An Archaeology of Survivance on the Grand Ronde Reservation:

Telling Stories of Enduring Native Presence

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Abstract

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This dissertation forwards an archaeological research framework grounded in Gerald Vizenor's concept of survivance. Archaeologies of survivance center Native presence in all aspects of archaeological knowledge production. In doing so, they address gaps in existing studies of European and US colonialism and position archaeological research as a counter to settler colonialism's pursuit of Native absence. They also challenge archaeologists to shed their self-appointed role as narrators of Native histories and work collaboratively with tribal nations to bring the stories of their ancestors into the present. This dissertation puts an archaeology of survivance into practice via two community-based projects developed with and by the Confederated Tribes of Grand Ronde. Combining cartographic, archival, archaeological, and community knowledge, these projects represent a Grand Ronde-specific form of historical inquiry, one that follows from community interests and strengthens the tribe's efforts to implement self-determined heritage protection. This dissertation traces the development of these projects and explores what they reveal about nineteenth and twentieth century settlement patterns and foodways on the Grand Ronde Reservation in northwestern Oregon. Ultimately, an archaeology of survivance at Grand Ronde offers a blueprint for transforming a discipline rooted in US settler colonialism into a mode of tribal capacity building and continuation.

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For those who have always called Oregon home

CHAPTER 1: RESEARCH AS RELATIONSHIP-BUILDING

Since 2014, I have worked with and for the Confederated Tribes of Grand Ronde[1] Historic Preservation Office (HPO) to explore the nineteenth and twentieth century history of the Grand Ronde Reservation in northwestern Oregon. Our efforts have focused on adapting the tools of archaeological, cartographic, and archival research to create an archaeology of survivance, an approach to historical inquiry in which distinctive Grand Ronde presence shapes project methodologies, epistemological resources, interpretive strategies, and results dissemination. The goals of this approach are threefold: to enhance the HPO's understanding of Grand Ronde history; create opportunities for current and future tribal members to engage with tribal history; and support the HPO's efforts to implement self-determined heritage protection on and off the reservation.

Over the next seven chapters, I trace the intellectual foundations of this approach and discuss its implementation as part of two collaborative projects. The first, the Grand Ronde Land Tenure Project (GRLTP), combines archival and cartographic analysis to investigate reservation spatial politics during the nineteenth and early twentieth centuries. It focuses on how the Grand Ronde community adapted traditional settlement patterns and relationship building to the reservation during the second half of the nineteenth century and especially following the implementation of the General Allotment Act in 1889. The second project, Field Methods in

[1] In this dissertation, I use several terms to refer to groups with histories and presents structured by external and settler colonialism. I use "Indigenous peoples" to refer to this global community of shared experience. The capitalization of "Indigenous" emphasizes groups' nationhood and international standing (e.g. United Nations 2007), while the pluralization of "peoples" highlights groups' unique practices, identities, and knowledge systems. I use lower-case "indigenous" when discussing indigenous archaeologies, as these reflect more general forms of scholarly practice (see Gonzalez 2011:4; Silliman 2008:21; Smith 2012:119; Smith and Wobst 2005a:14). When referring to the original inhabitants of what is now the United States, I use "Native peoples" or "Native communities." I replace these with specific, self-selected ethnonyms or political designations such as "Grand Ronde" when referring to particular groups. I avoid terms laden with historical baggage and inaccuracies such as "Indian." They appear only as part of direct quotations.

Indigenous Archaeology (FMIA), uses a low-impact, multi-phase archaeological field methodology to explore two tribally-owned properties, both of which contain evidence for long-term occupation and use by the Grand Ronde community. Combining community knowledge with various field strategies (geophysical survey, intensive surface collection, and targeted excavation), FMIA explores the interior organization of Grand Ronde homes and the composition of reservation diets. Together, these projects reveal how those at Grand Ronde have resisted, refused, and adapted to US settler colonialism and how archaeological interpretation and practice changes when the interests, knowledge, and participation of Native communities are placed at the center of the research process.

As Briece Edwards, Grand Ronde's Deputy Historic Preservation Officer, is fond of saying: "everything begins with people, place, and practice." With Briece's words in mind, I begin this dissertation with an overview of the place called Grand Ronde, highlighting how its people used (and continue to use) cultural practice to maintain relationships with storied landscapes, other Native communities, and the nonhuman persons that inhabit their ancestral homelands. I then turn to the relationships that guide this dissertation. The GRLTP and FMIA emerged from and depended on relationships with HPO staff and the wider Grand Ronde community, and I argue that being accountable to these relationships requires answering questions archaeologists have historically ignored. Is archaeological research at this place necessary? Who benefits from this work? And to whom, if any, is this work accountable? I conclude this introduction by outlining the structure of the following seven chapters.

HISTORY OF THE GRAND RONDE RESERVATION

Native peoples have lived in western Oregon since time immemorial. But during the first half of the nineteenth century, newcomers attempted to sever the relationships that have linked Native peoples to their lands for millennia. Spurred by the promise of free land and economic opportunity, US settlers poured into the region. They established farms, mines, political organizations, and trade networks and rarely questioned their presumed right to settle and exploit these lands, title for which remained with Native communities. As the settler population increased, so too did aggression toward Native peoples, who settlers saw as impediments to Oregon's "progress." Calls for the removal—or extermination—of Native peoples came to a head in the 1850s. Violent forays by settlers in southwestern Oregon erupted into open war with local Native communities. At the same time, territorial officials, eager to resolve the issue of title, restarted treaty negotiations with Native leaders. Faced with an exploding settler population, disruption of cultural practices resulting from foreign epidemics and settler economies, and unrelenting settler hostility, Native leaders had little choice but to sign treaties, cede their land, and leave their homelands. In 1855 and 1856, Indian Affairs and military personnel forcibly removed approximately 2,000 representing dozens of Native communities to the 61,440-acre Grand Ronde Reservation in northwestern Oregon.

Life at Grand Ronde presented a host of challenges. The federal government designed reservations as vehicles toward cultural erasure and implemented policies that compelled individuals to adopt settler practices and beliefs. These assimilation pressures strained ties to ancestral homelands and traditional practices. The community responded to these challenges by adopting western Oregon's *lingua franca* Chinuk Wawa (also known as Chinook Jargon) as the reservation's primary language, establishing new seasonal rounds that included work on Willamette Valley farms, and fashioning a unique Grand Ronde identity. They acted with determination, creativity, and even humor. Two stories from Grand Ronde residents capture the affective range of community responses. In 1877, Peter Kinai and Yatchkawa recounted that during treaty negotiations, Tualatin elder Qa'yaqats declared: "The Americans will never leave us alone. Let us not concern our hearts…. We will take *tce'lu* [Grand Ronde]. It will be just the same (as what we now have), we will make it our own place" (Gatschet et al. 1945:168; see also Leavelle 1998). During her 1929 and 1930 conversations with anthropologist Melville Jacobs, Victoria Howard recounted an exchange between a Clackamas man and her grandmother: "'That is the way we have now become here—the myth (white) people are making (inventing) things of various kinds.' And then the two of them would laugh. He would say to her, 'Yes! When did we ever long ago sit around a table and eat?'" (Jacobs 1959b:563). The arrival of settlers and later forced relocation to Grand Ronde brought various and often extreme hardship. Yet western Oregon's original inhabitants never passively accepted settler colonial intrusion or assented to the federal government's assimilationist intentions. They survived, and they did so with attitude (Velie 2008).

The persistence of "uncivilized" relationships, languages, and cultural practices, at Grand Ronde and elsewhere, prompted federal officials to redouble their assimilationist agenda. Allotment, boarding schools, and, during the 1950s, termination were devised to permanently extinguish Native lifeways. All of these policies came to Grand Ronde. Termination proved particularly damaging. It ended the treaty-enshrined government-to-government relationship between the United States and Grand Ronde, ended all social services within the community, and liquidated most tribal assets and lands. For three decades, the community struggled as a non-recognized tribe. This changed in the 1980s when activists mounted a powerful and ultimately successful restoration campaign. The tribe regained federal recognition in 1983 and nearly 10,000 acres of the original reservation in 1985.

