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DENE TRAIL NETWORKS IN THE MATANUSKA WATERSHED: CASE STUDY ON COMMUNITY-BASED PARTICIPATORY RESEARCH IN ARCHAEOLOGY

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ABSTRACT

While Dene have been described as people of the forest and rivers, their seasonal round has long been understood to comprise extensive geographic ranges, including the mountains. Chickaloon Village Traditional Council (CVTC), a Western Ahtna Dene Tribe, is situated in the heart of the Western Chugach and Talkeetna Ranges along the Chickaloon Trail through the mountains connecting the Cook Inlet region to the Gulkana and Copper River Valley basins. In collaboration with CVTC, recent oral history and archaeological fieldwork demonstrates a vast alpine and subalpine trail network with extensive access to upland resources that has connected people throughout Southcentral Alaska and beyond for at least 5500 years. In this article we articulate how we built this successful collaborative project and its implications for the people of Chickaloon Village, Alaska, and how archaeology is practiced.

May *Nek'eltaeni* (Creator) guide our footsteps—Ahtna wisdom

INTRODUCTION

Community-Based Participatory Research (CBPR) is increasingly applied in archaeology because archaeology is about people and their past experiences. Whether Tribal Citizens or non-Native settlers of an area, descendants remain connected to those experiences and places. Yet there are no standardized methods for initiating, maintaining, or evaluating CBPR projects, in part because their goals and contexts of practice are seldom identical. In this CBPR case study, partners from Chickaloon Village Traditional Council (CVTC) and Adelphi University,

New York, chronicle how we developed a collaborative project through archaeological field work and deliberate community engagement. For us that means the community leads the project, from developing research questions to securing funding, conducting fieldwork, interpreting findings, and writing reports with the assistance of professional archaeologists. To do so, we introduce the cultural-historical context of this project to show why CBPR is so important. We then outline how we built this project in partnership with CVTC and what we learned about the significance of the trail system surrounding and radiating from Chickaloon Native Village (CNV). After defining trails and field methods, we share results of four trail segments along Boulder Creek and Purinton Creek. We then discuss and reflect on applying CBPR to the archaeological investigation and importance of trails in the study area.

Na-Dene is the most widespread Indigenous language family of North America. The broader northern Dene ethnolinguistic group consists of 11 cultures, including Ahtna, who speak or are descended from speakers of its four major dialects (Kari 2019; Kari and Fall 2016; Simeone 2006). *Ahtnahwt'aene*, the Ahtna and their ancestors, thrive as they have for millennia within their ancestral homeland *Ts'etuunh Na'* (Ahtna) or *Ts'itonhna'* (Dena'ina), the Matanuska River watershed within Southcentral Alaska. CNV is a federally recognized *Ahtnahwt'aene* Tribe, governed by CVTC and named after *Nay'dini'aa Na'* (Chickaloon River) within *Ts'etuunh Na'* (Kari and Fall 2016:289). Ahtna speakers inhabit one of the largest Indigenous territories in the world, an ancestral territory and traditional area of influence encompassing 35,000 square miles and extending well beyond *Ts'etuunh Na'* (Berez-Kroeker 2019; Kari and Potter 2010:10). In this paper all Alaska Native names are in Ahtna unless otherwise noted.

Situated between the Talkeetna and Chugach mountain ranges, *Ts'etuunh Na'* is characterized by transitional maritime-continental climate. The east-to-west trending *Ts'etuunh Na'* drains the upper Matanuska Valley from its source at *Ts'itonhna' Luu'* ('trail comes out river glacier,' Matanuska Glacier), as well as tributary glaciers and snowpacks from the bordering mountains southwest into *Nuu Tah* (Matanuska village, 'among the islands,' Dena'ina, *Nuti* 'salt water,' Knik Arm) of Cook Inlet (Kari 2008:76, 82; Wahrhaftig 1965:37). *Ts'etuunh Na'* translates to 'river from which trail comes out,' and references the major trail within the watershed. In the 1850s, Russian geologist Petr Doroshin wrote that "the *Goltsani* in the middle Copper River and the *Kenaitsi* from the head of Cook Inlet follow the Matanuska and Tazlina common trail and speak the same language" (Bland 2007; Kari and Fall 2016:289). While these groups spoke different languages, they were likely bilingual or multilingual.

Long-term Dene land tenure and areas of cultural overlap are demonstrated by cognate Ahtna-Dena'ina toponyms, as well as multilingualism, intermarriage, and socio-cultural connections with adjacent Dene groups across watersheds and mountain ranges (Kari 1977, 1989; Wade 2004). This study area falls at the interface of Dena'ina and Ahtna homelands. Because of the well-documented social relationships and marriages between Ahtna and Dena'ina as well as wider landscape connections between Dene communities across the North, we rely on the more inclusive term Dene throughout this paper where the oral history, toponyms, and literature indicate both cultures have extensive experience in the area. Dene is also applied to the archaeological record where affiliation by descent to modern culture is likely from Northern Archaic times (Boraas 2007; Potter 2008). Despite potential site discovery opportunities from construction and mining, Dene land tenure in the study area is poorly reflected in the documented archaeological record because of the limited and focused nature of previous investigations.

OBFUSCATIONS AND DISRUPTIONS

To understand the multifaceted significance of community archaeology and CBPR, it is important to contextualize recent Dene history. Vitus Bering, a Danish mariner in Russian service, made the first Alaska landfall in 1741 at Kayak Island, well east of the Kenai Peninsula. The first Russian permanent habitation was established in Southcentral Alaska at the mouth of *Kaknu* (the Kenai River) in 1786 (Fall 1981; Solovjova and Vovnyanko 1999). A few decades later, in 1778, British Captain James Cook and his uninvited crew explored *Nuti* nearly to the mouth of *Ts'etuunh Na'*. As the Russians were also unwelcome, armed Ahtna and Dena'ina resistance stalled their penetration and colonization of the upper inlet and interior regions of Southcentral Alaska. After Ahtna repulsed and slaughtered early exploring parties (Boraas and Leggett 2013; Simeone 2018), in 1803 Russian trader Semyen Bazhenov made the first successful circuit of the Copper River basin, ascending *'Atna'* to the "lakes region" and *Ts'etuunh Na'*, then following Ahtna trails back to *Nuti*. In 1842–1843,

the Russian-American Company (RAC) dispatched Ivan Komkov from Nikolaevsky to explore *Sasutna'* or 'Sand River' (Susitna River) in Ahtna. In Dena'ina it is *Suyitnu, Susitnu;* Upper Kuskokwim *Sosutno'*; Lower Tanana *Sosudeno'*. The party returned alive but failed to reach its destination at Tazlina Lake (Fall 1981; Grinev 1993; Kari and Fall 2016:82; Tikhmenev 1978).

With the advent of the RAC in 1799 came the reduction of fur-bearing animals from the commodification of pelts and the paternalistic, coercive, and abusive practices of Russian hunter-traders, along with the subsequent gold rushes through the study area during the Russian-American period (e.g., Klondike 1897–1899, Fairbanks 1902, Valdez Creek 1903). Needless to say, it did not take long for European infectious diseases to spread among the Ahtna. Illnesses including but not limited to smallpox, chickenpox, influenza, syphilis, typhoid, whooping cough, and scarlet fever caused death rates on the order of >50% for the smallpox epidemic alone (1835–1840) (de Laguna and McClellan 1981; Fortuine 1989; Nunn and Qian 2010; Petroff 1881; Tikhemenev 1978). These maladies continue to plague Tribal Citizens and now include HIV/AIDS and Covid-19 (Burki 2021; Wallis 2006).

In 1867 jurisdiction over Alaska was transferred from Russia to the United States (Cook and King 1784). Legal justification for this came from the Doctrine of Discovery and was upheld by the U.S. Supreme Court in *Johnson v. McIntosh* 21 U.S. 543 (1823) where first discovery, *terra nullius* (Latin 'nobody's land'), actual occupancy and possession, contiguity, civilization, and Christianity were key principles (Miller 2019; Reid 2010). Contiguity was especially important because the United States effectively extended its jurisdiction far beyond Russia's limited settled areas and spheres of influence.

