The region is significant because it lies at the heart of what was a piedmont glacier that blocked the first Alaskans from accessing the rich resources of Alaska's southern coasts during the late glacial period. Deglaciation and human colonization of the heavily glaciated southeasternmost Beringia is relevant to our understanding of the timing and geographical origin of the first small-scale foraging societies to explore and eventually settle the rivers and coasts of southcentral Alaska, British Columbia, and the greater Pacific Northwest. Results suggests an interior-to-coastal migration occurred following deglaciation with no current evidence of a reverse scenario.

PEOPLING OF EASTERN BERINGIA

Archaeological and genetic evidence suggests the peopling of eastern Beringia resulted from multiple pulses of divergent groups in Siberia arriving in the region after 15,000 cal BP (Graf and Buvit 2017). Highly mobile, the first groups practiced ancient Paleolithic customs in the middle Tanana Valley, where the earliest trace of human activity known in Alaska occurred at the Swan Point site dated to 14,200 cal BP along Shaw Creek—a small tributary of the middle Tanana River (Holmes 2001, 2011). At 13,600 cal BP, the people at Shaw Creek were hunting (or scavenging) the last surviving woolly mammoths in interior Alaska and using the ivory to make tools (Wygal et al. 2018). By 13,380–13,570 cal BP, people occupied the Nenana Valley—a southern tributary of the middle Tanana River (Graf et al. 2015; Graf et al. 2017:242).

Prior to human settlement in eastern Beringia, interior Alaska was an ice-free enclave filled with Pleistocene megafauna, including mammoth, horse, and bison, as well as a variety of waterfowl. Moose and wapiti arrived immediately before or at the same time as humans (Guthrie 2006; Lanoë et al. 2017; Mann et al. 2013). During much of the last glacial maximum (LGM), glaciers blocked the interior and coastal routes through Canada and along the Alaska Gulf coast. After 16,000 cal BP, the Cordilleran and Laurentide continental ice sheets were in rapid retreat. Recent reports (Huntley et al. 2017; Munyikwa et al. 2017; Potter et al. 2017:4) suggest that a corridor through western Canada into the northern Great Plains of North America was ice-free, vegetated, and habitable between 15,000 and 14,000 cal BP. The southern piedmont glacier covering southcentral Alaska also obscured the southern continental shelf, making access to any hypothetical Alaska Gulf coast refugia difficult prior to 15,000 cal BP (Fig. 1). Moreover, the original pioneers of eastern Beringia

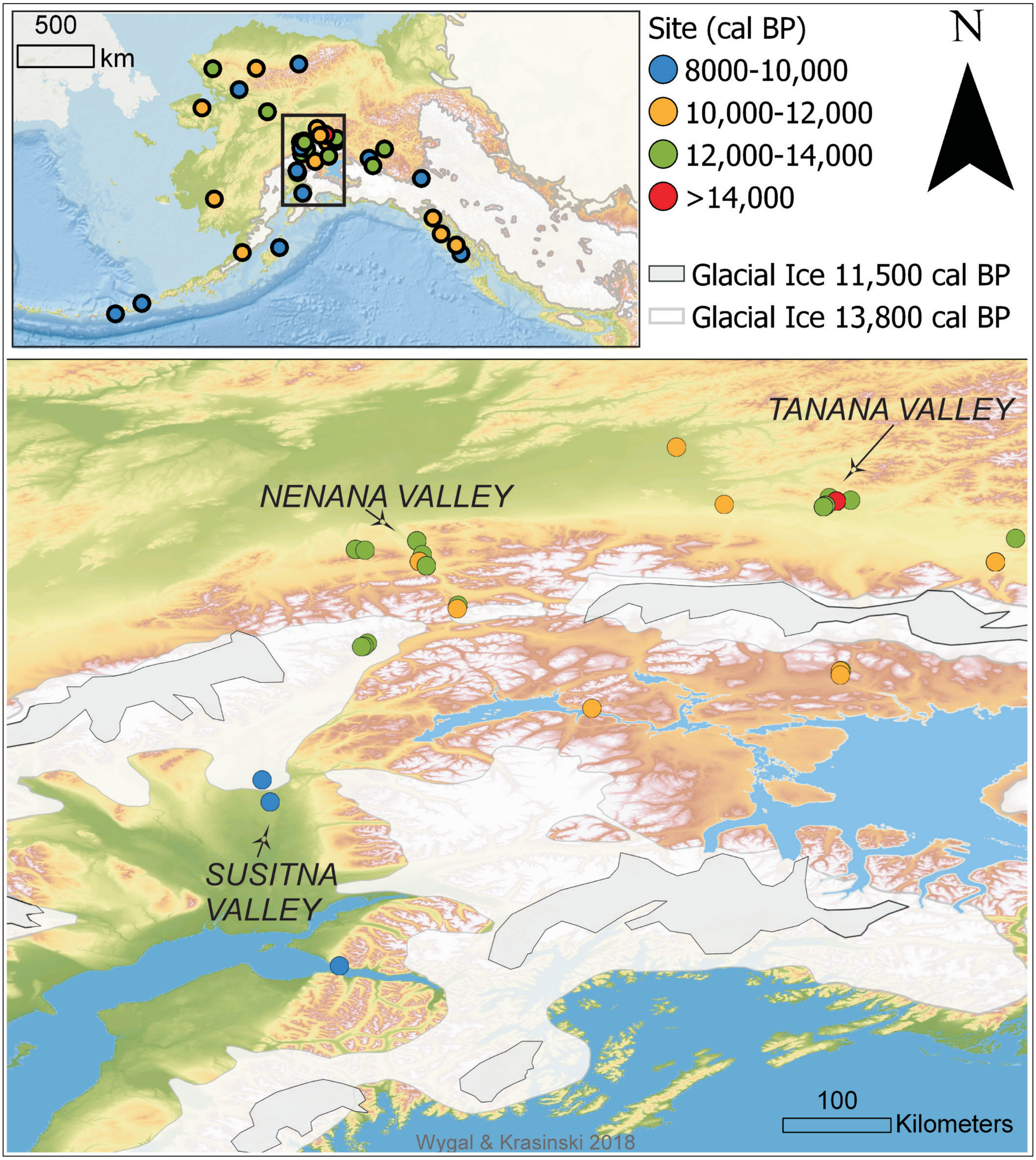

Figure 1. Eastern Beringian archaeological sites between 14,200 and 8000 cal BP *(Wygal 2011, 2018) with extent of glacial ice at 13,800 and 11,500 cal* BP *(Dyke et al. 2003) and Ancient Lake Atna 744 m asl (Wiedmer et al. 2010). Note the distribution of sites along the coast does not exceed 12,000 cal* BP*. The earliest coastal sites barely exceed 10,000 cal* BP *and contain lithic assemblages reminiscent of older sites north of the Alaska Range.*

were oriented to continental lifeways for many millennia before working their way south toward the coast (Wygal 2009; Wygal and Goebel 2012).

Here, we review the archaeology of greater Cook Inlet and the significance of Trapper Creek Overlook in the middle Susitna Valley to set the wider context for the first peopling of the southern Alaska coast.

SOUTHCENTRAL ALASKA STUDY AREA

The Susitna River drains the expansive southern slopes of the central Alaska Range and, at 504 km long, it is the 15th largest river by discharge in the United States (USGS 1987). From its headwaters to upper Cook Inlet, the Susitna basin formed a network of social connections from coastal communities to remote corners of the uplands (Krasinski 2018). The Trapper Creek Overlook site occupies a high glacial esker and overlooks the confluence of the Chulitna and Talkeetna Rivers with the Susitna River—a migratory landmark between the central Alaska Range, Talkeetna Mountains, and upper Cook Inlet. Even with the dense boreal forest of today, this promontory makes an impressive vantage where, for several millennia, small hunting expeditions gathered in the middle Susitna Valley. Thus, the site provides important clues to understanding when and by whom Alaska's southern coast was first colonized.

Wygal and Goebel (2011, 2012) reported on the stagnated ice sheet and postglacial deposition that created the landform and the first three years of archaeology conducted there. At that time, we were uncertain and somewhat skeptical of the generalized reports on the chronology for the LGM and Elmendorf ice retreat (Hamilton and Thorson 1983). We found existing data for the middle Susitna Valley not specific enough for regional conclusions. At that time, we proposed two probable explanations: "either the Trapper Creek eskers formed during or perhaps prior to the LGM (22,000–20,000 cal BP) or the later Elmendorf readvance dated to 15,000 cal BP at Bootlegger's Cove in northern Cook Inlet" (Kopczynski 2008; Reger et al. 2007; Wygal and Goebel 2012:48).

Subsequent excavations provided more information pertinent to the late glacial ice retreat and revegetation of Trapper Creek with the first evidence of *Salix* sp. and Betulaceae appearing near the end of the Younger Dryas—one or two millennia after ice retreat. We do not know much about the initial emergence of north Pacific salmon runs into southcentral Alaska because the highly acidic forest soils destroyed much of the faunal record (Krasinski et al. 2016). Nor can we talk in depth about the large fauna that appeared in these recently deglaciated landscapes (Fig. 2). Following deglaciation, there must have first been migratory birds and fish, then large game like moose, possibly bison or wapiti, and black and brown bear, and eventually people.

Today we know a little more, primarily that ice retreat began first along the main channel of the river and worked its way out and eventually up mountain valleys beginning after 15,000 cal BP (Dyke et al. 2003). We also must consider the tremendous impact of Glacial Lake Atna[1] on the freshly formed river valley landscape when one of four catastrophic ice dam bursts sent a sizable deluge down the middle and lower Susitna River sometime between 27,000 and 15,170 cal BP (Table 1), causing a significant and potentially damaging wave (Smith, this volume; Wiedmer et al. 2010). Long after the glaciers and catastrophic draining of Lake Atna, a series of middle Holocene volcanic eruptions covered the region in a blanket of ash and probably displaced the emerging hunter-fisher-gatherer communities (Wygal and Goebel 2012).

MIDDLE SUSITNA AND UPPER COOK INLET PREHISTORY

We still do not know when the first people entered the Susitna Valley or, more broadly, southcentral Alaska. The earliest unequivocal evidence in the Susitna Valley dates to between 10,000 and 7500 cal BP at the Trapper Creek

Table 1. History of ancient Lake Atna discharges.