In the years since restoration, the Confederated Tribes of Grand Ronde have emerged as a vibrant sovereign nation. Today, the tribe owns approximately 13,000 acres. These parcels include valuable timberlands within the boundaries of the original reservation, sites of ecological restoration, and historically and culturally significant places at Grand Ronde and throughout western Oregon. Tribal departments have developed education curricula that incorporate community teachings and histories, established Chinuk Wawa immersion courses for youth and adults, constructed housing for elders, and reintroduced food and medicinal plants to foodways and the Oregon landscape (Merrill and Hajda 2007).

Maintaining Community Connections to Willamette Falls

Perhaps no place better highlights Grand Ronde's resilient connections to place and practice than Willamette Falls. The 1,500-foot wide, 40-foot waterfall near Oregon City has long been central to the lifeways of western Oregon Native peoples. For centuries, Clowewalla and Clackamas communities maintained settlements near the falls, welcoming guests from near and far to visit, trade, and fish for salmon and lamprey. They shared stories detailing the creation of the falls and the surrounding landscape by Coyote, Mudfish, Salmon, and other figures. These stories revealed how the world came to be, offered instruction for proper behavior within it, and linked people to place, practice, and identity (Beckham 2018; Jacobs 1959a, 1959b; Lewis et al. 2013).

Forced removal brought Clowewalla, Clackamas, and other communities with connections to the falls to Grand Ronde. Life on the reservation strained but did not sever these connections. Those at Grand Ronde returned to Willamette Falls during the reservation's initial decades. They continued to gather salmon and lamprey, to travel through and recount the creation of its storied landscapes, and to pass this knowledge to the next generation. The falls remained imbedded in historical lifeways and took on new meaning, emerging as one of many landmarks through which the community fostered connections that transcended the spatial and temporal boundaries imposed by settler colonialism.

Over time, however, these boundaries became increasingly impermeable. During the late nineteenth century, industrial and commercial development in Oregon City impeded public access to the falls. In the years that followed, state officials tightened fishing regulations. In 1904, the Oregon State Fish Commission banned all fishing 600 feet upstream and downstream of the falls and, in

Figure 1.1 Grand Ronde cultural adviser and ceremonial fisherman Bobby Mercier harvests salmon for First Salmon Ceremony, May 2016 (Confederated Tribes of Grand Ronde 2016).

1927, terminated all commercial fishing in the Willamette River. These actions effectively ended reservation residents' access (Beckham 2018). Following Grand Ronde's restoration in 1983, the tribe established a Natural Resources Department (NRD) charged with caring for lands and nonhuman communities on throughout the tribe's ancestral homelands. Rehabilitating salmon and lamprey habitat and reconnecting these communities with tribal members have been departmental priorities for nearly two decades.

It was against this backdrop that, in 2013, Grand Ronde signed an agreement with the Oregon Department of Fish & Wildlife (ODFW) to harvest one salmon from Willamette Falls near Oregon City. That May, tribal members gathered near the falls to hold First Salmon Ceremony, an event that celebrates the annual return of salmon to Oregon rivers. It was the tribe's first public salmon ceremony at the falls in 130 years. Tribal members caught, prepared, and ate the salmon; they then returned its remains to the Willamette River. In doing so, they reaffirmed millennia-old connections to salmon communities and recommitted to caring for ancestral lands and waters (Karten 2013). Tribal members have celebrated First Salmon at Willamette Falls every year since (Figure 1.1).

Three years later, Grand Ronde further strengthened their relationships to salmon and Willamette Falls. During their April meeting, ODFW officials approved Grand Ronde's proposal of establishing a ceremonial fishery, allowing tribal members to harvest fifteen salmon from the falls per year. In June, Grand Ronde fishers navigated the falls' slippery outcrops and extended long dip nets into the torrent. Three and half hours later, they had caught fifteen salmon (Rhodes 2016).

The reestablishment of the tribal fishery at Willamette Falls was no short-term project but a hard-won reassertion of tribal connections to a place of meaning, identity, and practice. In July 2016, tribal members celebrated these renewed connections at a ceremony and salmon dinner at *Achaf-Hammi*, the Grand Ronde plank house. The tribe's cultural, spiritual, and political leaders, members of Canoe Family, and Natural Resources Department staff came together to prepare and eat the harvested salmon, to sing, drum, and dance in honor of salmon and the falls, and to thank those who had made the fishery possible.

To my surprise, FMIA was also invited to attend. As I discuss in Chapter 3, FMIA uses a summer field school to introduce undergraduate and graduate students to archaeological field techniques and tribal historic preservation. It also shows students how tangible and intangible tribal heritage are (as they have always been) integral to Grand Ronde lifeways. Students learn about tribal heritage through doing: they contribute to community projects, visit places of historical and cultural importance, and, when invited by the community, attend ceremonies and celebrations. Given that FMIA was not involved in the restoration of the Willamette Falls fishery and was composed primarily of non-community members, I assumed Grand Ronde would prefer to celebrate with tribal members and staff. I was incorrect. At *Achaf-Hammi*, I learned about Grand Ronde's historical, contemporary, and future connections to salmon and Willamette Falls. Throughout the evening, I was struck by the countless hours tribal staff spent negotiating with state wildlife officials, by the power of the salmon songs and dances performed by tribal youth, and by the previous generations who, through word and action, ensured knowledge of and links to the falls never disappeared.

Creating New Relations through Historical Inquiry

Walking from *Achaf-Hammi* to the FMIA campsite that evening in July 2016, I remember feeling honored, if surprised, to have been invited to share in such a momentous occasion. Why had FMIA, then only in its second year, been included in a celebration over a century in the making? It took three years and many more conversations with tribal members to understand that FMIA's invitation was not simply about generosity (though it was that as well), it was about incorporating people, from within the community and beyond, into the network of relationships that have supported life in western Oregon since time immemorial. As King (2005:29) explains: "don't say in the years to come that you would have lived your life differently if only you had heard this story. You've heard it now." Listening to stories, hearing songs, and sharing food irrevocably altered my perception of Willamette Falls and Grand Ronde lifeways. I cannot return to a time in which I did not know these things. I (and the rest of FMIA students and staff) will carry this experience in my personal and professional life: it will shape how I think about western Oregon, the peoples who have always called it home, and my obligations to both as a descendant of settlers. I understand now that by inviting FMIA to celebrate the Willamette Falls fishery, Grand Ronde welcomed new individuals into the community of those invested in Grand Ronde pasts, presents, and futures.

Of course, Willamette Falls is not the only avenue through which Grand Ronde builds and strengthens relationships. Since time immemorial, Native lifeways in western Oregon have been structured by systems of interdependence. Native peoples have held a deep awareness of the links between the creation of the world, the changing seasons, the lives of plant and animals, and the needs of human and nonhuman persons. Settlement patterns, foodways and landscape management, politics and trade, storytelling and intergenerational knowledge transfer—all grew from this awareness and helped ensure the long-term success of those embedded within this system. Interdependence also shaped these practices' underlying ontologies and epistemologies: ways of being and knowing through which Native peoples engaged with past and future generations, creator figures, and nonhuman relations. Relationships were and are integral components of Grand Ronde thought and action. In the words of Cree scholar Shawn Wilson, they represent a web that "surrounds us, and…forms us, our world, our cosmos, and our reality" (2008:76). He concludes: "We could not *be* without *being in relationship*" (2008:76, emphasis in original; see also Atleo 2004; Cajete 2000; Deloria 2004; Kimmerer 2013; TallBear 2018).