American activity intensified during the latter nineteenth century from the west side of *Nay'dini'aa Na'* (Fall 1981). In 1885 Lieutenant Henry Tureman Allen, Second Cavalry, was assigned to explore and document the Copper, Tanana, and Koyukuk Rivers of Alaska (Allen 1887). His report indicated a strong reliance on the Ahtna for the expedition's very survival, much less its accomplishments. Indeed, Allen was unable to identify foot trails that were apparent to Ahtna, and his party relied on the remains of a months-old winterkill due to their hunger and inability to live off the land (Allen 1887; Vanderlugt 2010). In 1898, "Big Stephan" (probably a Susitna Dena'ina) guided U.S. Army Captain Edwin F. Glenn through *Ts'etuunh Na'* along portions of the ancient Dene trail system (Glenn and Abercrombie 1899:51; Woodman 1984). Considering the fate of several previous Russian expeditions, it is no coincidence that Glenn led a military column. With the aid of local Ahtna, the army identified coal deposits near Chickaloon, which the U.S. Navy developed ca. 1914–1917 into the Chickaloon Mine and which led to construction of a spur line off the Alaska Railroad (1915–1923) that reached the community by 1917 (Naske 1982). Nearby coal mines developed at Eska ca. 1919 and at Jonesville ca. 1920 (Merritt 1985).

American assimilationist policies and legalized segregation soon brought forced institutionalization, incarceration, and separation of Alaska Native families at alarming rates in boarding schools, penitentiaries, asylums, orphanages, boys' homes, remote worker programs, sanitaria, and internment camps where psychological and physical violence, sexual abuse and predation, and cultural trauma were pervasive (Guise 2013, 2024; La Belle et al. 2005; Pratt 2024). In a final assault on Indigenous sovereignty, the Alaska Native Claims Settlement Act (ANCSA) of 1971 extinguished aboriginal title to the land, instead exchanging it for cash, limited fee-simple land transfers, and shares in brand new for-profit regional and village corporations (Anderson 2019). While the 1980 Alaska National Interest Lands Conservation Act (ANILCA) reinstated Native subsistence rights, these remain legally complicated (Anderson 2019).

CNV Tribal Citizens and Ahtna generally have generations of experience with explorers, prospectors, settlers, and researchers coming to "pump Elders for information" (Angela Wade pers. comm. 2018) but offering little in return—a practice that continues today. Despite this lopsided dynamic, Dene communities, cultures, languages, and life continue all the while, adapting to the onslaught of imposed colonial externalities. This is why archaeology, what remains *in situ*, and how archaeology is practiced is so important. Because Ahtna Tribal Citizens steward CVTC traditional and sacred lands and are keepers of closely interwoven traditions and knowledge, archaeology needs to be community-centered or else it is extractive. It has always been important to design archaeology projects for maximum benefit to the public, especially to descendant communities, or the people whose ancestors are being studied. Unfortunately, researchers seldom prioritize such engagement, and findings are not readily accessible to Tribal Citizens or the general public.

STARTING A CBPR PROJECT

Implementing CBPR into archaeological practice increases the possibility of an ethical and relevant discipline for everyone. CBPR offers a more holistic approach to archaeology, better science, and a mechanism for community reconstruction through relationship building and knowledge sharing (Allen et al. 2010; Nagel 1996; Schaepe et al. 2017; Wobst 2010). When heritage is people-centered, it improves well-being (Atalay 2019; Brady et al. 2016; McNaughton et al. 2016; Schaepe et al. 2017) and social inclusion (Hill 2009). For archaeology to have positive impacts for more people, projects need to be designed with and for descendant communities whenever possible (Schaepe et al. 2017).

Collaboration is a starting point for transforming archaeology from a unidirectional process to one built on consent (Gnecco 2006). Co-authors Angela Wade and Larraine Wade have always been inquisitive and know there is much more to learn. Katie Wickersham Wade (1922–2009) taught the whole community about culture and responsibility, including co-authors daughter Larraine Wade and granddaughter Angela Wade. Co-author Johnson is Dena'ina and Ahtna and trained in archaeology. For co-authors Krasinski and Wygal, Euro-American archaeologists, our inspirations to prioritize community archaeology came from our academic training, where we were also advised that developing relationships with descendant communities would take time. Practicing archaeology in a collaborative way transformed from theoretical to actual when we had the opportunity to observe CBPR first-hand in 2003 with Rick Knecht and the Museum of the Aleutians at the Amaknak Bridge Site (UNL-050) in Dutch Harbor (Knecht and Davis 2008), and later with Fran Seager-Boss in the Matanuska-Susitna Borough (MSB) from 2004–2017. Anywhere we went with Fran, she was recognized by the communities because of her significant commitment to developing relationships with and sharing the cultural resources of the MSB.

Previous archaeologists have worked together with and involved Alaska Native community members in their work. Frederica de Laguna (1947, 1972) is one early example. Others include Aron Crowell (2004), Alan Boraas (2007); Alan Boraas and Aaron Leggett (2013), Norman Easton (2008), E. James Dixon (2024), Robert Sattler et al. (2012), and staff of the Alutiiq Museum (Knecht 2001; Steffian and Saltonstall 2007) as more recent examples. The partnerships of these researchers with Native communities may differ in various ways from this project, but a change toward archaeologists paying increased attention to descendant communities in their work has been underway for decades. The CBPR example developed in this case study has benefited from their earlier work.

How does someone develop collaborative projects knowing that relationships and trust require an unspecified amount of time? For us it started in 2012 by inviting Angela Wade to visit the *Chunilna* site (TAL-100 and TAL-101) (Dena'ina *Ch'anilkaq'*, 'mouth of flows out,' Ahtna *Ts'anilna'* 'creek that flows out'), a Dene site identified by *Ch'anqet'* of the Mountain People Band through oral history during the 2004 Coastal Zone Management surveys sponsored by the MSB (Kari and Fall 2016:238; Seager-Boss et al. 2005). CNV is the closest Ahtna Tribe to this location, and Fran Seager-Boss had already developed a positive relationship with Wade through her work with the MSB Cultural Resources Division and specifically through Fran's visit to Katie Wade's home, where granddaughter Angela remembered her. In 2012 we revisited the *Chunilna* site, conducted test excavations, and hosted Wade as well as representatives from the Alaska Office of History and Archaeology. This required a significant time commitment to prepare and travel into a remote off-the-road location for a brief overnight visit and the start of a conversation and relationship. As Wade recalls:

> When we arrived at Chunilna, I sat down to take in the place for a long time, on the ledge by all those caches. Katie came by, sat next to me, quietly for a very long time. After a long time, only when I started shifting around, she whispered, "what do you feel?" And that was when I knew. Some of us inherently feel places. And they [Krasinski and Wygal] inherently understood that. (Angela Wade, pers. comm. 2023)

Through another MSB-sponsored project at *Łajat* (ANC-035, Dena'ina 'silt place,' Ahtna *Łaets Caek'e*) on the road system and connected to both Dena'ina and Ahtna cultures, we invited Wade for a site visit during survey and recordation of this large village, and from there stayed in touch, initially a few times a year.

CVTC is one of many Alaska Tribes that has built a cultural program, conducts research, and has an interest and responsibility to the material remains of their ancestors, an ideal situation for initiating a collaborative research agenda. In 2015, CVTC was developing a new research project and reached out to a longtime Kenai-based

anthropologist, the late Alan Boraas (1947–2019), who recommended Wygal and Krasinski, in part because of their commitment to the ancient archaeology of Southcentral Alaska, a place many archaeological professionals had previously overlooked. By the time CVTC secured the first grant for cultural surveys, council members were already familiar with Wygal and Krasinski, two of only a few archaeologists with experience in Upper Inlet Dena'ina/Western Ahtna territory and with especially extensive knowledge of the neighboring Susitna Valley.