Outlet	Surface elevation (m)		Discharge period	
	Pre Flood	Post Flood	After	Before
Tahneta Pass	975	914	27,005–25,281 cal BP	16,290–15,170 cal BP
Susitna River	914	777	27,005–25,281 cal BP (after Tahneta Pass)	16,290–15,170 cal BP
Mentasta Pass	747	701	After Susitna discharge	13,900–13,300 cal BP
Copper River	366	160	After Mentasta Pass discharge	11,090–10,270 cal BP

Data after Ager and Brubaker (1985), Thorson et al. (1981), and Wiedmer et al. (2010). See Smith (this volume) for more specific information on the timing of Ancient Lake Atna and Ancient Lake Susitna.

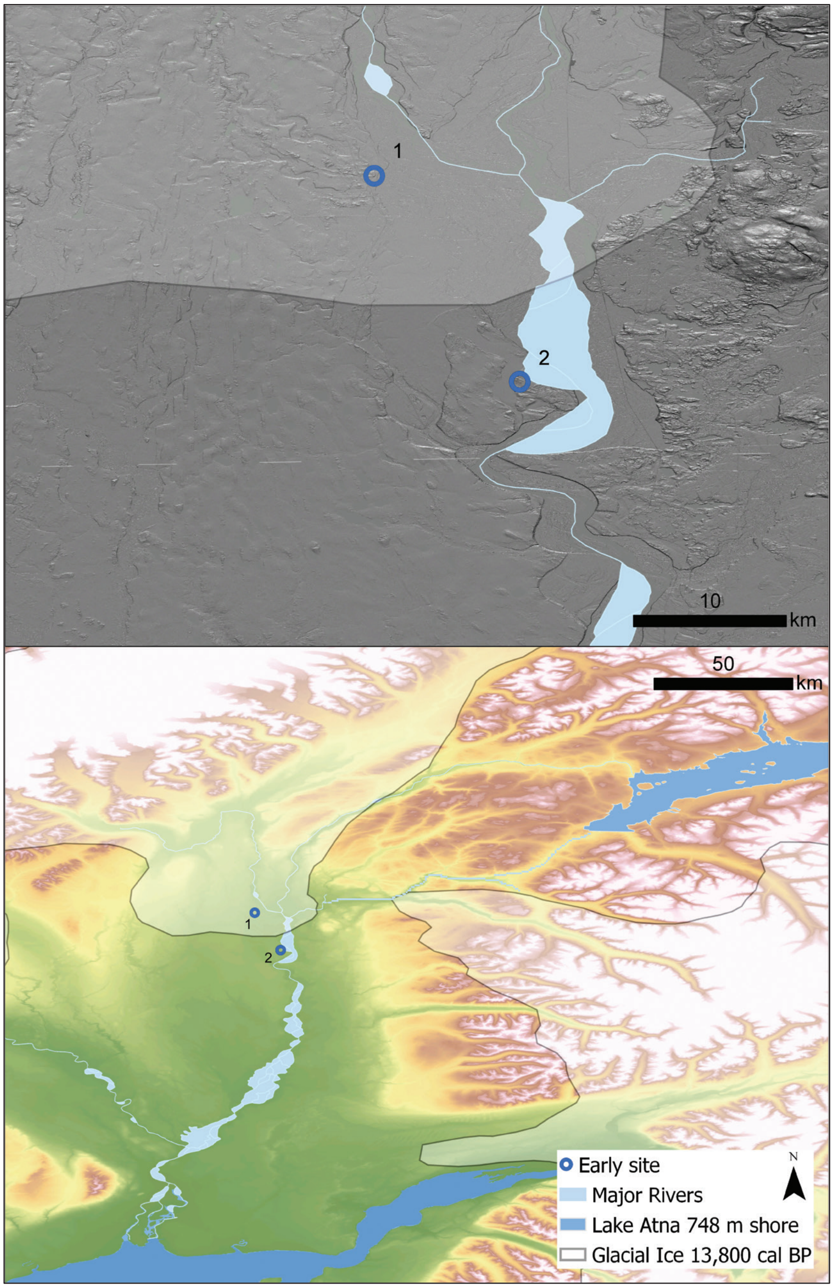

Figure 2. Trapper Creek Overlook (1) and Susitna River Overlook (2) archaeological sites in the middle Susitna Valley with the western most extension of Ancient Lake Atna (Wiedmer et al. 2010) and the position of the rapidly retreating glacial ice at 13,800 cal BP *(Dyke et al. 2003).*

Overlook and Susitna River Overlook sites (Wygal and Goebel 2012). There are few sites predating 8000 cal BP south of the central Alaska Range (Krasinski 2018; Reger and Wygal 2016), and most cluster within the southern foothills. Important alpine, subalpine, and montane sites north of Trapper Creek were recently described by Wygal (2018) and include Bull River II (Wygal 2010), Eroadaway (Holmes et al. 2018), Phipps (West, Robinson, and Curran 1996), Whitmore Ridge (West, Robinson, and West 1996), Sparks Point (West, Robinson, and Dixon 1996), Carlo Creek (Bowers and Reuther 2008), Jay Creek Ridge (Dixon 1993, 1999), and Susitna River III (Blong 2017). To date, there are no coastal or near-coastal sites in southcentral Alaska that reliably predate 9500 cal BP. Early Holocene evidence in coastal regions of Cook Inlet and the Alaska Peninsula are limited to only two sites, Ugashik Narrows and Beluga Point (Dumond 1975; Henn 1978; Reger 1981).

The Ugashik site is the most southerly of those classifiable under the broad umbrella of the Paleoarctic tradition with microblades, large blades, and bifacial artifacts found along a major caribou migration route (Dumond 1975, 1998; Henn 1978; Reger 1981, 1996). These sites suggest millennia of inland hunting strategies and a lack of evidence for maritime resource use or coastal occupation. Human migration toward the southern coast of Alaska occurred at least a thousand years before fully maritime economies appeared in the Kodiak Archipelago between 7600 and 7000 cal BP (Steffian et al. 2002).

Trapper Creek Overlook contains the earliest diagnostic evidence south of the Alaska Range left behind by highly mobile hunter-gatherers with technologies that originated north of the central Alaska Range (Wygal 2010; Wygal and Goebel 2012). The first people likely arrived in small expeditionary groups or task forces searching for large game. Traces of their activities are often subtle and difficult to locate in the archaeological record (Krasinski 2018). Large game was a major part of their subsistence, as indicated by sites occupying high ground and overlooking prime hunting areas, including broad river valleys and confluences. Like their parent populations to the north (Wygal 2018), these early colonizers produced thin, razor-sharp microblades from specialized cores made from high-quality stone that they often carried with them from far away (Wygal and Goebel 2012).

Lithic industries following the appearance of microblade cultures are confusing because multiple groups shared the area around the same time. The Round Mountain site on the Kenai Peninsula (Reger 1998:162–163; Reger and Pipkin 1996), several along the upper Susitna (Blong 2017), and one along the middle Susitna River (Wygal and Goebel 2012) indicate users of notched and/or lanceolate stone points were present in the basin about 6000 to 3000 cal BP. Northern Archaic foragers were intensively focused on hunting caribou in the uplands and moose in lowland areas, but human population densities were probably low. Like earlier colonizers, Northern Archaic people also used microblade technology in some locations but not in others. We are still uncertain if the Northern Archaic tradition developed from the Paleoarctic tradition or arrived independently from somewhere else (Esdale 2008; Reger and Wygal 2016). We also do not know if the Northern Archaic people became Athabascans or moved out of the area (Esdale 2008:6–7). We know so little about the Northern Archaic that some researchers question the relevance of the label entirely (Anderson 2008:177).

Early to middle Holocene components at Beluga Point, overlooking Turnagain Arm, had a distinctive Northern Archaic–style stemmed chipped stone projectile point and high-shouldered knife (Reger 1998), but these points also resemble early coastal technologies. Chipped knives with Alaska Peninsula influence were also moving into Cook Inlet from the south by this time (Reger and Wygal 2016). Because the earlier assemblages lacked slate, stemmed points probably predate the ground stone technology. At 4200 cal BP, people using ground slate spear points and knives camped at Beluga Point on Cook Inlet (Reger 1998) with similar artifacts from the upper Yentna River drainage (Dixon 1996). Trade and social networks probably developed between cultures (Krasinski 2018). The Ocean Bay culture of Kodiak Island and coastal southcentral Alaska were evidently the earliest to make ground slate artifacts and probably the first to be fully committed to sea mammal hunting (McCartney et al. 1998; Workman and Workman 2010). During the middle Holocene, people producing ground slate tools occupied coastal and lower river valleys, while hunters using notched points focused on upland game, especially along the mountain flanks surrounding upper Cook Inlet. Increasingly, archaeologists are considering seasonal use of environments, patterns of transhumance, and social networks between coastal and riverine people (Reger and Wygal 2016; Krasinski 2018).

The Kachemak tradition spread through Cook Inlet from 3000 to 1000 cal BP (Workman and Workman 2010). Riverine Kachemak represents a different strategy by moving up major rivers and along the coast. A Riverine Kachemak population dating to 2000 cal BP was reported by Schneider (2013) at Hewitt Lake near the confluence of the Yentna and Skwentna Rivers. Throughout Cook Inlet, Riverine Kachemak relied on salmon fishing but also hunted moose and caribou (Reger 1998; Reger and Boraas 1996; Workman and Workman 2010). Small notched net sinkers are prevalent in Kachemak fishing sites along large rivers, as well as a range of artifacts and debris associated with seasonal salmon harvests—including subterranean caches containing salmon remains found inside house features. Kachemak people knapped stone arrow points and ground slate into ulus, lances, and spear points (Reger and Boraas 1996). What connection was there between Riverine Kachemak and coastal Kachemak on Kodiak and at Kachemak Bay on the Kenai (Workman and Workman 2010)?