Being in relationship is not restricted to Indigenous communities nor to traditional lifeways. It infuses all thought and action, including scholarly research. Archaeology, for example, has been shaped since its inception by relationships with academic institutions, publishers, funders, and more recently government agencies and developers. It has been through these interdependencies that archaeologists have secured research opportunities, professional advancement, and recognition. This dissertation is no exception. It is embedded within a graduate program, tethered to multiple granting agencies, and upon acceptance will grant me a doctoral degree and in turn make possible new professional opportunities. But where archaeologists past and present have overlooked relationships with Indigenous communities and the historical, cultural, and spiritual links they hold to places and objects of archaeological inquiry, this dissertation follows the lead of Indigenous activists and scholars who have called for an expanded web of relationships guiding academic research. They have argued that Indigenous communities not only possess a human and cultural right to participate in research on their lands and heritage (e.g. United Nations 2007), they should be a recipient, if not the primary one, of project benefits (Atalay 2012; Atalay et al. 2014). Indeed, should not communities' contributions to research design, implementation, and/or interpretation come with some form of benefit? If not, what role does their involvement play beyond allowing scholars to claim they have "engaged" with Indigenous communities without being accountable to the relationships that made that research possible?

This dissertation takes these questions to heart. As a non-Indigenous, non-community member trained in a discipline that has routinely marginalized Native peoples from their lands and heritage, conducting community-based research required that I learn (and unlearn) what archaeology can and should be. In order to avoid reproducing the discipline's failings and settler colonial tendencies, I had to define which relationships I was accountable to. In this dissertation, I am accountable to the Grand Ronde Historic Preservation Office, the contemporary Grand Ronde tribal nation, the historic Grand Ronde Reservation community whose stories I have helped bring into the present, and Grand Ronde's future generations who will consult this work as part of their own research and community-building efforts.

I realized these commitments through word and action. According to Wilson (2008:77-79), building and maintaining relationships requires "relational accountability," or a guiding sense of respect, reciprocity, and responsibility. The GRLTP and FMIA, as I discuss in Chapter 3, relied on different forms of collaboration but both incorporated opportunities for dialog, sharing results, and refining analytical strategies as structural components of research design. The GRLTP pursued a set of community-defined project outcomes, while FMIA recognized from the outset that all aspects of the project were subject to the approval of HPO staff. And both projects pursued three overarching goals: (1) answer questions about places and periods of interest to the Grand Ronde community; (2) train tribal members and students in archaeological field techniques and community-based research methods, with the hope that these skills will help them secure employment in the historic preservation industry; and (3) create datasets of use to current and future tribal members and affiliated researchers interested in other aspects of Grand Ronde history. Relational accountability, in other words, was a central feature of the GRLTP and FMIA. The structure and goals of these projects clarified participants' responsibilities and left no doubt that each was an expression of Grand Ronde sovereignty and self-determination (Atalay et al. 2014; Smith 2012; Wilson 2001).

Dissertation Goals and Structure

An Archaeology of Survivance on the Grand Ronde Reservation combines archaeological, cartographic, and archival investigation to explore the nineteenth and twentieth century history of the Grand Ronde Reservation. It examines how these forms of scholarly inquiry, which were and remain inflected with settler colonial narratives about Native peoples, may be repurposed into forms of community-centered knowledge production. Drawing on anthropological, historical, and Indigenous Studies scholarship on the colonial archive, Indigenous research methodologies, and Native storytelling, I forward a survivance-based approach to archaeological inquiry. Grounded in the writings of Anishinaabe writer Gerald Vizenor, archaeologies of survivance unite theory and practice under the banner of identifying and celebrating Native presence, especially within discursive environments (e.g. government reports), physical landscapes (e.g. reservations), and scholarly disciplines (e.g. archaeology) invested in Native absence.

Archaeologies of survivance, as its pluralization suggests, does not refer to a single set of scholarly practices or commitments. Instead, it provides a model for scholars and Indigenous communities to develop unique expressions of survivance-focused research tailored to specific times, places, and histories. At Grand Ronde, survivance informed the design of the GRLTP and FMIA. Though these projects utilized different forms of collaboration and research methodologies, both investigated Grand Ronde's "tensions of empire": those spaces and practices structured as much by top-down policies and processes (e.g. assimilationist ideologies, economic conditions, reservation border policing) as by the agency, creativity, and culturally-situated logics of Native peoples (Delle 2016; Stoler and Cooper 1997). On the reservation, loci of tension emerged at various spatial scales and took diverse material forms. The GRLTP and FMIA shed light on those operating within settlement patterns and quotidian materiality, respectively.

In Chapters 2 and 3, I outline an approach to archaeological research rooted in Indigenous knowledge and community collaboration. Chapter 2 reviews recent scholarship on US settler colonialism, historical trends in archaeologies of colonialism, and conceptual models of Native culture change and continuity. I argue that though archaeology has made strides in refocusing studies of colonialism on Native communities and the multifaceted ways they responded to, resisted, and strategically participated in European and US colonial intrusion, temporal, conceptual, and methodological blind spots remain. Temporally, the nineteenth and twentieth centuries brought sweeping changes to Native social and political life. This period is the subject of a substantial historical and anthropological corpus but has attracted relatively little attention from archaeologists. Conceptually, archaeologists' recent interest in colonial era Native experiences has not been met with an attendant engagement in Indigenous Studies, in which a body of literature on this topic already exists. And methodologically, though archaeologies of colonialism overlap with and have contributed to the development of indigenous and collaborative archaeologies, there is need for additional discussion on the intersections between practice and interpretation.

Following this review, I sketch a survivance-based approach to archaeological research. As elaborated by Vizenor, survivance is fundamentally concerned with Native presence; it thus stands in opposition to US settler colonialism, which was (and continues to be) predicated on affecting the absence of Native peoples, whether physically, culturally, or politically. Survivance is relevant to archaeological research because it challenges scholars to reflect on the discipline's complicity in US settler colonialism and the legacies of this relationship. Early archaeological research diminished the accomplishments and capabilities of Native peoples, supplying scientific justification for dispossessive federal policies. Placing Native presence at the center of archaeological research pushes scholars to break with this history, to confront how colonial projects have shaped archaeological practice, and to pursue alternatives.

In Chapter 3, I continue this discussion by examining survivance's relevance to a specific time and place: the Grand Ronde Reservation. The history of the Grand Ronde community is a story of resilience in the face of sustained adversity. Western Oregon Native communities were among the first to be subjected to various government policies, including removal to local reservations, allotment, boarding schools, and termination. Despite these challenges, the community preserved connections to long-important places and practices while developing a new, distinctively Grand Ronde identity.

This chapter reflects on whether aspects of these survivance stories may be brought into the present via the reservation's archaeological record. I argue that incorporating survivance into archaeological research requires (1) understanding the political terrain navigated by past groups to determine which practices and spaces were involved in cultural negotiation and (2) employing middle range concepts to link survivance as a higher-level theoretical commitment with the unique material record under consideration. I identify residence (Silliman 2014) and transmotion (Vizenor 2015) as supplying the conceptual resources needed to investigate survivance stories—and their role in cultivating spatial and temporal self-determination—at Grand Ronde.

With this framework in place, I turn to archaeologies of survivance in practice. Using various conceptualizations of collaborative research practices (e.g. Atalay 2012:48; Colwell 2016; Colwell-Chanthaphonh and Ferguson 2008) as entry points, I outline the interpersonal relationships and discussions through which the GRLTP and FMIA emerged and discuss how they support the HPO's efforts to protect tribal heritage. These projects featured different forms of collaboration—and thus came with unique priorities, methodological strategies, and research goals—but together they constitute a distinctly Grand Ronde approach to historical inquiry.

Chapter 4 focuses on the politics of land in the history of western Oregon and on the Grand Ronde Reservation. It briefly reviews the history of US settler colonialism in western Oregon during the first half of the nineteenth century. During this period, settlers' hostility toward Native peoples eventually morphed into violent attacks, the outbreak of the Rogue River War, treaty negotiations, and removal. As these events unfolded, settlers and territorial officials expressed divergent viewpoints about the best course to follow in resolving Native-settler tensions. But they all agreed on the ultimate goal: settler access to western Oregon land and resources unencumbered by the presence of Native peoples.