After meeting Wade, we slowly networked with additional Tribal Citizens, community members, and personnel. Admittedly, this snowballed into meeting folks who were more likely to support archaeology. When Krasinski and Wygal are in Alaska (typically three months a year), they participate in Elder luncheons hosted by CVTC and have been invited to share at Culture Camp and Annual Gatherings. During the winter, Krasinski has volunteered or participated in virtual calls to share knowledge on cultural resources laws and processes. This has been particularly important for developing relationships, meeting people digitally, and providing nonscripted opportunities to discuss ways to address questions that arise over the winter. During the summer, day hikes and site visits have brought together Tribal Citizens and community members representing four generations. We also accept every invitation we can, from checking out new equipment for fish counting to hot dog roasts and potlatches.

Although our collaboration did not begin in the context of a contract, it did evolve into grant writing and contracts. Throughout, community has remained central to our collective success. It facilitates logistics like permission to park in certain locations, meeting with landowners for property access, how to locate unmarked trails, how long it would take to travel between features, what to avoid, and CVTC-managed landing strips. One of the most significant lessons learned in this process has been the critical importance of consulting at the inception or earliest planning phase of a project idea. Anything less remains disingenuous and exclusively extractive. Ultimately, the collaboration generated a broad framework for a cultural resources survey of *Ts'etuunh Na'*, which CVTC prioritized because of a dearth of prior surveys in the face of accelerating impacts on sensitive areas from recreationists, land fragmentation, privatization, and mining.

Initially, Krasinski and Wygal (2017) proposed to frame the research around the following questions while considering the challenges to surveying areas closer to the river where private parcels dominate:

1. How widely *used* were the mountainous regions of Chickaloon Village traditional territory?
2. How did Native Alaskans *use* areas along the Chickaloon trail?
3. How closely does oral history reflect archaeological resources found during pedestrian survey?

CVTC introductions were essential to knowing who to talk to, how to contact them, and establishing initial relationships. CNV women encouraged us to speak to Elder males because they had more experience on the broader landscape during hunting, while women did not get to interact with their ancestral lands in their youth as much because of newly imposed norms on women in the colonial context. We spoke with every Elder male of Clan Grandmother Katie Wade's (*Udzisyu* Caribou Clan) generation who was available to interview. Yet we also learned that women's traditional knowledge is extensive because of training from Katie Wade. We asked Tribal Citizens what their priorities were for archaeological survey, and it is these priorities, places of cultural and spiritual significance to CNV citizens that are increasingly traversed by off-road vehicles (ORVs), areas where new mining permits have been granted, and places that may be involved in future industrial-scale projects that guide fieldwork methodology and survey locations. Later, through CVTC introductions, additional interviews were conducted with Wilson Justin (b. 1950), an Ahtna Elder and descendant of the Medicine People Clan from Slana and Nabesna Villages. Interviews were conducted in English, and most were not recorded. Instead, written or typed notes were taken.

For the first grant Krasinski and Wygal (2017) led the CBPR-oriented survey. After initial landscape learning, we began finding many sites. As we shared this information and circulated landscape videos and artifact images, community interest in visiting these locations increased, ultimately leading to more grant proposals. CVTC wrote the first several grants. Later, Krasinski began co-writing with CVTC, with research questions, methodologies, and survey locations approved by the Tribal historic preservation officer (THPO—a Tribally bestowed title) and CVTC. The Tribal Council also develops and manages grant budgets for project proposals. CVTC can choose at any time to work with any other archaeologists, even on grants co-written by Krasinski and Wygal, and some

grant-funded opportunities were put out for competitive bids to encourage greater participation among the archaeological community.

From there CVTC representatives facilitated more introductions and interviews with Tribal Citizens. Every Tribal Citizen and knowledge bearer we interviewed agreed on the significance of the mountains. However, Tribal Citizens objected to the verb *use*, especially for its extractive connotations. They instead preferred *stewardship*. But stewardship implies oversimplification of complex Dene relationships with the mountains (Wade 2004). Further, the verb *use* is irrelevant to CVTC Ahtna without a focus on Indigenous perspectives of interconnectivity and life on the land. Culture bearers shared detailed information about the trail network, including geographic, geologic, hydrologic, and ecological knowledge as well as essential logistical information. These observations are invariably framed around a travel narrative. The emphasis on interconnectivity demonstrates that for CVTC Ahtna, trail networks are a more accurate and expansive concept than strings of discrete sites and that the mountains are central and sacred, not peripheral and secular. As a result of generous community sharing and our willingness to listen and learn, we transformed our research questions to:

1. How closely do archaeological resources reflect oral history?
2. What were Ahtna Dene travel and life on the land like within the *Ts'etuunh Na'* trail network?
3. In what ways are the mountains interconnected with these experiences?

Because oral history of *Ts'etuunh Na'* is often framed around travelling, trails, and routes (research question 1), trails provide the information that can be used to test whether archaeological resources reflect oral history. Further, the trail system provides a fruitful laboratory with specific oral histories, which allows us to reconstruct what Dene travel and life were like on the land (research question 2), as well as the antiquity of and how lower elevation trails connect to the mountains (research question 3).

Guided by collaboration with consent, we center and focus a Dene lens on archaeology by allowing the community to prioritize where to conduct fieldwork, identifying important places, and interpreting finds. We selected survey locations through conversations with CVTC Elders and Culture Bearers. We also discussed under what circumstances to collect or handle artifacts and conduct subsurface testing. Elders joined us by contributing songs or prayers. The archaeologists were quiet in places where instructed. This reflected our growing cultural competency. We learned what is *engii* (taboo) and should be avoided, such as directly naming certain people and animals; that we should pause for respectful songs and prayers before starting a project or crossing a sacred stream; and about the importance of food sharing, especially snacks.

We also worked to understand the diversity of views (Atalay 2012) on the project, its methodology, and whether it is appropriate to go to certain places. Once survey locations were selected, Ahtna oral histories as shared by CNV Tribal Citizens were integrated with previously published Ahtna travel narratives and place name lists to reconstruct ancient trails in the study area (Kari 2008, 2010; Kari and Fall 2003, 2016; Reckord 1983).

Ensuring that grant support is managed by Tribal governments facilitates consent, collaborative decision-making, and inclusion of Tribal Citizens throughout a project (Atalay 2012). Meaningful budgets take into account formal invitations, transportation, gear, food, administrative costs, salaries, and honoraria for Elder time and expertise. Writing and reviewing reports, articles, and presentations requires significant time commitments. We acknowledge these realities by developing budgets that allow for this support.

Finally, we had many discussions on data sovereignty, the right of Tribes to "manage and control data about themselves, their culture, and their lands and resources" (Wald 2024:5). As a federally recognized Tribe, CVTC maintains offices that comply with federal and state laws regarding cultural and natural resource protected information. Tribal consent is necessary for all stages of a project, including publication and presentations. In contracts we have incorporated data sovereignty as well.

TRAILS

The trails concept was important for us to frame and interpret results in interconnected ways, as well as for developing CBPR-centered field methods. Here we contextualize the significance of the extensive Dene trail networks and explain how we designed CBPR fieldwork with CVTC. Through interviews we learned how important trails are. Trails connected Ahtna and linked commerce within and outside of their ancestral lands for purposes of trading copper, etc. Commerce routes also linked Ahtna ancestral lands with neighboring Dena'ina, Tlingit, Upper Tanana, Tutchone, and Alutiiq/Chugach (Pratt 1998; Simeone

2018; Simeone, Justin, et al. 2019). Traditionally, trade trails were controlled by a *denae* (chief) and could only be traversed with his permission (Simeone 2018; Simeone, Justin, et al. 2019; Simeone, Anderson, et al. 2019). The second variety, interregional trails, established connections across the vast Ahtna territory and were controlled or owned by specific Clans. A third type were trails established for local Ahtna to travel from fish camps to winter houses and other significant areas such as caches, traplines, hunting areas, etc. (Simeone 2018; Simeone, Justin, et al. 2019). People from different villages were usually related, so travel routes and harvest areas overlapped within shared territories.