Athabascan technologies, including those produced by Ahtna and Dena'ina, appear in upper Cook Inlet between 1500 and 1000 years ago (Krasinski 2018; Reger and Wygal 2016). While Athabascan is clearly an ancient language family (Kari and Fall 2016), archaeologists are uncertain of Athabascan geographical origins. Athabascan sites dated within the last 1000 years include fish camps, large-scale salmon storage, and villages with large multiroom houses. These houses were excavated partially into the ground and had earthen embankments around the walls and central hearths in the main room; they often had an added side room (Krasinski 2018; Krasinski et al. 2016; Reger and Boraas 1996; Reger and Wygal 2016). While lithic technology continued, its use and sophistication diminished in favor of wood and bone technology. Copper artifacts appear as prestige tools and were traded to Dena'ina from the Ahtna in the Copper River Basin (Cooper 2012). While copper tools were most common among the Ahtna, they have been found also in sites along Knik Arm, Turnagain Arm, and on the Kenai (Reger and Wygal 2016).

Protohistoric and historic sites contain glass trade beads and iron implements, marking the arrival of Western traders in the late 18th century. Dena'ina Athabascan village sites were positioned along prominent salmon streams throughout upper Cook Inlet. Additional villages have been recorded farther inland along major confluences with the lower Susitna River, such as Kroto Creek, Yentna

River, and Deshka River, and also along much smaller drainages flowing into Knik Arm, including Fish Creek and Cottonwood Creek (Krasinski et al. 2016). A few isolated settlements and cache pits occur in the middle Susitna Valley but become increasingly scarce upstream near Trapper Creek (Krasinski 2018).

In summary, the earliest archaeological evidence in the Cook Inlet Basin points toward interior Alaska for the source of the first people following the melting of vast glaciers. After that time, middle Holocene hunters and fishers apparently came from the Pacific coastal areas and Bristol Bay and shared the region with groups from the interior. The first well-documented widespread technology in southcentral Alaska was the Denali complex, followed by the Riverine Kachemak along coastal Cook Inlet. While the culture history is complicated and intertwined, the overall trend of cultures moving from the interior to the coastal is clearly established during the early prehistory of Cook Inlet.

It is worth noting that a similar pattern is shown in southeast Alaska and British Columbia (McLaren et al. 2014, 2015), with the earliest technologies appearing 11,000 to 10,000 cal BP as foliate-shaped bifaces and cobble tools often buried nearly 4 m deep, along with a noticeable lack of microblade technology. Microblade technology appears soon after 10,000 years ago. By 6000 cal BP, shellfish are abundant and coincide with greater shifts toward maritime economies. By 5000 cal BP, there are fewer microblades and the stone technology incorporated ground stone and contracting stem projectiles. During the mid- to late Holocene, after 3000 cal BP, notched projectiles are found alongside a robust ground stone tool industry, and maritime adaptations were common along the coasts (McLaren et al. 2015:156).

The culture histories of the Susitna Valley and upper Cook Inlet are essential to understanding the wider saga of the first people to colonize southern and coastal Alaska. This is important for understanding broader questions about the peopling of North America, particularly in addressing when and from where these groups originated. Based on the archaeological record, we see a clear migration from continental inland populations with a gradual transition to a coastal maritime economy. At the overlook site in Trapper Creek, 100 km north of Cook Inlet, we learn when the ice-age barriers receded and how long it took plants, animals, and eventually people to follow.

ARCHAEOLOGY OF TRAPPER CREEK OVERLOOK

EXCAVATION HISTORY

The Trapper Creek Overlook site was discovered in 2004 by the authors (field supervisors at the time) during a coastal zone management survey for the Matanuska Susitna Borough (Seager-Boss 2004). Since discovery, 117 m^2 have been excavated, with all sediments screened through ⅛-inch wire mesh (Fig. 3). Archaeological field schools began in 2005 and 2006, hosted by the University of Nevada, Reno, and continued with an additional five seasons of field schools by Adelphi University of New York between 2011 and 2015.

STRATIGRAPHY AND DATING

Trapper Creek Overlook occupies a glacial esker comprised of unconsolidated gravel and silts with 60 cm to 1 m of overlain aeolian loess and three tephras. The site has 12 stratigraphic units (Fig. 4) with two definitive cultural components and a third probable component near the bottom of two paleosol complexes. Ablation till forms the basal unit, stratum 1, which is a series of poorly sorted round to angular rocks ranging from pebbles to large boulders. Rock types in this layer include schist, graywacke, mica, slate, chert, basalt, siltstone, mudstone, and quartz cobbles encased in a matrix of silt and sand. Stratum 1 has not been radiometrically dated but marks the period of postglacial outwash deposited during ice retreat. Stratum 2 appears as a thin (1–2 cm) lens of fluvial coarse-grained sand that caps the till. Future research should study whether stratum 2 was derived from the catastrophic release of Ancient Lake Atna (a.k.a. Ancient Lake Susitna) or if it dates to high outwash levels during LGM glacial retreat.

Postglacial windblown aeolian silt blanketed the region with 35 to 45 cm of greenish-gray loamy sand (stratum 3a). Based on the experimental OSL method, stratum 3a/3b dated to between 30,000 and 22,000 cal BP, suggesting Trapper Creek was ice-free through the LGM (Wygal and Goebel 2012). Subsequent excavations yielded evidence suggesting the previously reported optically stimulated luminescence (OSL) dates were inaccurate, probably due to an incorrect dose rate (Jain et al. 2003; Prescott and Hutton 1994; Wygal 2009:52). In 2015, a few calcined bone and charcoal fragments identified as

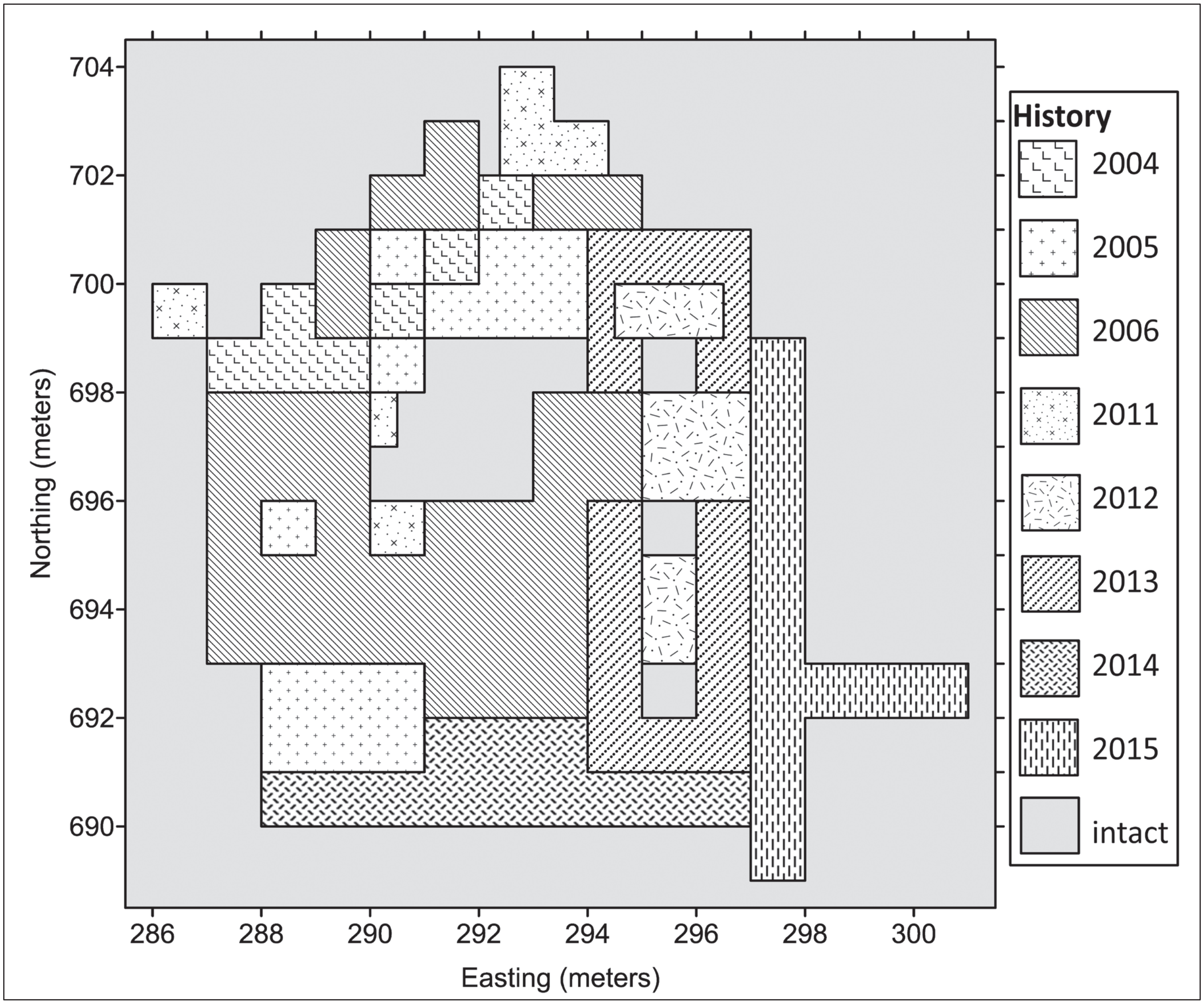

Figure 3. History of excavation at Trapper Creek overlook.

Salix sp. and Betulaceae with radiocarbon midpoints between 12,601 and 11,827 cal BP were recovered from stratum 3a with grades into 3b—a yellowish-brown sandy loam deposited roughly 10,520 to 10,280 cal BP.

Substratum 4a is a sandy clay loam about 15–20 cm thick (7900–7669 cal BP) with discontinuous patches of gleyed silty clay loam and ash representing a discontinuous reworked tephra. Solifluction was minor at the site, but it did disturb some areas between substrata 4b and 4a. Substratum 4b (7169–5746 cal BP) is a compact oxidized bright orange horizon with the highest concentrations of dispersed wood charcoal.