I then discuss the settler colonial policies and discourse, especially related to settlement patterns, that followed Native peoples to the Grand Ronde Reservation. Existing scholarship on Grand Ronde history offers little information about the location, distribution, and composition of reservation settlements. This gap, long recognized by historic preservation staff, led to the creation of the GRLTP. I outline the project's approach to the study of the colonial archive before exploring reservation settlement patterns during Grand Ronde's first three decades and following the implementation of the General Allotment Act in 1889. I argue that the Grand Ronde community contested the reservation's assimilationist agenda with settlement patterns informed by long-standing relationships within and between extended families and historical neighbors. I interpret the persistence of these relationships as acts of residence whereby those at Grand Ronde carved out spaces of belonging on a landscape hostile to traditional lifeways.

In Chapters 5 through 7, I turn to Grand Ronde's material record. In Chapter 5, I outline the three research questions guiding FMIA's fieldwork, which center on (1) documenting reservation materiality, (2) households as spaces of residence, and (3) foodways as acts of transmotion. By evaluating these questions, FMIA enhances the capacity of the HPO to protect tribal heritage on and off the reservation and supports new understandings of reservation history. For the latter two questions, I present material expectations that draw on my discussion of residence and transmotion in Chapter 3.

In Chapter 6, I review project fieldwork and present preliminary findings. Over four field seasons between 2015 and 2018, I worked with HPO staff and FMIA students to conduct archaeological investigation at two tribally-owned properties within the original boundaries of the reservation. Fieldwork proceeded according to the low-impact research methodology presented in Chapter 3. Before each field season, I reviewed reservation maps and documentary sources with historic preservation staff to determine appropriate field strategies and create predictions about the nature and location of archaeological deposits. Fieldwork at each property began with broad landscape assessments—aerial photography, geophysical survey, intensive surface collection—before turning to locus-specific sub-surface investigation.

Chapter 7 considers field results in greater detail. I discuss the extent to which identified deposits answer the three research questions presented in Chapter 5 and what they reveal about daily life on the reservation. I also offer recommendations for future work that would expand these material-based accounts of Grand Ronde history. My argument here is that though questions about the interiors of reservation households remain unanswered, material remains related to foodways and lithic production attest to the durable connections between the Grand Ronde community and salient places and practices. These acts of transmotion linked families to ways of being in time and place that refused the reservation's design and administration. They also left a legacy that is visible in Grand Ronde's contemporary use of the property for community celebrations, powwows, and youth culture camps.

Finally, in this dissertation's conclusion, Chapter 8, I reflect on the trajectory of indigenous and collaborative archaeologies and archaeologies of colonialism. I review survivance's relevance to archaeology and highlight the work of the Grand Ronde HPO as a north star for those interested in pursuing research that explicitly recognizes Native presence and combats the legacies of US settler colonialism. Despite its settler colonial origins, archaeology holds great potential in tethering empirically robust historical inquiry to the needs and values of contemporary descendant communities. Archaeologies of survivance, I believe, have a role to play in ongoing discussions about archaeology's future and what the discipline can and should be.

CHAPTER 2: TOWARD ARCHAEOLOGIES OF SURVIVANCE

The history of the Grand Ronde Reservation is inseparable from the development of US settler colonialism in western Oregon. Beginning in the late eighteenth century, traders, settlers, missionaries, and politicians set their sights on the region as a source of opportunity via the Pacific fur trade and later as a site of agricultural promise, religious proselytization, and national expansion. The presence of Native peoples was understood as antithetical to these goals. Native peoples were subjected to various policies designed to erase them from the landscape, from genocidal violence, to forced removal, to political termination. That the Grand Ronde community has not only survived but thrived despite these policies is a testament to tribal members' resilience and commitment to millennia-old teachings, relationships, and lands.

Therefore, any investigation of Grand Ronde history must include an account of US settler colonialism. To do otherwise leads to a diminished understanding of the reservation's creation, administration, and eventual dissolution, thereby limiting the possibility of new historical insight. Overlooking settler colonialism also undermines the development of research projects that positively contribute to the Grand Ronde community. As a non-Indigenous, non-community researcher, it was imperative that I recognize the tribe's efforts to sustain, protect, and celebrate Grand Ronde heritage as historical products borne out of two centuries of engagement with and resistance to settler colonialism. Only then could I contribute to projects that complemented these efforts.

The purview of such critical examination must also include archaeology. From its inception, the discipline shaped and was shaped by settler colonialism, and the vestiges of this relationship continue to influence archaeologists' engagement, or lack therefore, with Native communities. At the root of this enduring settler colonial outlook is archaeologists' self-appointed status as the stewards of Native history (Atalay et al. 2014; Ferris and Welch 2014). From the perspective of the general public, government agencies, and many scholars, archaeologists persist as the most trusted adjudicators for what constitutes legitimate Native history. The objections, comments, and concerns raised by Native communities have been excluded from these conversations or dismissed as politically-motivated and unscientific. As an academically trained archaeologist, I have inherited this legacy of presumed access to Native land, material culture, and knowledge irrespective of the needs or wants of affiliated communities. Working with and for the Grand Ronde HPO demanded that I throw off this scholarly presumption. This was especially important for thinking through whether and how academic research could enhance HPO staff's protection of tribal heritage off-reservation, the treatment of which is dictated by a historic preservation industry that is often skeptical of if not hostile toward tribal interests.

This chapter takes up the dual challenge of examining US settler colonialism's impacts on Native communities and archaeology's failure to identify and replace settler colonial logics in research on Native peoples. My thesis is that settler colonialism and archaeology have pursued the physical, political, and/or cultural *absence* of Native peoples and thus unrestricted access to Native land, resources, bodies, material culture, and knowledge. To counter these programs of absence—to transform archaeology into an anti-settler colonial practice—archaeologists must develop frameworks that center Native *presence*. Distinctive, unfailing presence is a core feature of Gerald Vizenor's concept of survivance. Vizenor's writings on survivance offer diverse conceptual resources with which to construct archaeologies of survivance. These archaeologies share three commitments: (1) reject research discourse and practices that reproduce settler colonialism's "logic of elimination" (Wolfe 2011); (2) engage Native communities, knowledge, and lifeways in theory, practice, and interpretation; and (3) reject the idea that archaeologists are the exclusive narrators of Native history.

These statements clarify what an explicitly anti-settler colonial research framework must be. To excise settler colonialism's legacies from the discipline, archaeologists must dismiss outmoded concepts and interpretative strategies that cast Native peoples as anachronisms constrained by static identities and practices. They must develop theoretically, epistemologically, and evidentially plural research projects alongside local Native communities, projects that not only facilitate more comprehensive, nuanced historical accounts but also contribute to the continuation of Native presence. And they must contribute to the telling of Native histories as listeners, not narrators. For Grand Ronde and many Native communities, stories are the product of interaction between teller and listener. The archaeological record constitutes temporally durable components of past groups' stories of success, struggle, and ingenuity. These stories have already been composed and told, and it is archaeologists' ability to bring them into the present as listeners that helps expand and complement existing accounts of Native histories.

I outline the benefits and necessity of incorporating survivance into archaeology in the context of four questions. First, what is settler colonialism? Drawing on recent distinctions between settler colonialism and external colonialism, I trace the federal government's varied attempts to erase Native peoples from their lands. Second, how have archaeologists studied colonialism? Archaeologies of survivance are also archaeologies of colonialism, and in this section I argue that while colonialism has attracted substantial interest in the discipline, archaeologists' conceptual frameworks have overlooked, if not reiterated, the United States' campaign to affect Native absence. Third, what does survivance offer archaeology? Here, I present four definitions of survivance offered by Vizenor. These definitions address temporal, interpretive, and practical gaps within archaeologies of colonialism. And fourth, what do archaeologies of survivance look like? I conclude by highlighting survivance's potential for advancing four aspects of indigenous and collaborative archaeologies: (1) community-specific projects, (2) participatory research design, (3) capacity building outcomes, and (4) culturally-situated field practices.