Traditionally, Ahtna could not travel trails without proper protocol. For example, when entering lands for which one does not have permission to hunt or travel, it is necessary to announce one's presence and detailed travel plans through an established system of Dene trail markings that could indicate how many people and days a party intends to be in the area (Powell 1909:286–288). Additionally, one could leave distinctive materials on the landscape that would signal a person's presence and authorization to pass through. Failing to follow such protocols was tantamount to trespassing and could invite war or violence, as the Russians learned early on (Simeone 2018; Simeone, Justin, et al. 2019; Wilson Justin, pers. comm. Aug. 2021). Sneaking up on people is an act of aggression, so announcing oneself is essential to traveling in Ahtna country.

Tribal Clan language, like other Dene languages, has multiple hierarchical levels for specific contexts: chief's talk, medicine people talk, and a trail language expressly for trading contexts (Simeone, Justin, et al. 2019). Ahtna Elders often speak in euphemisms, out of respect. While we write in English, we are representing Ahtna and Dene concepts that do not translate well. Every interpretation compromises the depth of meaning because many Ahtna words do not have one-to-one correlations in English (Simeone, Justin, et al. 2019; Wilson Justin, pers. comm. 2025). Even if you know Ahtna, you may still not be able to understand the higher levels of its multilayered contexts (Table 1).

Trails are "essential structures of the human landscape" and circulation features or "landscapes of movement" where trails support mundane everyday activities (Snead et al. 2009: 1). But trails are more than paths going to and from. Rather, they are social networks and knowledge systems (Aporta 2009; Snead et al. 2009). Trail networks are simultaneously part of the built environment, tradition, spaces of interconnecting communities, and sacred places (Snead 2009). It is this nexus that makes trails so important, as "movement across the landscape both generates and constantly reinforces identities through the fulfillment of social and ceremonial obligations, as well as ownership rights connected to specific physiographic features and natural resources" (Zedeño et al. 2009:106–107).

Table 1. An incomplete list of Ahtna terms related to trails and travel (Kari 1990; Smelcer 2011; Simeone, Justin, et al. 2019).

Ahtna	English
tene	trail
saen tene	summer trail
tsetska tene	wood trail
gaan' tene	horse trail
nen'tah tene	mountain trail
'aeltah tene	trapline
c'ayaas tene	meat trail
c'etene	animal trail
tehluu	packed snow trail
hwtsiił	bridge
tene done'	well-marked trail
tahluu and tehluu	snow trail
niłdzitaataande	where trail divides
'aełta tene	trail among the traps
yuuł	a day's journey
yuuł k'ae	campsite

Trails have been studied around the world (Andrews and Zoe 1997; Hendrickson 2010; Laurence 2013; Lipo and Hunt 2005; Saunaluoma et al. 2021; Woldekiros 2019). In North America, Indigenous roads are well-documented, including Navajo roads (Snead et al. 2009), Hohokam roads (Motsinger 1998), Hopi trails (Ferguson et al. 2009), Chaco roads (Weiner 2023), and O'odham war trails (Darling 2009). All these systems have commonalities with Ahtna, such as intra-regional trails between major drainages, and trails for local resource acquisition and ceremonial activities (Darling 2009).

Alaska Native trails are widely recognized as significant in oral history (Fast 2008; Kari and Fall 2003, 2016; Wade 2004), ethnolinguistic accounts (Kari 2010, 2019), archaeological literature (Monteleone 2016; O'Leary and Bland 2013; Proue et al. 2011; Sattler et al. 2023; VanderHoek et al. 2007), and ethnohistoric literature

(Burch 1976; Easton 2007; McAtee 2010; Mishler 2007; Pratt 2012, 2022; Reckord 1983; Simeone 2006, 2007; Simeone, Justin, et al. 2019; Simeone, Anderson, et al. 2019; Smith et al. 2009; Youatt 2012). Indeed, there is a body of Ahtna oral tradition focused on travel narratives (Kari 2010). It was these specific Alaska Native trails that were critical routes for Euro-American exploration and exploitation of the territory (Glenn and Abercrombie 1899).

However, there has been much less emphasis on trails research from an archaeological perspective in Alaska. The two most well-known trails in Alaska are the Iditarod and the Chilkoot National Historic Trails, which were co-opted by Euro-Americans from ages old Alaska Native stewardship. This also occurred on what are today the Glenn, Parks, and Richardson Highways in Southcentral Alaska (Elkinton and Maglienti 1994; Jones and Tremayne 2018; Mog 2017; Neufeld and Norris 1996; Prentice et al. 2010; Rankin et al. 2017; Simeone 2018). The Iditarod Trail also spans beyond Dene ancestral lands to Yup'ik and Iñupiaq ancestral lands along the Anvik-Klikitarik Trail and Kaltag Portage (Pratt 2012).

A trail is defined as an established route widely recognized by a community, on which tracks may be visible (Aporta 2009). How do we know when we have identified a trail? We first relied on descriptions from interviewing Elders and knowledge bearers about their experiences on the landscape, and second, we reviewed ethnographic literature on Ahtna trails and routes (Kari 2010; Kari and Fall 2016; Reckord 1983; Wade 2004). We applied the following guiding principles to identify trails designed for foot travel (Ferguson et al. 2009; Snead et al. 2009):

1. Trails would largely be straight when designed for travelling significant distances. However, one should not eliminate the possibility of looking at challenging terrain. Because Ahtna and Dene generally are, by tradition, long-distance travelers by foot (Kari 2010), movement was far less restrictive for Dene than settlers traveling by wagon, etc.
2. Deviations or turns in trails may have short diameters when they are not being travelled by wagons, etc.
3. Trails may be recognizable in segments, including spurs and 'go-round-its' (Earle 2009).
4. For moccasin trails, those created by walking people, limited landscape modification is expected (Earle 2009).
5. Trails will be associated with place names, often in sequences (Aporta 2009; Kari and Fall 2016).
6. There may be visible linear features as people and animals continue to traverse and steward the trails, but there would likely be no significant vegetational differences as the organic content of the trail would not be significantly enhanced compared to a house floor area.
7. Trails that directly follow a river or large creek are more difficult to identify because of the dynamic nature of those waterways. There also may be multiple routes in the same vicinity because some may have been reserved for trading, while others may have been specific to access camps and hunting grounds.
8. Trails in Alaska may be identified by culturally modified trees like blazed trunks or bent branches. Often the modifications convey directionality or turns and may also be unique to the person who created the trail sign (Deur et al. 2020; Heffner and Heffner 2012; Johnson and Ortiz 2023; Johnson et al. 2023; Mobley and Eldridge 1992; Monteleone 2016). In the Subarctic and Arctic, cairns (Hartley et al. 2018) and bundles of sticks (Holdsworth and Lacourse 2014) mark trails, and "willow markers" are known specifically to denote glacier crossings (Foster and MacCarthy 1925:61; Holdsworth and Lacourse 2014).
9. Trails may be deduced by the patterned distribution of discrete archaeological sites, especially if the trail is not currently visible.

Trails can be challenging to identify as they become re-routed and new anabranches or segments are created to accommodate changing travel conditions (Aporta 2009). Additionally, in the North, winter trails are not always possible to follow or identify during the summer, as they often cross frozen bodies of water and swamps that people do not traverse in summer (Aporta 2009), and packed snow trails (*tehluu*) melt away during the warm season (Kari 1990:612).

FIELD METHODS

We employed field methods in accordance with the secretary of the interior's guidelines for reconnaissance (NPS 2020) as well as the Alaska Office of History and Archaeology requirements for subsurface testing. Transects were spaced at three-to-five-meter intervals. A metal detector also was systematically employed. Shovel tests were conducted by skim shovel and trowel by 5 cm arbitrary levels to provide vertical control for the discovery of buried cultural materials. Subsurface tests measured 50 x 50 cm, and all sediments were screened through ⅛-inch

hardware mesh. All subsurface tests were excavated to basal gravel or bedrock and then backfilled.