The fifth stratum is a 5 cm thick pale greenish-gray band of sandy loam with low levels of devitrified glass. Stratum 5 dates to 4809–4448 cal BP and likely contains remnants of the Oshetna tephra dated to 6000 cal BP (Child et al. 1998; Dixon and Smith 1990). At Trapper Creek, this tephra is poorly preserved and therefore difficult to characterize. Stratum 6 is a 2 cm thick bright yellow tephra with biotite phenoclasts most similar to the Hayes set H tephra (Kristi Wallace, pers. comm. 2007; Wan 2007). It is also possible that stratum 5 contains leached minerals from stratum 6.

The remaining strata include additional series of light gray tephras, an E horizon, windblown silts, a thin O horizon, and forest litter with root mat. The tephra in stratum 10 is also heavily weathered and derived from a more recent ash fall event. Dispersed charcoal from stratum 9 date that layer between 913 and 733 cal BP (Table 2).

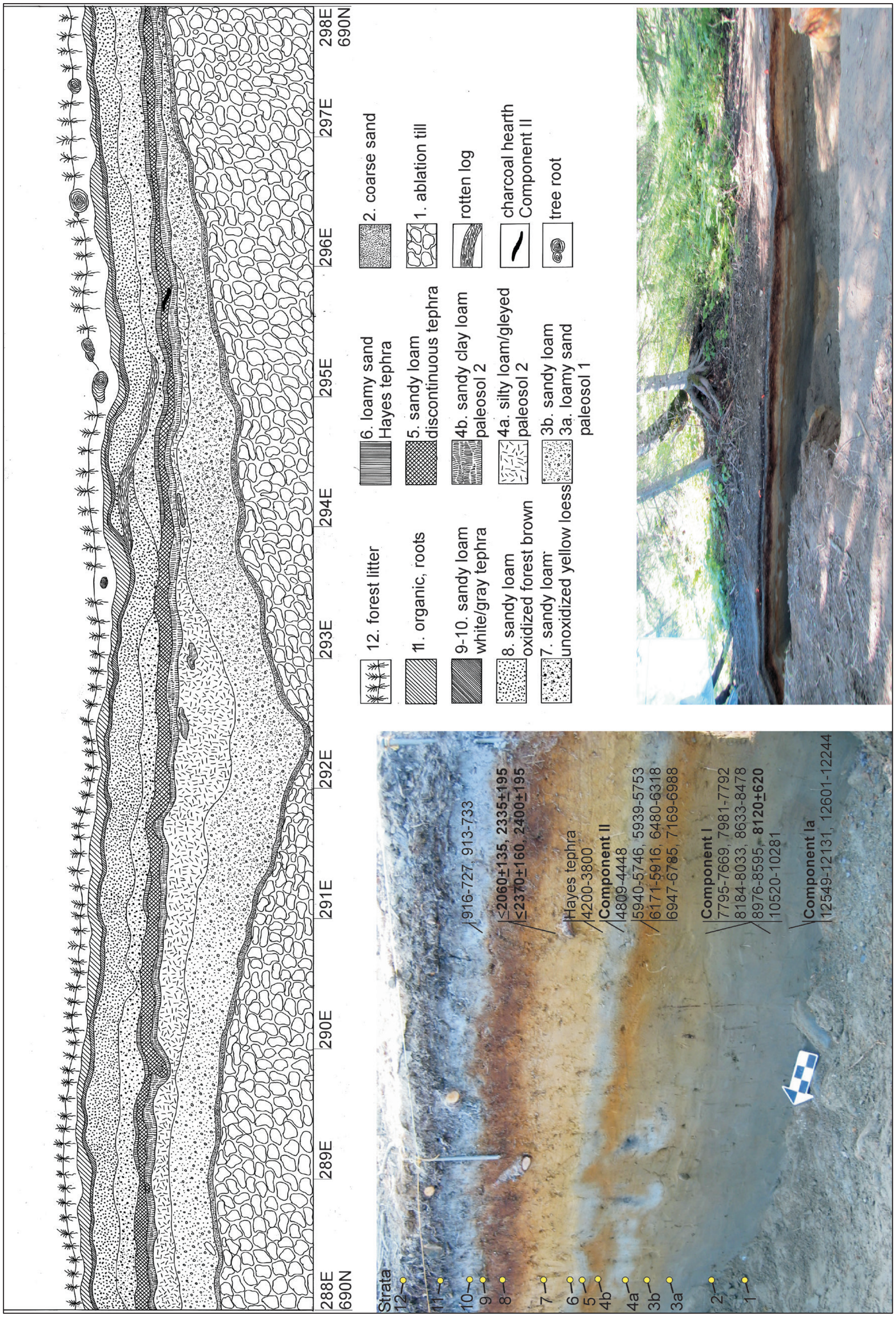

Figure 4. South and central profiles at Trapper Creek Overlook. OSL dates that coincide with radiocarbon sequence are in bold. Aberrant OSL dates cited previously (Wygal and Goebel 2011, 2012) were omitted.

Table 2. Radiocarbon dates from Trapper Creek overlook.

Lab#	Cal BP	Measured Age	Component	Material	Strata
AA67363	916–727	884 ± 38	C-III	Charcoal	9
AA67362	913–733	892 ± 37	C-III	Charcoal	9
BETA370473	4809–4448	4090 ± 30	C-II	Charcoal, hearth	5
BETA208282	5940–5746	5120 ± 40	C-II	Charcoal, hearth	4b
BETA-411459	5939–5753	5130 ± 30	C-II	Charcoal	4b
AA72199	6171–5766	5186 ± 42	C-II	Charcoal	4b
BETA385240	6174–5916	5230 ± 30	C-II	Charcoal, hearth	4b
BETA400206	6480–6318	5630 ± 30	C-II	Charcoal, hearth	4b
BETA-411462	6947–6785	6020 ± 30	C-II	Charcoal, hearth	4b
BETA-411461	7169–6988	6180 ± 30	C-II	Charcoal	4b
BETA-411463	7795–7669	6900 ± 30	C-I	Charcoal	4a
AA67360	7962–7756	7035 ± 49	C-I	Charcoal	4a
AA67361	7981–7792	7068 ± 49	C-I	Charcoal	4a
BETA405796	8184–8033	7320 ± 30	C-I	Charcoal	4a
BETA405795	8633–8478	7790 ± 30	C-I	Charcoal	4a
BETA208283	8976–8595	7900 ± 40	C-I	Charcoal, remnant hearth	4a
BETA385239	10520–10281	9250 ± 30	C-I	Charcoal	3b
BETA400207	12130–11827	10250 ± 30	C-Ia	Charcoal, cf. Betulaceae	3a
BETA411460	12160–11817	10260 ± 40	C-Ia	Charcoal	3a
BETA357843	12549-12131	10460 ± 40	C-Ia	Charcoal, *Salix* sp.	3a
BETA357842	12601-12244	10510 ± 40	C-Ia	Charcoal, *Salix* sp.	3a

Radiocarbon dates calibrated with OxCal v.4.2 (Bronk 2009) and the InCal13 atmospheric curve (Reimer et al. 2013).

Soil Complexes and Cultural Components

There are four important ancient soil complexes within the 12 strata at Trapper Creek Overlook (Table 3). Paleosol 1 formed on strata 3 through 1 as a dark grayish-brown Ab horizon with moderate clay skins covering the downward surfaces of clasts to an olive-brown Bb horizon of moderate clay skins covering entire clast surfaces. Paleosol 2, on strata 4 and 5, is characterized by strong Bbt and Bbg subhorizons immediately below stratum 6—the Hayes tephra. Paleosol 2 also has a weakly developed subangular blocky structure with light clay skins on pebble-sized clasts. Paleosol 2 dates to the significant vegetation shift of the early Holocene, when the modern boreal forest first began to emerge across central and southern Alaska (Bigelow and Edwards 2001; Hu et al. 1996). Strata 7 and 8 are masked by paleosol 3, characterized by the horizon commonly known as Forest Brown, an oxidized Ab horizon that grades into a reddish-brown Bbw horizon. The modern O-A horizon formed on stratum 11 is well pronounced.

With respect to the archaeology, component Ia was found in strata 1, 2, and 3a, component I within strata 3b and 4a, and component II in strata 4b and 5. At the apex of the esker, depths of the profile reach 1 m, but toward the edges the profile is compressed into approximately 60 cm. The archaeological components are mostly separated where sediments are deeper but become compressed at the edges of the excavation, causing some mixing between components I and II. Stratum 4b contained the densest concentration of dispersed charcoal fragments, artifacts, and three well-preserved hearths. In our previous report (Wygal and Goebel 2012), we were unable to distinguish between a major forest fire event or human activity, but the subsequent analysis of spatial patterns and more thorough dating revealed by further excavations suggests human activity contributed much of the charcoal at the site over the course of multiple occupations.

We attempted to analyze the three most prominent tephras at Trapper Creek Overlook. All were too heavily weathered for a thorough mineralogical characterization, but the radiocarbon data and presence of biotite phenocrysts in stratum 6 are most consistent with the Hayes tephra set H (Riehle 1994; Riehle et al. 1990; Schiff et al. 2008:63; Kristie Wallace, pers. comm. 9 November 2007; Wan 2007). The 500-year series of Hayes ashfalls represents the most extensive tephra deposit across southcentral and

Table 3. Stratigraphic descriptions at Trapper Creek overlook.