What is Settler Colonialism?

I begin with an examination of settler colonialism. At its most basic, colonialism refers to the creation and perpetuation of asymmetrical power relations by members of an exogenous group (Veracini 2011:1; see also Hinkson 2012; Osterhammel 1997). It can be separated into two primary forms, external colonialism and settler colonialism, each of which depends on distinct relationships between colonizers and colonized. External colonialism refers to local domination of labor and resources by a comparatively small exogenous group, who then export resources and/or wealth to the metropole. This asymmetrical relationship benefits colonizers at the expense of the colonized. As such, external colonialism seeks self-reproduction, or the permanent subordination of colonized peoples (Veracini 2011, 2014). Following the end of World War II, European external colonialism in South Asia and much of Africa faltered, leading to widespread independence movements. These and other instances of external colonialism are the basis for postcolonial studies (e.g. Bhabha 1994; Fanon 1968; Memmi 1965; Said 1978; Spivak 1988).

Settler colonialism, by contrast, has only recently received in-depth theorization (Bateman and Pilkington 2011; Cavanagh and Veracini 2017; Hinkson 2012; Tuck et al. 2016; Youé 2018; Wolfe 2011). Central to settler colonialism is the expropriation of Indigenous land and the displacement of Indigenous peoples by an exogenous group. It pursues the physical, political, and/or cultural disappearance of Indigenous peoples and, furthermore, the suppression of colonial relations, what Veracini (2011, 2014) calls self-erasure. As Tuck et al. (2016:7) explain, "settler colonial states [refuse] to recognize themselves as such, requiring a disavowal of history, Indigenous peoples' resistance…and claims to stolen land." If this history is acknowledged at all, it is framed in the past tense, as something that occurred long ago, that is no longer relevant, and does not implicate contemporary settlers or institutions (Tuck and Yang 2012; Veracini 2010:75-94; Wolfe 2006, 2011). These narratives divert attention away from the unstable, imposed nature of settler dominance, allowing states to instead claim they are effectively "settled" and thus "postcolonial." These narrative attempts by settler colonialism to "cover its tracks" (Veracini 2011) are directed not only toward settlers, but Indigenous peoples as well. As Simpson (2017:15, emphasis in original) notes, they are attempts "to create a perfect crime—a crime where the victims are unable to see or name the crime *as a crime*."

Settler colonialism is enduring and flexible. It is, as Wolfe (1999:2) claims, "a structure not an event." In the United States, this structure has been made real via federal policies toward and terminal narratives about Native peoples. Initially, settler colonialism's structure was operationalized through racial logics and differential treatment of settlers, Native peoples, and Black people. Explorer, trader, and settler accounts of Native lifeways as "primitive" and "uncivilized" set in motion a process whereby Native peoples were "made savage" and thus rendered illegitimate occupants of their land (McCoy 2016:92). This discourse facilitated Native dispossession and displacement but did not resolve the need for exploitable labor in early settler economies. This need was filled by the development of chattel slavery and the mass capture and import of African slaves (McCoy 2016; Tuck and Yang 2012). Inherent to settler colonialism's structure, then, is securing the disappearance of Native populations and the increase of Black populations. Wolfe (2006:387-388) argues that these diverging goals are coded into still-present racial logics. The enslavement of Black people was such that "one drop" of African ancestry defined a person as Black and thus as property. By contrast, non-Native ancestry rendered a Native person as less than, as "mixed blood," and placed them on a path toward illegitimate indigeneity (see also Brayboy 2005; Hayes 2015).

Federal officials built on these racial logics to advance the elimination of Native peoples. Their strategies have included physical displacement and forced removal, assimilation pressures, blood quantum regulations, political termination, and extermination-minded violence (Dunbar-Ortiz 2016; Prucha 1984; Wolfe 2011, 2012). Removal, the acquisition of Native land and displacement of its inhabitants, was central to British and later US policies toward Native peoples during the seventeenth and eighteenth centuries. Removal took multiple forms over this period, but all were premised on the relocation of Native groups to "unclaimed" lands far from and generally west of colonial settlements. Boundaries between Native and settler societies proved unstable, however, as settlers continually poured into (and purchased or seized) Native lands. As a result, boundaries shifted ever-west, from the crest of the Appalachian Mountains in 1763, to the Mississippi River following the Louisiana Purchase in 1804, to Indian Territory (later reduced to present-day Oklahoma) in 1834 (Banner 2005; Black 2015; Bowes 2014; O'Brien 1997). Removal received increased national attention in the 1820s when Native groups in the Southeast, especially the Cherokee, refused to cede their lands and relocate. The Jackson administration responded with the Indian Removal Act, which narrowly passed Congress in 1830. Federal officials wielded the act to negotiate treaties with and forcibly remove Native peoples from across the Southeast and the Old Northwest. These communities endured traumatic and lethal journeys to Indian Territory (Beck 2009; Bowes 2016; Haveman 2018; Littlefield and Parins 2011; McLoughlin 1993).

By 1850, the vast migration of settlers to California, Oregon, and other western territories rendered this removal strategy untenable. As settlers leapfrogged Indian Territory and national boundaries expanded to the Pacific Ocean, the federal government could not maintain even nominal separation between settlers and Native peoples. Settler migration fundamentally altered the federal government's relationship with Native groups. Officials came to understand Native peoples not from the perspective of international relations but from that of domestic containment and administration (Wolfe 2011). This shift required updates to removal policies. In the 1850s, reservations emerged as a solution (Banner 2005:228-236; Fritz 1963; Prucha 1975:123-126, 131-134; Prucha 1984:315-338; Trennert 1975).

The establishment of the reservation system marked a transition in federal approaches to the elimination of Native peoples—a pivot from physical removal to cultural erasure. This is evident in reservations' two goals. First, reservations were to be small, isolated retreats at which Native populations would be shielded from the ostensible vices of civilization and prevented from impeding settler exploitation of their lands. Commissioner of Indian Affairs Luke Lea (1852:3) summarized this idea: "Civilization and barbarism…cannot coexist together." But unlike removal, which established "permanent" boundaries between Native and settler societies, reservations were seen as temporary. In his formal presentation of the reservation system, Lea (1850:3) qualified that Native groups should be confined only until "their general improvement and good conduct may supersede the necessity of such restrictions" (see also Cox's 1869 summary of the reservation system in Prucha 1975:129-131).

Reservations' second goal arises from this idea of "general improvement." Wolfe (2011:30, emphasis in original) explains that as Native policies entered the realm of internal administration, "The discourse of elimination came to focus on the reduction of Indians *as Indians*." Native peoples would exist within the boundaries of the United States, but they would be carefully controlled until the termination of Native languages, lifeways, and connections to land had been achieved. This assimilationist campaign depended on reservations. In 1858, Commissioner of Indian Affairs Charles Mix (1858:6) argued that pushing Native peoples west of settlers had done little to advance the government's "constant efforts to domesticate and civilize them." On federal reservations, however, Native peoples would be exposed to settler schooling, agriculture, religion, settlement patterns, and gender roles. Mix (1858:9) expressed confidence that with this training, Native groups could "be induced to make the necessary exertions to support themselves." The pursuit of assimilation dominated reservation administration, underlying future policies such as allotment (Greenwald 2002; Hoxie 1984; Ruppel 2008; and see Chapter 4), boarding schools (Adams 1995; Parkhurst 2014; Trafazer et al. 2006), blood quantum regulations (Ratteree and Hill 2017; TallBear

2013; Whyte 2017), and termination (Fixico 1986; Prucha 1984:1041-1056; and see Chapter 4).