We focused on trails where ORVs are travelling because cultural resources are at their highest threat of destruction in these areas. This strategy encouraged community involvement based on proximity to the road system and access by ORV. It also facilitated site identification because many of the sites are visibly eroding out of vegetation at the edges of denuded or rutted ground surfaces where ground visibility is higher.

In terms of collaboration in the field, we have been flexible with crew size, encouraging as many interested people to participate as wanted to. People have complex family, professional, and Tribal responsibilities that limit participation. We have a core of two dedicated Tribal Citizens and one knowledgeable community member whose situations allow for significant time in the field when survey areas are close to the road system. It is this key group that has been able to occasionally participate in the surveys when helicopter transport is necessary, although these rare trips require significant planning and funding. Every summer we have worked to hire Tribal Citizen youth to serve as archaeological field technicians, but it has not always panned out, especially for longer time periods. This rotation has resulted in training at least four Tribal Citizen youth in survey and excavation techniques in different project years. Where we have been more successful is in hosting site visits and community hikes. At one site every Tribal Council member and four generations of Tribal Citizens visited. On other overnight community hikes, we accompanied three generations of people on the trails. In these cases, we have had significant logistical support from CVTC, particularly with ORV access. Email invitations with CVTC addresses have been very effective, as has reaching out to people by phone with enough time for folks to prepare for increasing participation.

We recorded terrain characteristics, places of access, resources, stewardship protocols, function, form, and scale (Snead et al. 2009). These attributes were the most frequently referenced in our oral history interviews. Subsurface testing facilitated assessing the extent and age of artifact scatters that mark traditional camps and routes, as well as to distinguish them from an artifact someone may have picked up elsewhere and then recently dropped on the modern ORV trail. Additionally, archival research on USGS maps and General Land Surveys available through the Bureau of Land Management were helpful in identifying trail locations.

During collaborative writing sessions, we developed a set of principles for crafting ethically accurate descriptions: (1) avoid diminutive and extinction terms, (2) write in past tense only when specifically referencing moments of the past, and (3) edit for culturally appropriate words. For example, standard archaeological jargon includes the term *occupation*. However, occupation also connotes militaristic activities rather than the complex millennia-long relationships with ancestral lands based on stewardship that Ahtna embrace. Similarly, the term *game* should not be directly referenced in certain verbal and written contexts as it is *engii* to discuss what one might be hunting. But also, the killing of animals for food is no game. It is considered disrespectful to treat a life so crassly (Wade 2004). Additionally, all narratives and quotes in our reports are selected in consultation with and approval by CVTC. Below we share some of our findings about portions of the Ahtna trail network based on this collaborative approach.

SEGMENTS OF THE DENE MATANUSKA TRAIL NETWORK

Ts'etuunh Na' is connected by numerous ancient Dene trails, the significance of which is apparent in the English translation 'river where trail comes out' (Kari and Fall 2016:289). The modern Glenn Highway was built on a major stretch of this trail that was part of a larger system containing many spurs and side branches. Trails often were designed and stewarded to parallel major rivers and creeks, including the *Nay'dini'aa Na'* trails, one of which went upriver into the Talkeetna Mountains along the west side of the river. Branch trails intersected with the *Łtaege' Na'* (Boulder Creek) and Sawmill Creek drainages. Some follow mountain drainages, others traverse lowlands. The *Łtaege' Na'* trails connected across divides into the Susitna watershed via *K'aasi Na'*, 'cliff or quiver river' (Oshetna River) (Kari 2008:153), or to the Glass Creek trail (TLM-00355), which connects with *I'delcuut Na'* (Dena'ina: *K'dalkitnu*, 'he is keeping something (food) stored for himself-river,' Talkeetna River) (Kari and Fall 2016:235). Alternatively, one could travel east down *Nataghilen Na'* (Caribou Creek) to *Natsede'aayi* ('Stone Woman,' 'rock that sticks out,' glacier point), who tangibly marks the divide and a major trail intersection between the *'Atna'* and *Ts'etuunh Na'* watersheds (Kari 2008:76; Wilson Justin, pers. comm. 2022). Trails crossed the Talkeetna Mountains and ran down to the main *Ts'etuunh Na'* route via Purinton Creek. Whereas the trails are a circulation

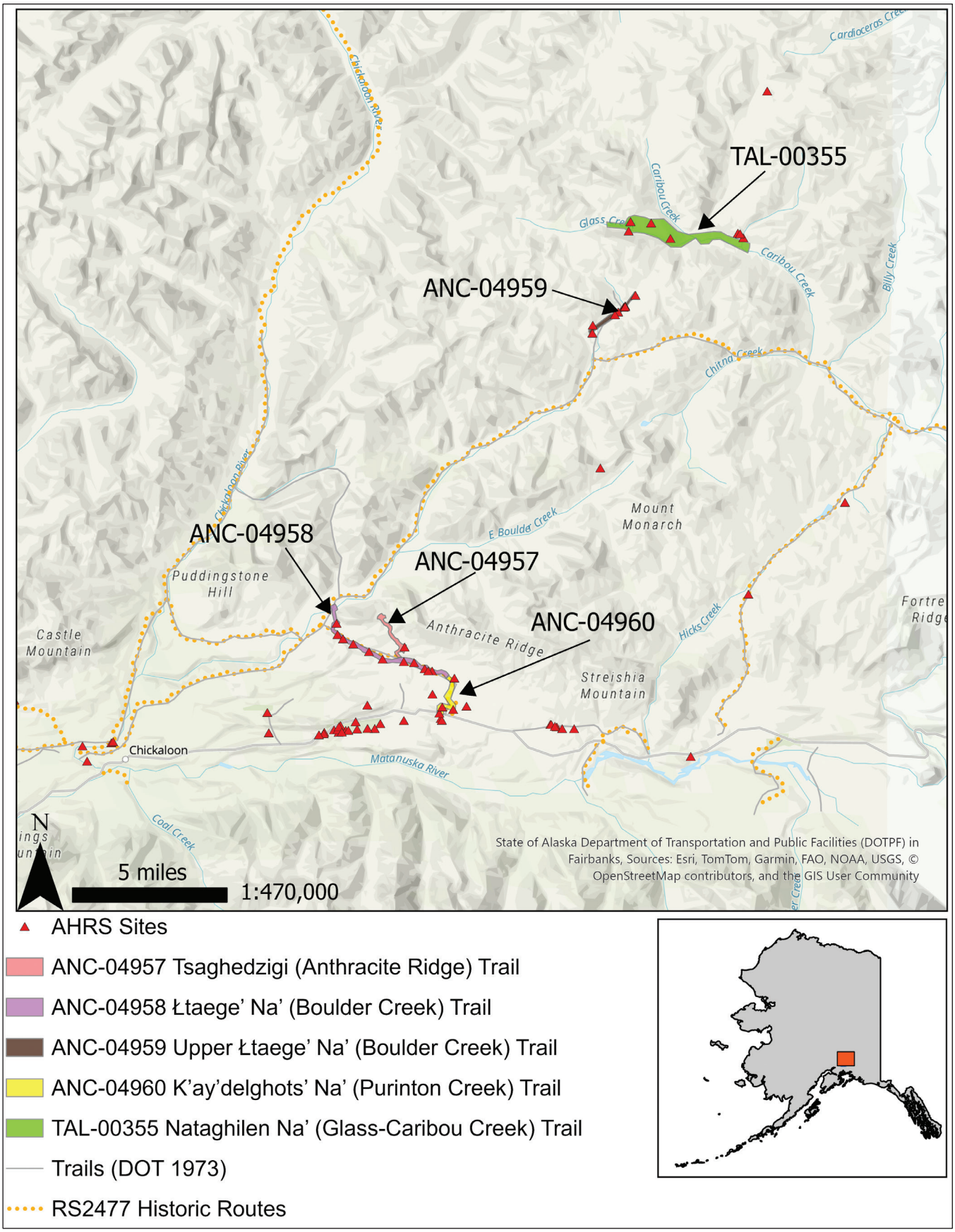

Figure 1. Trail segments on portions of the Dene trail network within Ts'etuunh Na'.