Strata	Component	cm-bs	Horizon	Description	Deposition	Texture/features	Cal BP*
12		0–3		surface	forest litter	leaves, shrubs, etc	
11		3–8	O	root mat	aeolian	organic, roots	
10		8–15	E1	tephra	leeched	sandy loam/ash	
9	CIII	15	E2	tephra	leeched	sandy loam/ash, white	913–733
8		15–25	B1c	oxidized loess	aeolian	sandy loam/forest brown	
7		25–35	B2	unoxidized loess	aeolian	sandy loam	
6		35–37	C	Hayes tephra	aeolian	loamy sand/few glass shards	4030
5		35–40	1Ab	paleosol 2 (tephra continuous)	leeched	sandy loam/glass devitrified	4809–4448
4b	CII	40–50	1Bb1t	paleosol 2	aeolian	sandy clay loam	5746–7169
4a	Mixed	50–60	1Bb2g	paleosol 2 (tephra discontinuous)	aeolian	silty clay loam/gleyed	7669–8976
3b	CI	60–80	2Abw	paleosol 1	aeolian	sandy loam/moderate clay	10,520–10,281
3a	CIa	80–95	2Bbw	paleosol 1 (very weak)	aeolian	loamy sand/moderate clay	11,827–12,601
2		95	2C	coarse sand	fluvial	coarse grained sand	
1		>95		ablation till	ice stagnation	unconsolidated clastic debris	

*Radiocarbon dates are reported in Table 2.

central Alaska, dated between 4200 and 3800 cal BP (Begét et al. 1991; Bowers 1979; Riehle et al. 1990; Schiff et al. 2008:66). The same ash has been correlated with the Cantwell tephra at Carlo Creek (Bowers 1979, 1980) and the Jarvis Creek ash near Delta Junction (Péwé 1975). Most recently, it was identified in Denali National Park north of the Alaska Range, where a maximum bracketing age of 4250 cal BP was obtained (Child et al. 1998). Therefore, we equate stratum 6 at Trapper Creek Overlook with the Hayes tephra deposited between ca. 4200 and 3800 cal BP (Wygal and Goebel 2012). Throughout the excavations at Trapper Creek Overlook, all charcoal fragments ≥1 cm were mapped and provide good context for hearths and hearth remnants.

CULTURAL HORIZONS

While it is possible the first humans used Trapper Creek Overlook between 12,600 and 11,800 cal BP, definitive proof remains out of reach. The component Ia lithic assemblage is crude and constructed almost entirely of local materials. Its context is problematic in some portions of the site but is deeply stratified in others. To be clear, component Ia may have been produced by glacial processes or humans. Of the 50 items from component Ia, there is red and yellow ocher, some calcined bone, and dispersed charcoal alongside a crude lithic assemblage.

Component I occupations at Trapper Creek Overlook date between 9000 and 7700 cal BP, with limited activities beginning as early as 10,500 cal BP. This is consistent with the nearby Susitna River Overlook, dated minimally to 9100 cal BP (Wygal and Goebel 2012:54). Activities that produced the component I assemblage at Trapper Creek were small in scale and occurred over a long period. Component II (7000 and 4500 cal BP) involved more intensive activities, leaving behind more substantial and better-preserved hearths. There were also a few fragments of fire-cracked rock and a couple of tci-thos from what appears to be a brief visit by late prehistoric Athabascans in component III. Charcoal from stratum 9 date that event between 916 and 727 cal BP. These dates are in line with an expansion of modern Dene traditions into the area (Krasinski 2018).

ARTIFACT ASSEMBLAGE

The total number of accessioned artifacts is 1811, including 560 charcoal samples ≥1 cm in size and 11 bone fragments—mostly calcined. Of the 1240 remaining items, four fragments of fire-cracked rock (FCR) were collected (the majority of FCR observed during excavation was not collected). There are also six ocher crayons or nodules ranging in size from 1 to 5 cm—four from component I and the remaining from component Ia. One "etched quartz pebble" from component Ia is described below. There are two "manuports" in the assemblage. Several sediment samples from various layers have been cataloged. This leaves 111 lithic tools, three complete or fragmented microblade cores, 31 microblades, 13 flake cores, one core tablet, one tested cobble, and 1067 pieces of debitage recovered from excavations between 2004 and 2015 (Tables 4 and 5; Fig. 5). The tools are described more specifically in the following section. Artifact attribute tables by component are available as supplemental data,[2] including raw material type, degree of dorsal cortex, platform type, and artifact size class.

COMPONENT IA

Component Ia artifacts were recovered deep in the stratigraphic profile, with the majority from the rocky/sandy surface of strata 1 and 2 but some also from the bottom of the oldest paleosol 1 within stratum 3a (Fig. 6). Only 50 total items comprise the lowest assemblage, and we present it here as possible but certainly not definitive evidence for the first human use of the site. Of these, 10 are potentially expedient "tools" and 23 possible "debitage." The lithic items from component Ia are crude and on local lithic materials, all of which may have been acquired from the basal gravel in stratum 1. Found in isolation, these would be difficult to categorize as human modified, but some do have conchoidal fractures and a variety of platform types. Most of the possible tools are cataloged as flake tools, scrapers, and a chopper (UA2012-179-035), but these too are crude and could be dismissed in isolated contexts. There are also potential flake cores from the lowest component.

Other more peculiar items from component Ia include an "etched pebble" (UA2015-251-188) described as a teardrop-shaped white quartz pebble 3.2 cm in length and 16.3 cm in width. There are five linear etchings in parallel rows on top, and four similar lines in the same fashion on the broadest face of the stone. Of course, the etchings could have been glacially produced, but their parallel linear patterning in two separate locations on the stone, in addition to the stone's unique crystalline quality, make it worthy of mention.

Also collected from the lower component is a triangular "tool" (UA-2012-179-030) on slate with a beveled edge containing rust-colored staining consistent with the red ocher found nearby. Mineralogical analyses have not been attempted. It was recovered near a large anvil stone with both flake scarring and glacial etching. Stratigraphically, the anvil and triangular "tool" were positioned at the bottom of stratum 3a near the surface of stratum 2 but with a condensed layer of olive loess from stratum 3a beneath the artifacts—thus, clearly above glacial gravels. A large anvil

Table 4. Artifact categories from the lower components at Trapper Creek overlook.

Artifact Categories	Component				
	C-Ia	C-I	C-II	Mixed	Total
bone	5	0	5	1	11
charcoal	9	111	383	57	560
core, flake	2	8	3	0	13
core, microblade	0	3	0	0	3
core, tablet	1	0	0	0	1
core, tested cobble	0	0	0	1	1
debitage	20	337	286	424	1067
FCR	0	1	3	0	4
manuport	0	2	0	0	2
microblade	0	16	12	3	31
ocher	2	4	0	0	6
etched pebble	1	0	0	0	1
tool	10	36	50	15	111
Total	**50**	**518**	**742**	**501**	**1811**

Table 5. Tool types from lower components at Trapper Creek overlook.

	Component				
Tool Type	C-Ia	C-I	C-II	Mixed	Total
biface (stage 1)	1	0	0	2	3
biface (stage 2)	0	1	0	0	1
biface (stage 3)	0	1	1	0	2
biface (stage 5)	0	0	1	0	0
burin	0	2	0	0	2
burin/scraper	0	0	1	0	1
chopper	1	0	2	0	3
end scraper	0	1	6	0	7
engraver	0	1	0	0	1
engraver/spoke shave	0	0	0	1	1
flake tool	4	14	16	6	40
grinding stone	0	1	0	0	1
hammer stone	1	3	11	2	17
notch	0	1	0	0	1
projectile point	0	3	0	1	4
retouched flake	0	0	6	0	6
scraper, end	1	0	0	1	2
scraper, side	2	4	1	2	9
tci-thos	0	3	4	1	8
uniface	0	2	0	0	2
Total	**10**	**37**	**49**	**16**	**111**

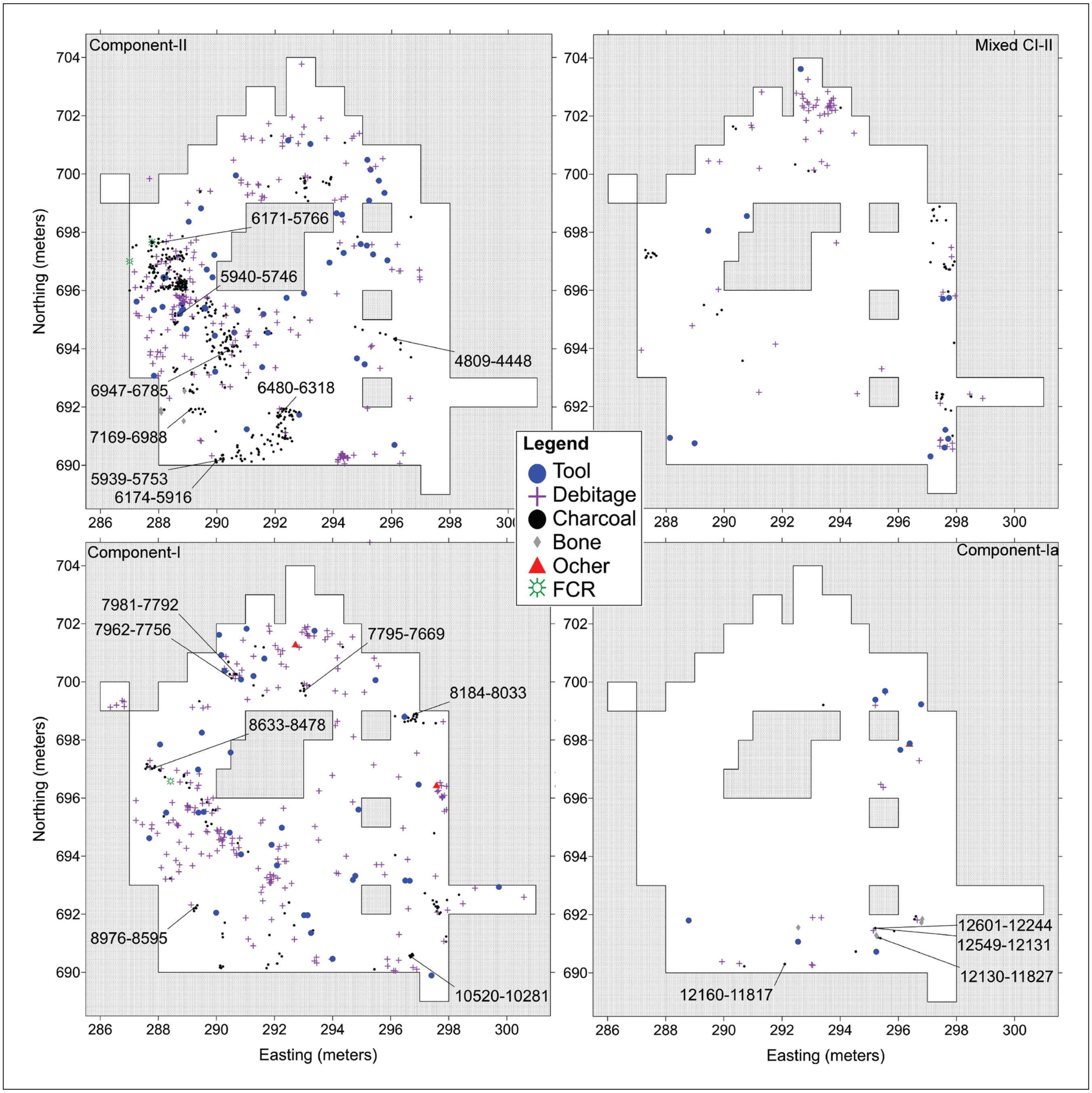

Figure 5. Trapper Creek Overlook distribution of in situ artifacts in three separate components. Trapper Creek Overlook Component II dated between 4650 and 6400 cal BP with the majority of activities taking place ~5900 cal BP. A mixed assemblage intermediate between CI and CII is primarily associated with compressed stratigraphy near the edge of the esker. Component I dated between 8750 and 7730 cal BP and the tentative designation of Component Ia assemblage dated between 12,480 and 10,400 cal BP. Readers are encouraged to read the C-Ia description regarding the possibility that this component was either created by glacier or human activity.