Thanks to Lea, Mix, and their successors, the reservation system emerged as the federal government's principal response to combatting Native presence in western states and territories. The establishment of reservations usually followed the negotiation of treaties, which ceded land title to the United States (Deloria and DeMallie 1999; Harjo 2014; Prucha 1994). Frequently, Native signatories conducted treaty negotiations under some form of duress, and once they were signed, but often before they received Congressional ratification, Indian Affairs officials and military units forcibly relocated Native groups. In practice, forced relocation was similar to the notorious removals of the 1830s, with some groups travelling hundreds of miles from their ancestral homelands. For many, these journeys proved fatal. Forced relocation during the reservation period upended Native groups across the Southwest (Bailey 1998; Zappia 2012), California (Phillips 2004; Shipek 1988), the Great Plains (Rand 2008), and the Pacific Northwest (Asher 1999; Fisher 2010). With the dozens of reservations established during the middle decades of the nineteenth century, removal came to affect Native peoples on a continent-wide scale.

The reservation system also highlights settler colonialism's adaptability in dispossessing Native peoples. Settlers' westward migration meant that Native peoples could not be feasibly excised from national boundaries (though see Anderson 2014; Dunbar-Ortiz 2014; Whaley 2016). With reservations, federal officials invested short-term expense in the hope of long-term Native disappearance. Oregon Superintendent of Indian Affairs Edward Geary (1859:384) spoke for many when he said: "[extinction], in the natural and unrestrained operation of the laws of progress, is the impending destiny of tribes…. Approached by the advancing…wave of civilization, there is neither respite or escape…. The alternative is civilization or annihilation." Whether reservations succeeded or not, Geary and others believed the federal government would soon be relieved of its nagging "Indian Problem." With Native absence achieved, the United States would be transformed from a settler colony to a settled colony. The on-the-ground practices of the federal government changed, but the underlying "logic of elimination" remained in place.

Understanding removal, reservations, and assimilationist policies as means to the same end is important if scholars, in archaeology and elsewhere, are to develop research programs that combat settler colonialism's legacies and contemporary manifestations. This framing is not universally held, however, as some see federal policies as essentially dichotomous. Wilkinson and Biggs (1977:139), for example, contend that the history of federal-Native relations "can be analyzed in terms of the tension between assimilation and separatism" (see also Fixico 2002; Wilkinson 1987:13, 2010:278). In their view, the policy pendulum swung toward assimilation with reservations, boarding schools, and termination and toward separatism with removal as well as Congress' adoption of tribal self-determination policies during the final three decades of the twentieth century. This position can be critiqued on several fronts. Not only does it misread shifts in federal actions as evidence of ideological change, more seriously it conflates settler violence with Native activism. The "separatism" of the Indian Removal Act ripped Native communities from their homelands and led to widespread suffering. It is antithetical to the self-determination policies hard-won by Native leaders and activists in recent decades, which represent nothing less than a full rejection of removal and settler colonialism broadly. Presenting these policies as shades of similar separatisms contributes to Native erasure by overlooking the fact that self-determination policies were not "adopted" by Congress. They were secured by Native peoples. These policies exist despite—not because of—federal interests.

The successes of twentieth century Native political movements raise another feature of US settler colonialism: it has been a failure. Settler colonial policies continue to reverberate within Native communities as intergenerational trauma (Duran 2006; Million 2013), land checkerboarding (Ruppel 2008), and new policies that target tribal sovereignty and self-determination. Yet Native communities have not only survived these hardships, they have thrived despite them. They have preserved, adapted, and created new forms of belonging to place, practice, and nonhuman relations (Hunn et al. 2015; Jacob 2013; Kimmerer 2013; Reid 2015); revitalized linguistic traditions (Kroskrity and Field 2009; Shaul 2014); asserted legal and governing systems that challenge and refuse the settler colonial state (Coulthard 2014; Dennison 2012; Jorgensen 2007; Simpson 2014; Simpson 2017); and forced government agencies (and the scholarly disciplines that support them) to acknowledge and begin to contend with their histories of elimination (Atalay 2012; Smith 2012; Stapp and Burney 2002; Watkins 2000).

HOW HAVE ARCHAEOLOGISTS STUDIED COLONIALISM?

Archaeology's Colonial Roots

With this latter point in mind, developing anti-settler colonial archaeologies requires acknowledging the discipline's history of aiding and abetting colonial projects, especially in the United States. During the late eighteenth through mid-twentieth centuries, archaeologists excavated millions of belongings, sacred objects, and the remains of ancestors without the consent—and often despite the protest—of affiliated communities (Colwell 2017; Thomas 2000). Excavations supplied empirical "proof" to anthropological debates about the cultural advancement, or lack thereof, of Native peoples and whether they possessed the aptitude to "advance" or were doomed to vanish with the onslaught of civilization. These debates spread beyond scholarly circles into the halls of government. Archaeologists' conceptualizations of Native peoples—as "primitive," "noble savages," and "others"—reinforced colonial discourse that diminished Native achievements and connections to land, providing ample justification for physical removal and cultural erasure (Given 2004; Liebmann 2008; Lydon and Rizvi 2010; McGuire 1992; McNiven and Russell 2005; Patterson 2008; Trigger 1984; Wolfe 1999).

The popularity of anthropological progressivism faded with the turn of the twentieth century, but conceptual schema that devalued Native lifeways remained in place, as exemplified by acculturation studies and neoevolutionism (Cusick 1998; Mitchell and Scheiber 2010; Rubertone 2000). Similar notions of Native inferiority appeared within the federal government as termination and urban relocation (Fixico 1986; Wilkinson and Biggs 1977). And today, the federal government continues to weigh archaeologists' "expert" opinions over the claims of descendant communities in debates over recognition (Lightfoot et al. 2013; Martindale 2014; Mrozowski et al. 2009).

Recent shifts in scholarly practice demonstrate that archaeologists increasingly understand and seek to break with this history. It is important to note, however, that these changes owe their existence to Native activism (Atalay 2012:30-37). Archaeologists have consistently resisted Native peoples' calls for reform—though they tend to downplay their intransigence after changes have been implemented (Zimmerman 1997). Native peoples have protested archaeological research and museum practices for decades. Their efforts secured the 1990 passage of the Native American Graves Protection and Repatriation Act (NAGPRA) (Fine-Dare 2002) and the 1992 establishment of the Tribal Historic Preservation program (Stapp and Burney 2002). Over the last three decades, Indigenous scholars and activists have played a key role in the emergence of archaeologies that work "with, by, and for" (Nicholas 1997:3) Indigenous communities (Bruchac et al. 2010; Cowell-Chanthaphonh et al. 2010; Nicholas 2010a, 2010b; Watkins 2000). These indigenous archaeologies have begun to seriously engage with Native epistemologies, ontologies, and conceptions of heritage (Cipolla et al. 2019; Gonzalez 2016; Martindale and Nicholas 2014; Nicholas et al. 2011; Thompson 2011; Two Bears 2008; Watkins 2005; White Deer 1997). They have also inspired the emergence of collaborative archaeologies, which forward new research relationships between scholars, Indigenous peoples, and other communities throughout the research process in an attempt to democratize knowledge production (Atalay 2012; Colwell 2016; Colwell-Chanthaphonh and Ferguson 2008;

Silliman 2008). In this and following chapters, I refer to “indigenous and collaborative archaeologies” to describe this disciplinary movement toward engaged, community-informed, and culturally-situated research practices. I recognize, however, that these archaeologies, while similar, are not synonymous (Atalay 2012:39).

Conceptual and Methodological Shifts

With Native peoples’ critiques have come changes to archaeologists’ understanding of European and US colonialism in North America. Though colonialism has attracted attention in archaeology for nearly a century, archaeologists have failed to recognize that the conceptual resources and methodologies they use often reiterate settler colonial ideologies. They have made strides to inject nuance to the study of colonialism and Native peoples’ varied responses to it, but even these approaches come up short of a full recognition of Native presence. In this section, I trace archaeologists’ study of colonialism through time to highlight the enduring, implicit endorsements of Native absence present in this work. With these shortcomings identified, I turn to an in-depth examination of Vizenor’s survivance.