Table 2. Trail segments and AHRS sites identified within **Ts'etuunh Na'** *for this project*

Trail Segment	AHRS	Description
Hdghel Bena Tene Hicks Lake Trail	ANC-04467, ANC-04468	Debitage, side-notched projectile point
Boulder Creek Trail	ANC-04516, ANC-04465, ANC-04466, ANC-04472	Projectile point tip, debitage on gray chert and other raw materials
Boulder Creek Trail	ANC-04469	Red chert debitage
Chickaloon River Trail	ANC-04903, ANC-04904	Historic cabins, debitage, microblades
Purinton Creek Trail	ANC-04470, ANC-04471	Debitage on chert and a dark gray coarse-grained material
Boulder Creek Trail	ANC-04473	Utilized flakes and debitage on gray chert
Boulder Creek Trail	ANC-04517, ANC-04518, ANC-04519, ANC-04520, ANC-04521, ANC-04895, ANC-04896, ANC-04897	High quality raw materials, diverse colors of cherts, chalcedony, debitage, scraper, side-notched projectile point
Castle Mountain Trail	ANC-04522	Debitage on chert and siltstone, rootscraper
Caribou Creek Trail	TLM-00352	worked chert cobble
Mazuma Creek Trail	TLM-00350, TLM-00351	debitage on green-gray chert and red chert, possibly heat treated
Glass Creek Trail	TLM-00347, TLM-00348, TLM-00349, TLM-00354, TLM-00357	tin can, debitage on basalt, chert, flake core, obsidian

system, Elders stated that one could travel everywhere in the mountains (Fig. 1).

Here we introduce portions of the Boulder Creek Trail and Chickaloon-Knik-Nelchina Trail, along which we identified 12 segments and spurs of trails linking 30 discrete artifact clusters or isolated tools consistent with oral history (Table 2). It was in reference to these trails that Lieutenant Joseph Castner, a member of the 1898 Glenn Expedition, wrote in his journal that "The trouble…as with all [I]ndian trails is that they follow ground that requires the least work to make it passable and water is no obstacle to them. In short, they follow the line of least resistance in the way of brush or timber" (Castner 1984:80).

PURINTON CREEK SPUR (ANC-04960)

K'ay'delghots' Na' (Purinton Creek) is one of the access spurs connecting *Tsaghedzigi* ('rocks-?,' Long Lake) (Kari and Fall 2016:304) with the Boulder Creek Trail. Dena'ina Elder Shem Pete (1900–1989) notes "this is an old campsite. Mary Shaginoff [née Nicolai, 1902–1983] stayed here when she was young. She and Johnny Shaginoff [1909–2001] had a cabin here until the late 1940s" (Kari and Fall 2016:305). The trail ascends *K'ay'delghots' Na'*, passing through several low mud zones before climbing an east-west trending ridge covered in aspens and knappable orange chert, where it intersects the Boulder Creek Trail. Since the Long Lake dyke limits access to the Boulder Creek area, the Purinton Creek Trail is a significant access point. Debitage and bifaces occur in discrete activity areas along the trail, at the lower, middle, and higher elevations near its junction with the Boulder Creek Trail.

ANTHRACITE RIDGE SPUR (ANC-04957)

Tsaghedzigi (Anthracite Ridge) has multiple distinct place names along its crest (Kari and Fall 2016:304). Johnny Shaginoff shared that "an old sheep camp is located at the upriver end of this ridge" (Kari and Fall 2016:304). Within *Tsaghedzigi Tah* ('among rocks-?') (Kari and Fall 2016:304), the general area below *Tsaghedzigi* from *Tsaghedzigi Bene'* (Long Lake) to *Hwdghel Na'* (Dena'ina, *Hdgheltnu* 'long object falls creek,' Hicks Creek) Johnny Shaginoff stated, "Indians were superstitious of that area. A lot of old-timers were really scared of something. People used to live there long ago" (Kari 2008:77; Kari and Fall 2016:304, 306). At Kutzkatna Creek, geographer Donald Orth's (1971:556) sources reported "Two cabins on this trail, one on Boulder Creek and one near Kutzkatna creek, were used as stopping places by travelers."

Tribal citizens also shared with us the importance of being "sheep ready," meaning extremely fit as there was a necessity to run to the tops of mountains to encounter sheep. When sheep hunting, a high spike camp would be

established above a lower camp where families with boisterous children would stay. Detailed processing occurred at the lower camp, after hunters at the upper camp did preliminary butchering. Evidence of these spurs to higher camps was identified from the main Boulder Creek Trail to the crest of *Tsaghedzigi*, where one camp was visited ~1830 ± 50 cal BCE (Table 3).

BOULDER CREEK SEGMENT OF THE CHICKALOON-KNIK-NELCHINA TRAIL (ANC-04958)

Boulder Creek is *Łtaege' Na'* (Dena'ina *Łtagetnu*), meaning 'carcass stream' (Kari and Fall 2016:302).

> According to Katie Wade, in late June the Chickaloon Ahtna would go through here into the Talkeetna Mountains, where they would spend the whole summer. They would cache dry caribou and sheep meat and berries. In the winter they would relay the food by sled down to Chickaloon Village. (Kari and Fall 2016:302)

When asked about where one would go to hunt caribou, Doug Wade recalled that *ts'igge' c'estsiine'* (woodland or mountain caribou) used to be everywhere. You could go anywhere to encounter caribou as recently as the 1970s (Douglas Wade, pers. comm. 2017, 2018, 2022, 2024; Simeone 2018:65). Clan Grandmother Katie Wade's grandparents accessed the Boulder Cache in one day from *Nay'dini aa Na'* (Wade 2004:70). Boulder Creek and Boulder Cabin feature prominently in Wade (2004).

The Boulder Creek Trail includes the gravel beds of *Łtaege' Na'* but also refers to the whole trail system accessing Boulder Creek. The trail can be identified below *Tsaghedzigi* ('rocks-?,' Anthracite Ridge) near Kutzkatna (Dena'ina *Q'ech' K'etnu*?) and Tukmakna (Dena'ina *Tuk'ebeq'tnu*?) creeks (Kari and Fall 2016:304, 305), where it follows a lower east-west trending ridge covered in aspen and strewn with artifact-quality nodules of an orange chert. The trail turns north, descending the ridge and crossing *Chikootna* and *K'ay'delghots' Na'* ('Willow Gap Creek,' Purinton Creek) (Kari and Fall 2016:305), and then ascends towards the base of *Tsaghedzigi* ('rocks-?,' Anthracite Ridge), at which point there are spur trails that climb higher into the mountains. From there the trail turns west again, generally following an elevational contour until it descends from a large, steep hill, one that is recalled by everyone we interviewed about travelling in that country. The trail then enters the "lakes" region, linking up with the Sawmill Creek Trail, and then passes through the "rock garden" before reaching Boulder Bump, a conspicuous geological feature of the west end of *Tsaghedzigi* that is visible from a great distance from moderate elevations.

Discrete debitage scatters throughout the area (Fig. 2) mark places where ancestors manufactured and sharpened stone tools on a variety of raw materials, including a blue-green obsidian from an unknown source (Krasinski et al. 2024). Large bifacial preforms and complete bifaces also occur on this stretch of trail. Beyond the "rock garden," one arrives at the original location of Boulder Cabin. Both cabin locations are located about where the trail turns upstream to follow *Łtaege' Na'* (Wade 2004). Clan Grandmother Katie Wade (2004:3) noted: "In Boulder Cabin, it's a small cabin, when we get there, we'd throw

Table 3. Radiocarbon dates from the trails. All radiocarbon dates are AMS on buried stratigraphically and spatially associated charcoal from subsurface tests. All confidence intervals are 95% unless otherwise indicated by a * which denotes a 64% CI. All dates previously published (Krasinski 2019, 2023). Note: Radiocarbon dates calibrated using the InCal2020 climate curve with OxCal v4.4 at and the 95.4 probability level (Bronk Ramsey 2024; Reimer et al. 2020). * Indicates dates that may extend outside of radiocarbon range, in this case modern.