stone (30 cm x 15 cm), also from the bottom of 3a, had significant flake scarring and conchoidal ripple marks on the upward-facing surface (Fig. 7). This item occurs at 698 N and 297 E, where the stratified profile is condensed into approximately 60–70 cm, leaving stratum 2 condensed vertically. Other fragments of the anvil made on red basalt were recovered from adjacent units. There are no other glacial boulders or gravel within stratum 3a, suggesting human placement of the anvil at the crest of the hill. Near the anvil were two ocher "crayons," one dark red/brown and the other tan in color. Thus, component Ia is small and should be considered with caution. We report it here as a peculiar subset of the overlying component I, yet we distinguish it because the first exploratory appearance of humans on any landscape may be difficult to detect.

The first people ever to visit Trapper Creek Overlook would have been explorers unfamiliar with the lithic landscape, and they probably left barely a trace of evidence behind. "Bang-Andersen (2003) termed this the 'phase of discovery', during which archaeological traces may be minimal to nonexistent because only cursory activities would take place" (Wygal and Heidenreich 2014:135). While very difficult to locate, we should expect to find evidence of initial exploratory colonization events at sites of particular strategic advantage, such as along major river corridors and overlook positions (Krasinski 2018; Riede 2005, 2007). However, given the ephemeral nature of the component Ia assemblage at Trapper Creek Overlook, we leave open the interpretation pending further evaluation.

COMPONENT I

The majority of artifacts from component I are lithic debitage, followed by charcoal fragments, 16 microblades, four ocher crayons, two microblade cores, one microblade core fragment, eight flake cores, and 35 stone tools (Fig. 8). Of the formal tools, there are two fragmented and one complete projectile points. The first point is a basal fragment with outrepassé flaking pattern on black chert (UA2015-251-039) reminiscent of the unique lanceolate point recovered from Panguingue Creek (Hoffecker and Powers 1996) and similar to the Kayuk style in the Noatak (Robert Gal, pers. comm. 22 March 2018). The second fragment is the very tip of a crystal-clear obsidian point sourced to Batza Téna group B (AOD12090). A third complete projectile (UA2014-117-020) is a heavily reduced lanceolate-style point on black-banded chert.

Most of the tools are expedient flake tools, scrapers, and split cobble tci-thos. There are a few associated stage two and three bifaces along with a long macroblade knife (UA2006-136-255). Lithic raw materials are dominated by basalt, followed by a wide variety of chert and chalcedony types, with lesser amounts of siltstone, sandstone, mudstone, slate, and rhyolite. At least three types of obsidian sources have been identified and are described more thoroughly below (and in the supplemental data, online).

The microblade cores include an end-style microblade core fashioned on a used-up thumbnail scraper, a conical-shaped core, and a fragmented microblade core face rejuvenation flake. The end core's (UA2004-159-005) striking platform was prepared with light retouch and by grinding the back-lateral margins. Three full and one partial microblade facets occurred on the core front. This end core is similar to a style described from Upper Paleolithic Siberia (Powers 1973) and occasionally reported in Denali complex sites of interior Alaska (West 1981). The other complete microblade core is conical in shape, with six blade facets encircling the entire core except one cortical face (UA2006-136-558). Platform preparation on this specimen is nondescript with simple light retouching and no evidence of tabular rejuvenation. Together, these microblade cores, microblades, technical spalls, and a few burinated flakes comprise less than 4 percent of the component I assemblage.

Other signs of primary reduction include complete flakes and angular shatter, while cortical spalls, blade-like flakes, and bipolar flakes are uncommon. Debitage related to secondary reduction occurs in higher frequencies. These include biface thinning flakes, tiny retouch chips and their fragments, and burin spalls. Thus, not considering inexpressive flake fragments, elements of secondary reduction clearly dominate over elements of primary reduction. This pattern is further expressed in the amount of cortex present on the debitage and tools. Only 7 percent of the debitage assemblage bears dorsal cortex, and none of the tools possess more than 50 percent dorsal cortex; most lack cortex entirely. Flaked debris is also relatively small, with the vast majority less than 3 cm in maximum dimension. The overall small size of the debitage complements the typological analysis—that secondary reduction dominated technological activities during the component I occupation. Platform preparation on flaked debris is variable and includes unidentifiable, simple, complex, cortical, and to a lesser extent crushed platforms.

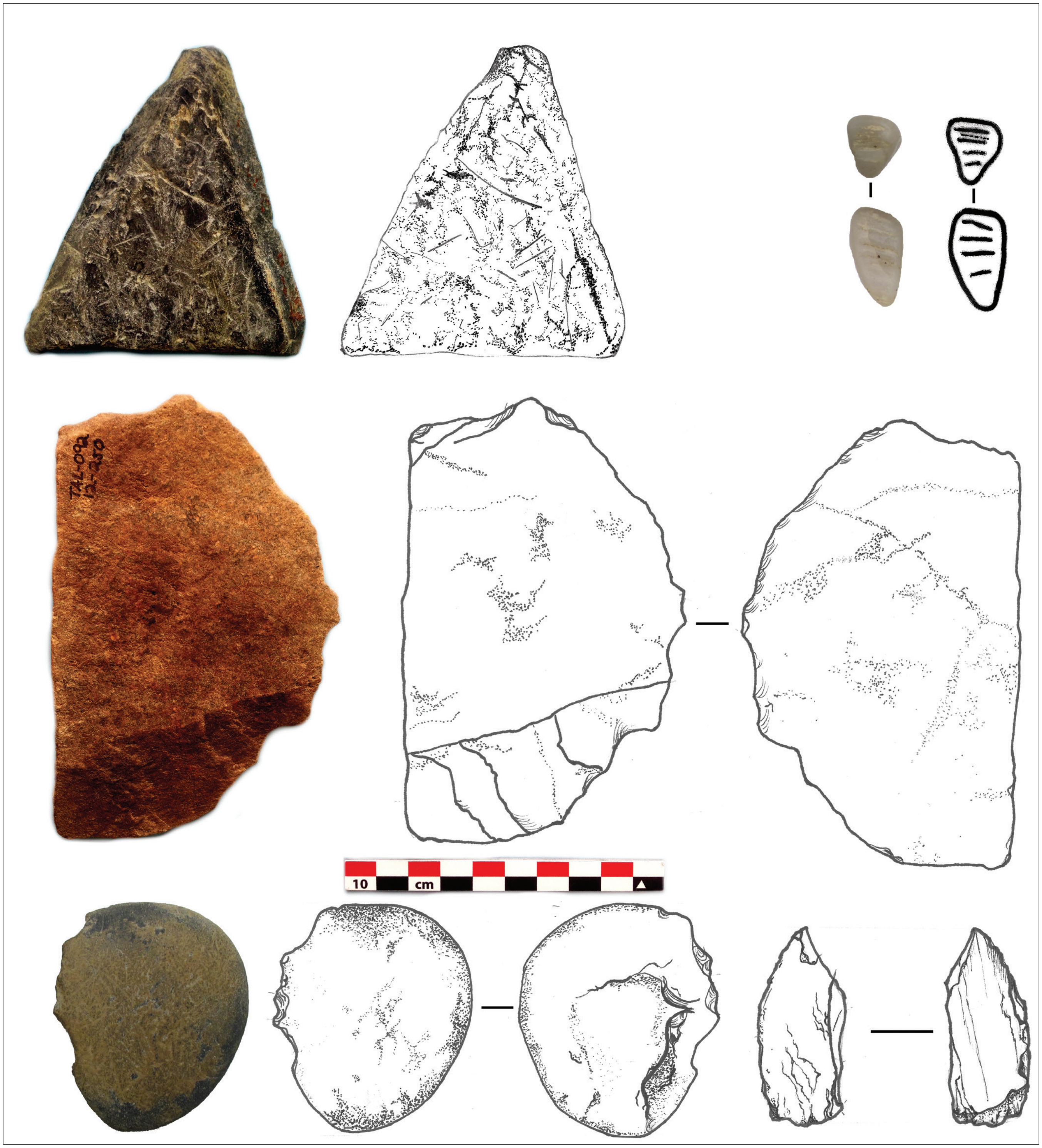

Figure 6. "Artifacts" from Component Ia at Trapper Creek Overlook. From top left to right: triangular tool (UA2012-179-030), etched pebble (UA2015-251-188), granite cleaver (UA2012-179-035), worked cobble/hammer stone (UA2013-155-009), and flake tool on basalt (UA2015-251-159).

Figure 7. (a) Component Ia anvil and triangle tool in situ within the very bottom of stratum 3a; (b) east profile wall nearest the anvil demonstrating compressed stratum 3a stratigraphy in relation to stratum 1; (c) close up of flake scar on anvil with conchoidal ripple marks and glacial striation; (d) upward facing surface of anvil plan view.

The character of the component I assemblage suggests the occupants engaged in discrete refurbishing activities with tool types including microblades, microblade cores, burins, bifaces, and flake tools. Several clusters parallel Binford's (1983:152) description of individual tool-maintenance tasks in which small distributions of items are dropped and tossed around the worker in an arc formation (Krasinski and Yesner 2008:30). Anderson (1988) noted similar clusters at Onion Portage that were generally restricted to 2 m diameter areas for single activities. Although no formal spatial analysis has been undertaken, discrete artifact clusters in component I are visibly discernable. There is virtually no bone preserved in component I.