In the first half of the twentieth century, archaeologists devoted attention to recent Native histories but only as reference points rather than periods worthy of examination. Influenced by the direct historical approach, scholars projected ethnographic and archaeological observations of colonial era Native groups into the past to trace continuity in cultural sequences. This work reproduced two nineteenth century anthropological presumptions: cultural practice within Native communities exhibited little if any change over time and contact with settlers set in motion the decline and disappearance of Native peoples (Cusick 1998; Fitzhugh 1985; Rubertone 2000).

The concept of acculturation operationalized this certainty in the inevitable dominance of settler lifeways by linking artifacts with identity. Acculturation studies never coalesced around a single approach and at times associated "culture contact" with complex behavioral and material outcomes among all participants (e.g. Redfield et al. 1936). On the whole, however, these studies proved exceptions to the rule. Scholars examined acculturation, or the incorporation of outside practices and materials, almost exclusively among Native communities. They assumed contact with settlers stimulated unidirectional change, from colonizer to colonized, and that acculturation could be tracked via ratios between "Native" and "European" artifacts (e.g. Fitting 1976; Quimby and Spoehr 1951; Ramenofksy 1998). Acculturation offered material evidence for the loss of "Indianness" (Cusick 1998; see also Lightfoot and Martinez 1995). In Malinowski's (1945:15) words: "the only correct conception of culture change…[is] the fact that it is impact of a higher, active culture upon a simple, more passive one." In a similar vein, Fontana (1978:23) claims that the replacement of Native material culture "paralleled a trajectory of New World historical development from Indian to non-Indian." Acculturation studies cast recent Native histories as useful interpretive baselines, but as the ostensible terminus of "authentic" Native practices, they offered little anthropological salience. If artifacts were identity, then the apparent disappearance of Native material culture must correspond with Native absence.

In the late 1980s, archaeologists began to recognize the deficiencies in acculturation studies and "culture contact" models more generally. Focusing on the aftermath of "contact" between Native peoples and settlers privileges these brief, initial interactions over long-term entanglements. In doing so, these models downplay the severity of colonialism's material impacts and cast Native peoples' diverse, shifting identities and practices as simple, ostensibly homogenous "cultures." They understand colonialism as an event, not a structure (Silliman 2005a; see also Harrison 2004, 2014; Murray 2004; Paynter 2000).

Propelled by Native peoples' growing presence within archaeology (Dongoske et al. 2000; Swidler et al. 1997), archaeologists have begun to grapple with the tangle of intersections inherent to colonialism—intersections between colonial projects and archaeological research, between past policies and present realities, and between cultural practice and the exigencies of colonial daily life. Drawing on postcolonial theory (Liebmann and Rizvi 2008; Lydon and Rizvi 2010; Preucel and Cipolla 2008), contemporary understandings of identity formation and maintenance (e.g. Jenkins 2008), and practice theory (Bourdieu 1977; Giddens 1984; Pauketat 2001a, 2001b), archaeologists increasingly understand colonialism as a series of encounters. Policies exported from metropoles interfaced with local environments, economies, and politics to determine colonialism's on-the-ground realities. Colonizing and colonized peoples shaped the parameters of everyday life, and their interactions resulted in complex shifts and fortifications in groups' understandings of self and other (Cobb 2003; Funari and Senatore 2015; Harrison 2014; Rogers 2005; Sunseri 2017; Voss 2008). Native peoples were not passive adopters of settler ideas and materials but strategic participants whose actions were mediated by existing cultural logics (Cipolla 2013a; Croucher and Weiss 2011; Graesch et al. 2010; Loren 2012; Martindale 2009; Panich 2013, 2017; Rubertone 2017; Silliman 2014; Tveskov 2007; Wagner 2010).

Like any other cultural phenomenon, colonialism was (and is) a historical product. Its persistence was never guaranteed, nor were the asymmetries it generated always present or equally experienced (Hantman 2010; Harrison 2014; Lightfoot 2005b, 2019; Panich 2017; Silliman 2010). With these contingencies in mind, archaeologists increasingly examine colonialism with what Hayes and Cipolla (2015:4) call "critical temporalities and critical geographies," an awareness that conceptions of time and place were never settled but were continually contested by colonialism's participants at a variety of temporal and spatial scales (see also Delle 2014; Stoler and Cooper 1997).

Archaeologists' shifting conceptions of what colonialism is and entails has coincided with the emergence of methodological strategies that encompass the diversity of colonial era Native experiences. They have a forwarded a three-part methodology characterized by (1) holistic datasets,

(2) multi-scalar examinations of colonialism's development and implementation, and (3) diachronic understandings of colonialism's impacts and Native peoples' responses to them (see also Lightfoot 1995, 2005a, 2006; Lightfoot and Gonzalez 2018a; 2018b; Rogers 2005; Silliman 2010).

The first aspect of this methodology concerns the types of evidence archaeologists consult. For decades, historical archaeologists have emphasized the value of drawing on multiple lines of evidence, including archaeological data, archival sources, and (more recently) oral narratives in interpretation (Auger 2018; Connolly et al. 2008; Deagan 1988; Feinman 1997; Lightfoot 1995, 2006; Galloway 2006a, 2006b; Leone and Potter 1988; Wood 1990). The importance of holistic datasets is twofold. First, multiple perspectives of the past are necessary to mitigate the fragmentary nature of historical evidence. The archaeological record, for example, is produced only by certain kinds of behaviors, subject to post-depositional processes, and selectively recovered depending on scholars' field strategies. Documents, cartographic representations, and oral narratives are similarly partial. This is especially true in colonial settings. The vast majority of documents and maps comprising the colonial archive were composed by non-Native authors, speak to a narrow range of daily activities, and reproduce terminal narratives about Native peoples (see Chapter 4 for additional discussion on these sources' role in perpetuating settler colonialism's "logic of elimination"). These sources also come with their own preservation biases, primarily the actions and motivations of archivists in the decades or centuries between their composition and the present (Galloway 2006b). Lastly, the scope and detail of oral histories and oral traditions maintained within Native communities (see Lightfoot 2006 for distinction) have been altered by state attempts to disrupt Native lifeways (including forms of inter-generational knowledge transfer), demographic change, and removal. Because no single line of evidence provides a complete window into the lives and experiences of past groups, reference to diverse sources of information is fundamental to historical inquiry.

Beyond mitigating authorial and preservation biases, archaeologists can exploit the epistemic independence of disparate lines of evidence to understand historical events from various vantage points (Ames and Martindale 2014; Nicholas and Markey 2014; Wylie 1989, 2000). The writings of reservation agents, household remains deposited by Native families, the observations of twentieth century ethnographers, and twenty-first century oral histories originated from distinct social and material processes. They transferred information through different media, unfolded at different temporal and spatial scales, and persevered the actions of differently situated actors. These sources cannot be said to be entirely independent, as all were influenced to varying degrees by settler colonial discourse and policies that encouraged some actions and ways of thinking and discouraged others. But they possess a measure of epistemic independence, enough that archaeologists may systematically compare, or tack across (Wylie 1989; see also Chapman and Wylie 2016), them to sketch a range of possible interpretations. The goal of this process, Lightfoot (2006:258-260) contends, is not to arrive at a single interpretation or account—holistic datasets rarely converge so neatly—but to generate complementary and even contradictory accounts. These multiple histories lend interpretive nuance to archaeological interpretation. They transcend simplistic reconstructions of "what really happened" at a time or place to consider how pluralistic individuals and communities experienced and remembered these events (see also Jordan 2014; Sunseri 2017; Wylie 1995).

Multi-scalar analyses are the second methodological emphasis of archaeologies of colonialism (Lightfoot et al. 1998; Lightfoot and Martinez 1995; Silliman 2009, 2010; Sunseri 2017). Though most archaeologists investigate colonialism's manifestations and impacts within particular regions or communities, they must also be attentive to economic, political, and social processes intersecting at regional, national, and global scales. Multi-scalar analyses require their own form of tacking between, on one hand, policies and discourse developed in and exported from the metropole and, on the other, the on-the-ground realities of daily life. My examination of allotment on the Grand Ronde Reservation (see Chapter 4) offers one example. To understand allotment's impact on reservation settlement patterns and land tenure, I referenced local factors (e.g. settlement locations and social relationships) as well as national developments that empowered reservation agents to award or deny land patents (e.g. the Burke Act). Restricting my analysis to only one scale risked subsuming Native peoples' everyday negotiation of allotment under long-term assessments of the policy's impact (see Greenwald 2002).