Site	Trail	Lab No.	RCYBP	cal BP (median)	cal BP (range)	CE/BC (median)
ANC-04472	Boulder Creek Trail	BETA548591	250±30	300±90*	430–???*	1650±90 CE
ANC-04362	Boulder Creek Spur	BETA500735	290±30	380±50	460–280	1570±50 CE
ANC-04466	Boulder Creek Trail	BETA501246	2770±30	2860±50	2950–2780	910±50 BC
ANC-04361	Boulder Creek Trail	BETA501245	3510±30	3770±50	3880–3690	1830±50 BC
TLM-00351	Mazuma Creek Trail	BETA601997	3730±30	4080±60	4230–3980	2130±60 BC
ANC-03788	Castle Mountain Trail	BETA548590	3880±30	4320±60	4420–4160	2370±60 BC
ANC-03788	Castle Mountain Trail	BETA548589	4120±30	4650±90	4820–4520	2700±90 BC

Figure 2. Portion of Boulder Creek Trail where modern ORV damage is visible, including the widening of trail, yet some patches of archaeological materials remain intact.

out all the old spruce boughs and put in fresh ones and it smells so good in there." The Boulder Creek Trail features a large swamp near the modern trailhead, which now has a modern *hwtsiił* (bridge) across it. Oral history and radiocarbon dating demonstrate multiple generations of Dene stewardship of this trail from at least 2700 ± 90 BCE to 1650 ± 90 CE, through colonial times (Table 3). At ANC-04466, six flakes of a high-quality translucent raw material as well as chert were recovered. Testing yielded a radiocarbon date of cal 910+50 BCE (Beta 501246).

UPPER BOULDER CREEK SPUR (ANC-04959)

The *Łtaege' Na'* Trail continues to its headwaters where it reaches another node for multiple trail intersections (Fig. 3). There are many place names in this area, including ones for branch trails like *Ts'etsiis Na'* (Ahtna) 'from ochre stream' (East Fork of Boulder Creek) that "leads to upper Caribou Creek via Chitna Pass, also called Dreese Pass locally" (Kari and Fall 2016:302). Chitna Pass is *Tsitna' Tates*, 'head creek pass' (Kari and Fall 2016:306). Farther upstream, the trail intersects the *Nay'dini'aa Na'* and Glass Creek Trails, which in turn connect to the *Nataghilen Na'* (Dena'ina *Nutughilentnu*, 'river where water flows down,' Caribou Creek) (Kari and Fall 2016:308) and Mazuma Creek Trails.

Upper Boulder Creek is difficult to navigate for people who are unfamiliar with it, and it is possible to lose people who may be following you (Krasinski et al. 2024). After ascending a steep headwall, the trail follows a creek north, generally along the same elevational contour, and across from it there is abundant knappable lithic raw material in many different colors. Chalcedony nodules were observed in geologic context in this area. True to Wilson Justin's description (Krasinski et al. 2024), the trail at first appeared to lack an outlet. However, later landscape learning allowed us to identify a route leading into *Tsitna' Tates*.

In subsurface tests along the trail, we identified two or three discontinuous tephras (Fig. 4) which in stratigraphic sequence, color, and thickness may correlate with the Devil, Oxidized Watana, and Unoxidized Watana tephras (Mulliken 2016; Wygal and Goebel 2011, 2012; Wygal and Krasinski 2019). Recent research indicates that in the middle Susitna area, the Devil tephra fell ~210–290 cal CE (Mulliken 2016). The Watana ash correlates with the Hayes Volcano tephra set-H dating between ~1470

Figure 3. A portion of an Upper Boulder Creek spur (ANC-04959). Note the moccasin trail undisturbed by ORVs, its general trend on the same topographic contour covering long, relatively straight distances except around box waterfalls and creek crossings.

and 2160 cal BCE (Mulliken 2016). The Oshetna tephra, which may represent a single discrete event characterized by heterogenous composition or multiple eruptions, occurred ~4720–5980 cal BCE (Mulliken 2016). Based on artifact positions in relation to these marker beds, the sites associated with the Upper Boulder Creek Spur likely span the last six millennia but may have components older than cal 2700 BCE as well. Clearly, the Talkeetna Mountains have been part of the Dene geographic range since time immemorial.

DISCUSSION

DENE TRAILS

Ahtna Dene oral history about the mountains reveals navigational details, descriptive place names, and a deep knowledge of resources such as presence of suitable raw material for flintknapping in cobble form, fossil localities, animal distributions, and plant communities. Some aspects of culture are better understood "in terms of moving as a way of living" and are intimately connected to personal memory, intergenerational knowledge, and environmental information (Aporta 2009:131).

Our collaborative research demonstrated that Ahtna Dene oral history of the vast trail network is manifested in the archaeological record in the form of artifacts and remains of the trails themselves. Although we have only investigated a small portion of this network from an archaeological perspective, it is clear that travel narratives emphasizing movement have been important for a long time and remain so for contemporary Ahtna. The majority of sites lie along known trails or spurs, while several of them have not been directly associated with a trail.

Like Hopi trails (Ferguson et al. 2009), Dene trails in the Talkeetna Mountains are often characterized by low-density lithic artifact scatters, resting places, camps, and temporary shelters. Also similar to Hopi trails (Ferguson et al. 2009), the oldest routes were moccasin trails. Thus, the trails tend to be narrow, not much wider than a foot,

Figure 4. ANC-04517, tephra 21 cm below surface. The Devil tephra has been described as pale brown to pinkish white averaging 3–5 cm thick and up to 8 cm thick north of the study area, while the Oxidized Watana tephra has been described as dark brown to reddish brown and 5–10 cm thick (Mulliken 2016). The Unoxidized Watana tephra is a brownish yellow 1–10 cm thick deposit, while the Oshetna tephra is a light brownish gray tephra averaging 3–5 cm thick and up to 8 cm thick north of the study area in the Middle Susitna (Mulliken 2016). Profile schematic after Mulliken (2016:34) and photo from a test unit at ANC-04517.

except where ORVs now travel. Older trails or those more heavily traveled trend toward deeper and more densely compacted. Some also evidence historical progressions (Ferguson et al. 2009), for example, "go-around-its" created for mud puddles or other less-navigable conditions become the newly preferred routes. The landscape is dynamic, and trail segments may move around as a result.

Topographically, trails generally parallel creeks in the lower elevations, although they are not exclusively adjacent, and they often follow long ridges situated well above and perpendicular to creek beds. They run to the greatest extent possible along elevation contour lines, except around waterfall features or when there are spurs to the tops of the mountains, for hunting, medicine collecting, and ceremonial activities. Trails include steep rugged terrain over high passes between watersheds (Ferguson et al. 2009). The routes also tend to follow the most direct path, though are not typically a straight line, because crossing Alaska rivers and mountains requires landscape knowledge about safe crossing locations.

Artifacts identified within the trail network largely consisted of debitage from a variety of raw materials including chert, basalt, and chalcedony. No microblades were found on these trail portions, either in the montane or alpine zones. But they are found along trails at lower elevations. Side-notched points were identified, often as-

sociated with the alpine zone, perhaps because of the association with hunting localities and/or because ORV's have not been able to access trail segments that require ascending steep headwalls. A single obsidian green-blue flake was identified, but its source has not been geologically identified (Krasinski et al. 2024:93). It did not compare well with the Glass Creek obsidian source (TLM-00354). Faunal remains were not identified in these trails nor were artifacts associated with Euro-American material culture such as canned goods.

In sum, we found a 100% association of ancient sites with Dene place names in the study area, indicating it is not a barren or empty landscape but rather one that has been stewarded by Dene for generations and tuned to the seasonal cycle (Aporta 2009). Our work demonstrates the significance of trails as archaeological features critical for understanding interconnections, movements, communication, and exchange across the landscape (Aporta 2009). Clearly, the study area contributes to a broader cultural landscape in which primary, secondary, and tertiary spurs branch out from the main trails. They were key pathways for subsistence activities and nexuses embodying the interconnected spiritual realm of Ahtna Dene life. However, CNV group identity and local residences do not limit the lifetime geographic ranges individuals or families, especially since Ahtna are expert travelers across great distances (Kari 2010).