COMPONENT II

Component II is the largest and most diverse at Trapper Creek Overlook with basalt, chert, at least two varieties of obsidian, and smaller percentages of rhyolite, siltstone, sandstone, slate, and chalcedony. No microblade cores were recovered, but 12 microblade fragments occur on a minimum of seven different varieties of raw material.

The component II debitage assemblage has smaller proportions of primary when compared to secondary reduction elements. Primary reduction is represented by three simply prepared flake cores, four split cobbles, three initially worked cobbles, and some angular shatter. Excluding nondiagnostic flake fragments, cortical

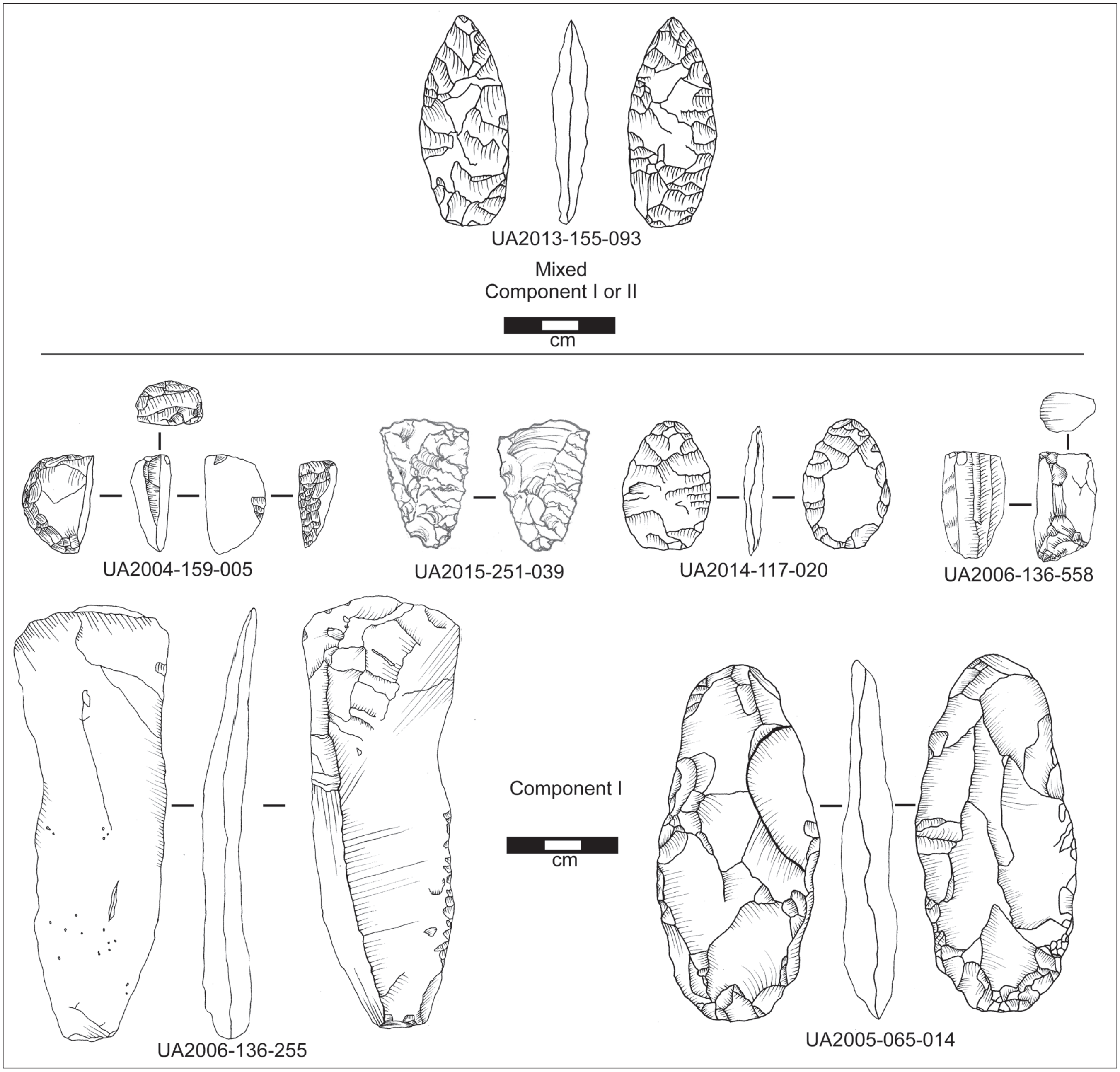

Figure 8. Formal tools from Component I and the mixed assemblage at Trapper Creek Overlook include a lanceolate projectile point (UA2013-155-093), end scraper/microblade core (UA2004-159-005), lanceolate projectile point base (UA2015-251-039), lanceolate to ovate shaped projectile point (UA2014-117-020), conical shaped microblade core (UA2006-136-558), Clovis-style macroblade (UA2006-136-255), and stage 3 bifacial preform or blank (UA2005-065-014).

spalls constitute a small percentage of the assemblage, and noncortical pieces include complete flakes, microblades, blade-like flakes, and bipolar flakes. Elements of secondary reduction in the debitage assemblage include biface thinning flakes, retouch chips and fragments, and a few burin spalls. Among the flaked debris, a high percentage lacked cortex. Only a few flakes have dorsal cortex, and of these, less than 6 percent have greater than 90 percent dorsal cortex. Flaked debris is also relatively small in size class, with a majority (>70%) less than 3 cm. These variables again indicate a preponderance of secondary reduction in the component II assemblage. Platform preparation on flaked debris includes smooth, stepped, lipped, and small proportions of cortical and crushed varieties.

Highly fragmented, more than 40 percent of flaked debris lacked platforms entirely.

Formal tools at Trapper Creek Overlook component II include late-stage unhafted lunar-shaped bifaces (UA2006-136-374), a disk-shaped stage 4 biface on black chert (UA2006-136-517), side scrapers (UA2014-117-010), and end scrapers (UA2013-155-008), one with a burinated edge (UA2012-179-002). Informal tools include retouched flakes, flake tools, tci-thos (UA2004-159-006), and cobble tools (Fig. 9). The majority of tools in component II are complete, but nearly half are simple flake tools (i.e., utilized flakes). Many tools lack dorsal cortex (Fig. 9). Where cortex was present on tools, many have more than 90 percent dorsal surface coverage. Tool retouch was primarily limited to one edge or two worked edges, but a few have three or more retouched edges. Retouch is primarily scalar, followed by use wear, pitting, marginal grinding, and stepped forms (Wygal and Goebel 2012).

The middle Holocene occupation at Trapper Creek component II is distributed across the esker in a similar pattern as component I, primarily in the southwestern corner of the excavation. Notably, there are significantly

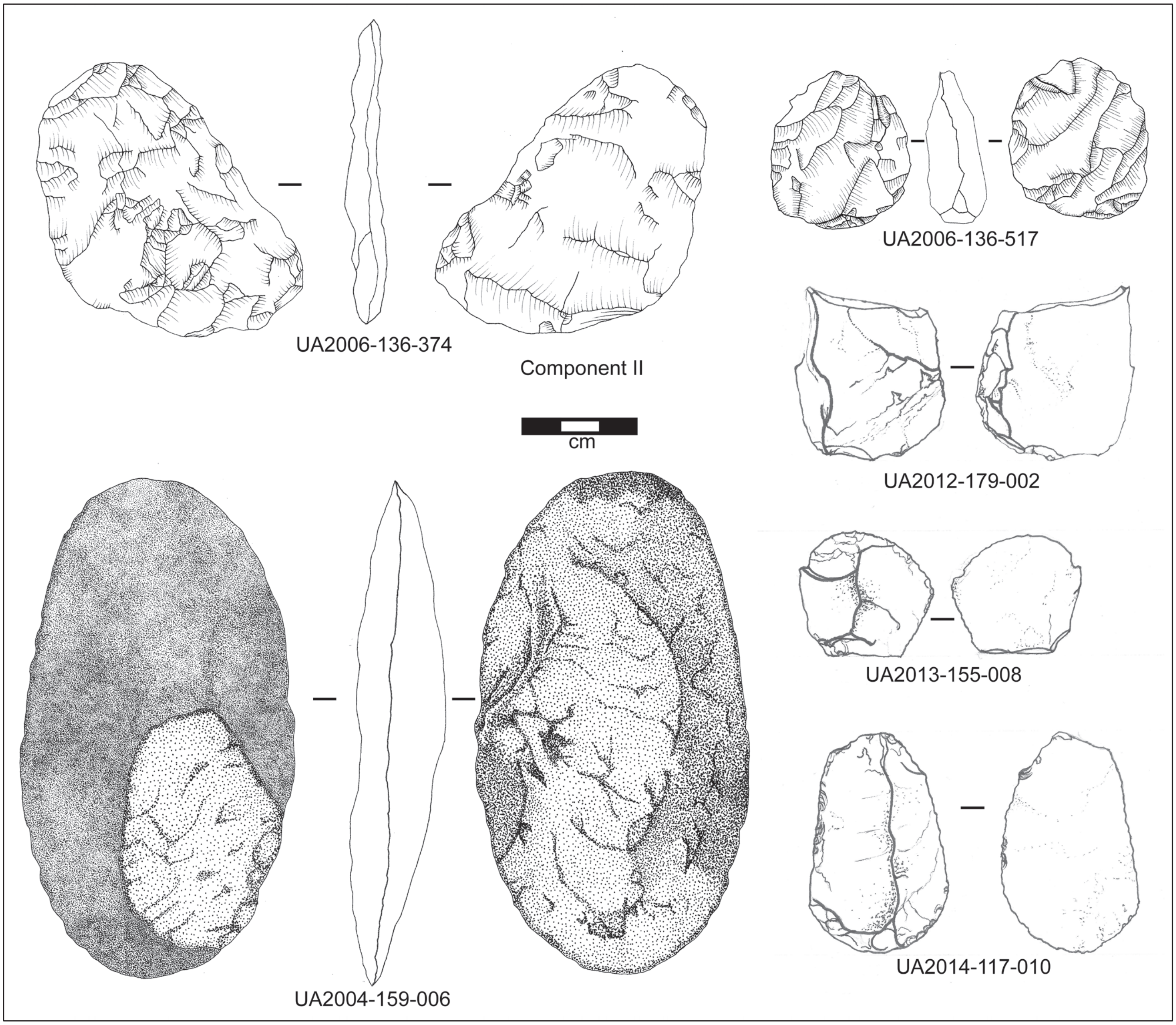

Figure 9. Tools from Component II at Trapper Creek Overlook include a lunar shaped stage 4 bifacial knife or scraper (UA2006-136-255), stage 4 biface and possible wedge-shaped microblade core preform (UA2006-136-517), burinated end scraper (UA2012-179-002), thumbnail scraper (UA2013-155-008), end and side scraper (UA2014-117-010), and tci-thos split cobble knife (UA2004-159-006).