CBPR REFLECTIONS

This project's most important guiding methodology is CBPR. Accordingly, we focused on community-driven questions and concerns, consent, and participation. With the emphasis on interconnectivity, our methodology is also designed to link oral history with experience on ancestral lands where archaeological sites reflect the Dene trail network. The collaborative approach includes sharing resource knowledge, grant writing, gear, and labor, including capacity building and reciprocity (Atalay 2012). By deemphasizing material culture, archaeological practice becomes centered on Indigenous values, ethics, and practices that emphasize respect, relationality, compassion, care, and patience (Atalay 2019; Court and Wijesuriya 2015; Tuhiwai Smith 2010; Wobst 2010). Often this means leaving artifacts in the field when they are not endangered, to further preserve the *in situ* material culture.

Our results would not have been possible without a CBPR approach, as the culturally sensitive details about the trail network are not available in any publication or report. Knowledge lives in communities. Implementing meaningful CBPR-oriented budgets is challenging as new grants bring more work to CVTC, especially with respect to people with already busy schedules. Salaried personnel may be financially constrained from taking on additional responsibilities despite their commitment to the collaboration and project. There are few grants that recognize the amount of time it takes to plan a CBPR project, write and review documents, and conduct the fieldwork. Most grants disincentivize collaboration through financial limitations and imposing time constraints (Grimard and Kruger, this volume).

We can improve our partnership by seeking funding that will generate outcomes that are more relevant for local communities beyond reports, publications, and conference presentations. For example, CVTC has developed a series of graphic novels illustrated by Tribal Citizens that center Dene oral history such as *Besiin* (Owl Story). With appropriate support, we hope to develop outcomes accessible to a wider audience that exemplify a Dene experience to the structures and patterns of movement (Snead 2009).

One of co-author Wade's mottos is to give grace to people who are learning and trying to work under a consent model. Because of this, our collaboration has had very few meaningful differences of opinion and has kept the focus on openness to listening, explaining, and changing what we can. Our greatest challenges have been related to land access and meaningful budgets. Land access is complicated because it involves areas of cultural and spiritual significance to CVTC that have been privatized or are administered by the State of Alaska. Related to land access issues are the secretary of interior qualifications which limit Tribal Citizens from being eligible for permits and leading or supervising projects without a graduate degree, despite significant experience. Additionally, we have not been able to access all the State of Alaska-owned parcels for which we have applied, typically because they are either managed by the Alaska Mental Health Trust or because the parcels are currently of interest to another permit holder. While many of these locations are high priority, Ahtna Dene ancestral lands are so expansive that we focused elsewhere in our investigations.

An ongoing conversation relates to when to collect or leave surface artifacts in place. On one hand, artifacts visible on ground surface might be picked up illegally and end up in a private collection, and on the other hand, we can compromise the eligibility of a site for the National

Register of Historic Places through excessive data recovery. Ultimately, we have prioritized collecting from trails where artifacts are likely to be observed by passers-by, any artifacts uncovered during subsurface testing, and some but not all diagnostic materials that must be collected and curated when working under state permits. We continue these discussions as well as outreach to colleagues for their perspectives, but in general an environmentally friendly approach to archaeology helps steward these important sites for future generations to enjoy.

We also work consistently to increase participation, from Tribal Citizens to members of the broader community. How to do this is a challenge, especially since some sites or areas selected for survey cannot accommodate large numbers of people, or they are not accessible except by helicopter or a multiday hike. We film videos and take many photos while travelling in the backcountry. We have been able to budget for Elders to travel via helicopter and even camp at remote sites while field work is underway.

While we are in the community during summer months, we could also improve our outreach by scheduling trips in the winter to meet with Tribal Council members and Tribal Citizens. This is no easy task financially as some of us live and work in New York, but it is a priority for enhanced collaboration. More consistent communication before the field season could improve our reach.

Thus far, our surveys have been conducted almost exclusively on lands managed by the State of Alaska. By law, at some point artifacts collected by our project will be sent to the University of Alaska Museum of the North (UAMN) in Fairbanks for their final curation. From CVTC's perspective, the curation arrangement creates a challenge because the repository location is hundreds of miles from Chickaloon Village. A trip to Fairbanks is nearly a full day's drive from *Ts'etuunh Na'*, requires at least one overnight stay, and cannot occur without bureaucratic processes to gain collection access. Although UAMN staff understand this hardship and are great to work with, the hurdles are too high for many. Through our ongoing collaboration, we are working to establish long-term loan agreements for CVTC to manage the collected artifacts. Once artifacts are unearthed, they should be curated for future generations in cultural facilities designed and managed by the descendant community rather than in inaccessible state and federal repositories (Schaepe et al. 2017).

For those seeking to initiate a CBPR project in the North, we advise first assessing which local communities are relevant to the area where you are working or hope to work. Prospective communities may not be the ones that are geographically closest, since Dene ancestral territories are vast. We recommend reaching out within your network for introductions. If your contacts do not know the people you hope to meet, they likely do know someone who could offer introductions, since northern archaeologists are a fairly tight-knit professional community. Also be patient. Remember that Tribal Citizens have full-time responsibilities like jobs, raising families, caring for Elders, and experiencing their own life. CBPR needs to be conducted on the community's time frame, not at the pace of a graduate degree or tenure clock. Our collaboration on this trails project has been fortunate to have had consistent leadership at CVTC. That is not always the case in many communities and institutions, so inviting and introducing yourself to as many people as you can facilitates a stable project focused on community interests.

Ultimately, engaging local communities when time and money are limited requires researcher goals to align with community concerns and interests, and that an outsider's experience and networking are brought to bear in addressing those questions. Before grants are in place, one could offer to volunteer, perhaps prepare an event at culture camp, or help out in the kitchen serving food. Many Tribes and certified local governments are familiar with research projects as well as grants, but community collaboration is prioritized when the communities have the authority to submit grants and manage budgets from within their Tribal governments. Be patient. Distance is a challenge, but show up, introduce yourself, and make sure your actions match your words. Most of all, remember that the work is about the community and not individual objectives. Summer is a busy time for Tribal Citizens because traditional responsibilities and subsistence activities are often heightened during this time in the North. Winter often is a better time for reaching out. The sooner you reach out, the sooner your relationships will start to develop.

CONCLUSION

Archaeology is about people: people of the past and how we connect to those people today. Because archaeology exists along this continuum, CBPR is relevant to Alaska Native communities as it connects people in the present to the past, including descendants to ancestors, and to ancestral territories. Scientific research benefits from collaborating with communities by generating more robust relationships

and applicable results. In this case study we attempt to integrate examples of discrete loci where physical evidence has been identified, with oral history and ethnographic information on the trail network to contextualize the Ahtna landscape of the Talkeetna Mountains.

CBPR with Alaska Native communities has been critical for successfully answering many of our research questions. Further, developing relationships with local communities ensures that research is designed for the maximum benefit of those communities and simultaneously facilitates the researcher's agenda. We found a strong correlation of sites with Ahtna place names, as well as many sites beyond the toponyms with which we are familiar (research question 1). Artifacts recovered affirm the activities described have occurred in those places that reflect ancient practices (research question 1). Oral history affirms a complex Ahtna understanding of topography, hydrology, ecology, and geology. Through our collaboration, we demonstrated that Dene have lived in the Talkeetna Mountains for millennia, subsisting and interacting across mountain ranges, watersheds, linguistic frontiers, and cultural territories (research question 2).

We hope to fully develop what life was like for Dene in the mountains based on our archaeological findings. The mountains are fundamental to Dene life rather than peripheral (research question 3). Trails and discrete sites persist on the landscape. As the Matanuska-Susitna Borough continues to grow, it is important to recognize how subdivisions, ORV trails, and roads continue to adversely impact these Dene sites and landscapes, and that working with living Dene communities is the best way to facilitate the preservation of these places while developing effective trail management practices.

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