more charcoal and intact hearths in component II than in component I, perhaps the result of more frequent visits to the site. Diffuse patterns were described by Binford (1983) as the result of extensive rather than discrete activities. During butchering and hide processing, a worker moves around the task area, discarding lithics and shuffling debris, resulting in wider strewn patterns. In these circumstances, discarded material spans larger areas and is less densely clustered than debris generated during discrete activities. Further indications of extensive activity areas are "blank areas" within scatters, a potential consequence of the event focus. For example, areas void of artifacts within diffuse lithic scatters may occur where hides or carcasses were on the ground (Binford 1983:165–172). These descriptions characterize the spatial distribution of the component II assemblage and are also consistent with high numbers of scrapers and tci-thos or expedient flaked cobble tools in the occupation.

MIXED ASSEMBLAGE

It is unfortunate that the mixed component is the largest of the four assemblages—consisting of artifacts deposited during either the component I or component II occupations. At the edge of the artifact distribution, particularly on the north, east, and west areas of the excavation block, the stratigraphy becomes compressed, and it was not possible to separate the components. Therefore, it is a palimpsest. Tools from the mixed component include a complete lenticular projectile point with flat base made on rhyolite (UA2013-155-093).

OBSIDIAN ANALYSIS

Rasic (2015) conducted XRF analysis of 19 artifacts from Trapper Creek Overlook to measure 10 elements and compare them to the Alaska Obsidian Database. Three of these artifacts were determined not to be obsidian. Of the remaining 16, three distinct groups were assigned: six to Batza Téna, nine to the newly defined group CC, and one to group W. Based on color, context, and association, we expanded these to include one additional artifact in Group CC and two additional from Batza Téna. However, we note that visual inspection of color and texture is insufficient to properly assign lithic raw materials into analytical categories (Lawler 2018).

X-ray fluorescence sourced obsidian from both component I and component II to the Batza Téna quarry located along the Koyukuk River in Northwest Alaska, 420 km northwest of Trapper Creek (Clark 1995; Clark and Clark 1993; Cook 1995). Other obsidian groupings at Trapper Creek Overlook include group CC—significant because only one other known artifact matches this type, a Chindadn-style projectile from the late Pleistocene component at Linda's Point at Healy Lake in the middle Tanana Valley (Younie and Gillispie 2016: 87). The source remains unknown, but at Trapper Creek Overlook five group CC artifacts are from component I and another five are from component II, including a microblade. Group W is also from an unknown source, and only a handful of artifacts have been identified. It occurs widely scattered in central Alaska (TNX, GUL, XMH, and now TAL quads). Some are from late Prehistoric Dene contexts. Most are undated (Jeffery Rasic, email comm. 20 May 2015).

DISCUSSION

The postglacial human colonization of southern Alaska originated in the unglaciated interior of eastern Beringia. Populations moved south through the central Alaska Range following major rivers like the Susitna. Evidence for human activities on the southern coasts does not predate sites in the interior or the contiguous 48 states, and thus does not represent an early coastal peopling of the Americas. The Trapper Creek Overlook site is an important piece to this story, because the microblade technology is clearly Paleoarctic tradition with obsidian obtained from sources north of the central Alaska Range. The first people to use the site may have done so as early as 12,600 cal BP, but there is more convincing evidence for human use after 10,000 cal BP. The stratigraphy at the site has been clearly defined, and significant regional tephra markers are thoroughly dated and described, making Trapper Creek Overlook a key site for interpreting the wider culture history of southcentral Alaska. The reinvestigation of OSL dating suggests some of our initial results were erroneous from the lowest aeolian deposits, leading us to reassess hypotheses regarding the timing and nature of deglaciation in the middle Susitna (Wygal and Goebel 2012). Consequently, we rejected the aberrant OSL data and obtained more radiocarbon dates for this report.

Trapper Creek Overlook provides absolute dates on many of the distinctive strata, including important tephrochronological markers found across most of the middle Susitna lowlands and beyond. Based on the character of the assemblages and dating of separate activity areas, it appears that the site was used repeatedly by small-scale hunters on quick stops to scout for game, process hides, and retouch their tools. At first, human presence in the region was limited, but by the middle Holocene the site was frequently used. Given its position overlooking the tri-river confluence, along with the great variety of exotic lithic materials, the site was strategically positioned along an important migratory route for some of the earliest Beringians south of the Alaska Range.

Despite gaining recent momentum (Braje et al. 2017; Dixon 2013; Sutton 2017), these results do not support the early pre-Clovis coastal migration hypothesis along the coastline of southcentral Alaska. Coastal migration models remain hypothetical and continue to be based on weak or hyped archaeological evidence. For example, Sutton (2017) argued that first Americans followed the coast utilizing salmonid resources but grossly misinterprets the archaeological evidence from Alaska where mammoth, horse, bison, and migratory waterfowl were utilized in the interior millennia before the occasional use of salmonids (Holmes 2011; Krasinski and Yesner 2008; Potter et al. 2013; Wygal et al. 2018; Yesner 2001). Interior ice-free corridor models are also hypothetical and based on weak archaeological evidence with nothing from the ice-free corridor dated earlier than 13,300 cal BP (Potter et al. 2017, 2018)—concurrent with the long chronology for Clovis (Haynes 2002).

A secondary postglacial coastal migration originated north of Wrangell–St. Elias and moved through the modern Tutchone or Tagish territories into Tlingit country, and then south along the coast toward British Columbia. The earliest unequivocal evidence from southeast Alaska occurred at On Your Knees Cave (10,300 cal BP), where Dixon et al. (1997) and Kemp et al. (2007) argue that people used marine resources based on isotope analysis from human remains. Additional early Holocene sites in the region include Ground Hog Bay and Hidden Falls of approximately the same age as On Your Knees Cave (Ackerman 1992, 1996; Dixon 1999; Moss 1998). While notable, none of these sites date to the Pleistocene.

Recent media reports of a 14,000 cal BP "hearth-like-feature" along the coast of British Columbia (Nair 2017) were blown out of proportion. Potter et al. (2018:1224) raise several well-founded arguments against an initial entry into the Americas via the coast, including the argument that late Pleistocene coastlines along the Pacific Northwest (including southeast Alaska and British Columbia) were not completely submerged by Holocene sea level rise (Shugara et al. 2014) yet no irrefutable sites have been found older than 12,500 cal BP (Potter et al. 2017, 2018:1224). Others claim even earlier evidence in the form of ancient footprints dated between 12,000 and 13,600 cal BP and a lithic cobble assemblage (McLaren et al. 2018) that is less convincing than Trapper Creek Overlook component Ia. Excavations within the intertidal zone pose numerous taphonomic questions. Cultural features, including footprints, were not definitively convincing. Even if these are human footprints of terminal Pleistocene age, they are still younger than sites in interior Alaska.

A solid archaeological record demonstrates human adaptation to maritime economies after 8000 cal BP (McCartney et al. 1998; Steffian et al. 2002) and emphasizes the first Americans were not relying primarily on marine resources, and thus an interior-to-coastal migration occurred in eastern Beringia. The first trace of people in the lowland river valleys of southcentral Alaska appears at Trapper Creek only after 12,600 cal BP at the very earliest, and more convincing evidence dates to the early Holocene. Thus, the coastal migration for the peopling of the Americas is not supported by the evidence. Neither, however, is the ice-free corridor, which also lacks sites older than Clovis. Is it then possible that the first migratory route south of the ice sheets originated in the Tanana Valley, moved southeast toward the Nabesna River and Chisana areas or through Kluane Lake but ultimately through the coastal mountains to the southeast Alaska and British Columbia coasts? Increasing knowledge regarding peopling of interior and southcentral Alaska strongly favors a continental migration into the New World with a slightly later expansion into the Pacific Northwest, perhaps via one of these alternate routes.

CONCLUSION

The Trapper Creek Overlook site represents activities related to the interior-to-coastal migration of the first people into the southcentral Alaska lowlands and eventually the Cook Inlet coastlines. It represents an important site for southern Alaska and is relevant to ongoing debates regarding the peopling of the Americas because it contributes to questions about the process of human colonization and landscape learning.

Geoarchaeological and lithic investigations suggest subarctic foragers with ties to the north colonized the

Susitna River lowlands by following major rivers south out of prominent mountain passes. The presence of Batza Téna obsidian sourced to the Koyukuk Valley north of the Alaska Range supports a north-to-south migration hypothesis. Radiocarbon and tephrochronological data suggest these events occurred after 12,600 cal BP in the vicinity of Trapper Creek, with definitive evidence for human activity after 10,000 cal BP. Lithic assemblages are most similar to the Denali complex but could also be early Northern Archaic, with microblades, burins, and large chopping implements represented. The first known human groups to arrive in the Susitna River lowlands were small, occupied overlook positions, and engaged primarily in specialized hunting and game-processing activities, lifeways that appear to have remained little changed until the middle Holocene.

NOTES

1. Westernmost Glacial Lake Atna was sometimes technically Ancient Lake Susitna depending on water levels (see Smith 2019, this volume).
2. Supplemental tables and figures for this article are available online via the publications tab at https://www.alaskaanthropology.org/.

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