Third, archaeologies of colonialism increasingly frame Native responses to colonial intrusion not in terms of static identities or passive acceptance of settler goods but as manifestations of cultural logics rooted in long-term relationships to place and practice (Lightfoot and Gonzalez 2018b; Lightfoot et al. 1998; Silliman 2010). Interpretations of Native experiences must account, therefore, for connections extending centuries or millennia into the past, usually well-beyond "contact" with colonizers. What constitutes appropriate temporal breadth varies by place and Native community. At minimum, it should encompass the periods with relevance to colonial era groups' memories and decision-making. These periods are made manifest through traditions. I understand traditions not as unchanging suites of practices, as the term can at times imply, but as historically informed, negotiated ways of acting and being in the world (Pauketat 2001a:2-3; see also Cipolla 2008; Silliman 2009; Rifkin 2017:168-178; Simpson 2017). Depending on the social and political environment in which traditions are enacted, they may exhibit little change over millennia or undergo continual reformulation alongside contemporary practices and materials. In recent Native history, traditions are the sites of engagement through which groups navigated the challenges and opportunities of colonialism.

Given this expansive conception of tradition, diachronic examinations of Native history can be said to consist of two parts. First, archaeologists must possess sufficient familiarity with archival, archaeological, and community knowledge to understand the limitations and opportunities of colonial projects navigated by Native groups. With this knowledge, they can begin to formulate predictions about which traditions Native peoples drew on and why. Second, it is imperative that archaeologists consult or work with descendant communities. Information relevant to the period under study may not exist in conventional published formats but may be offered to scholars within community-informed settings. Furthermore, engagement with descendant communities brings scholars into contact with Native epistemologies and ontologies that structure and give meaning to historical and contemporary decision-making. The practices that make up Native traditions, in other words, are not only imported from the past, they are expressed in the context of community-specific systems of knowledge and relationality. These systems remain fundamental to Native cultural practice, conceptions of heritage, and maintaining connection to land and other communities, human and nonhuman. They are thus critical to determining appropriate temporal breadth in Native historical inquiry. Indeed, as I discuss below in reference to survivance, the input of descendant communities is essential for developing historical accounts that strive to understand the actions and motivations of past groups. Archaeologists should not expect to have full access to or readily grasp Native ways of being and knowing, but sincere engagement with them (again, in community-informed settings) can refine archaeologists' diachronic assessments of Native history.

With the emergence of these methodological principles, archaeologies of colonialism have taken significant conceptual and methodological strides, leading some to contend that acculturation studies, and the views of Native histories on which they depended, have been extinguished from the discipline. Cipolla (2017:228), for example, holds this view, though he clarifies that acculturation's *academic* decline has not occurred alongside a *popular* one. Conceptions of Native history and culture change within federal agencies and among the general public remain awash with settler colonial narratives, including presumptions about Native peoples' authenticity, or lack thereof (see Harmon 1998; Raibmon 2005). Cipolla makes an important distinction here. If archaeologists hope to extend the impact of their work beyond the academy, as they should, then remaining cognizant of how historical accounts are deployed in non-archaeological contexts is essential. This is particularly important given the collaborative research practices central to many archaeologies of colonialism. Archaeologists are uniquely situated to support Native communities facing acculturation-inflected federal policies that restrict Native sovereignty or refuse to recognize Native nations (Cipolla 2013b; Daehnke 2007; Lightfoot et al. 2013; Mrozowski 2017; Mrozowski et al. 2009).

At the same time, I am hesitant to declare acculturation, as well as "culture contact," absent from contemporary archaeologies of colonialism. Cipolla distinguishes acculturation's metaphorical death in "biological" and "social" terms. He associates the former with artifact ratios and non-critical approaches to recent Native histories, the latter with the concept's "spirit" or intellectual foundation. Though he views acculturation as both biologically and socially deceased within archaeology, only the former can be asserted at this point. Certainly, archaeological interpretation no longer traffics in simplistic, dichotomous notions of identity. But remnants of acculturation's spirit persist.

Archaeologists' persistent focus on "contact" provides one example. The decades following settlers' arrival to Native lands continue to command the bulk of archaeologists' attention. Native peoples' long-term engagement with colonialism, especially US settler colonialism during the nineteenth and twentieth centuries, has received less emphasis (though see Beaudoin 2017; Cipolla et al. 2007; Lightfoot and Gonzalez 2018a; Panich 2017; Rubertone 2017; Surface-Evans 2016; Wagner 2010). As several archaeologists have pointed out (Liebmann 2012; Lightfoot and Gonzalez 2018b; Silliman 2005a), disproportionate focus on initial interactions reproduces the pernicious notion that Native peoples were fundamentally less dynamic—and are thus of little scholarly import—in the wake of "contact." It also casts colonialism's initial decades, which were often characterized by violence, epidemics, and displacements, as the decisive moments in Native history (Rubertone 2012:272; Silliman and Witt's 2010:46-47). The paucity of archaeological research on recent centuries leaves unanswered a host of questions about the materialization of federal policies, including daily experiences on reservations, at boarding schools, and in urban contexts. It also represents a missed opportunity to make archaeological investigation relevant to and explicitly intercede on behalf of contemporary Native nations that grapple with the long-term effects of these policies (Atalay et al. 2014). In other words, even if archaeologists no longer view initial encounters as the terminus of "authentic" Native lifeways, their commitment to truly diachronic research has been only partially realized.

Models of Cultural Change in the Wake of Colonialism

Another area in which archaeologists' rhetoric has outpaced their actions is in the concepts used to frame culture change within Native communities in colonial settings. Native peoples referenced existing cultural logics in their responses to colonial intrusion, but how these responses unfolded and whether they represent deviations from previous instances of culture change remain a source of disagreement. This debate has revolved around the many models archaeologists have proposed to account for colonialism's impacts within Indigenous societies (see reviews by Liebmann 2013; Palmié 2006, 2013; Silliman 2015; Stewart 2011; Stockhammer 2013; Voss 2015).

In my view, if these concepts seek to break from rather than reproduce settler colonial ideologies, they must meet four criteria. First, they must recognize cultural production as arising from ongoing engagement with multi-temporal, negotiated practices (i.e. traditions). Second, they must not focus exclusively on perceived cultural discontinuities or assume that perceived continuity correlates with stasis. Regardless of whether a practice appears to archaeologists as evidence of change or continuity, its appearance in colonial settings requires explanation (Stahl 2012). Third, the underlying interpretive frameworks of these models must disengage from dichotomous conceptions of identity and its corollary, authenticity. Fourth, models must not overlook the unique and often difficult circumstances, both historical and contemporary, introduced by settler colonialism and the role these circumstances played in shaping (but not necessarily determining) Native actions.

In this section, I briefly review existing models of culture change used by archaeologists and the ways they do and do not satisfy these four criteria. Ultimately, I argue that all fall short. This highlights the need for additional conceptual resources with which to understand Native experiences in recent centuries. These resources are provided by survivance, as I detail in the following section.

I begin with syncretism, which refers to the combination of cultural elements from separate religious traditions (Stewart 1999:58). Though syncretism's focus on religion sets it apart from other concepts considered in this section, the term has proven useful to archaeologists examining the emergence of new practices, identities, and performances (e.g. Čaval 2018; Clack 2011; Insoll 2003). At the same time, the concept is open to at least three critiques. First, it depicts religions coming into contact as homogenous, stable cultural phenomena rather than heterogeneous historical products. Second, studies of syncretism focus primarily on colonized populations, implying that change is a one-way process that leaves colonizers untouched. Third, syncretism downplays power relations between religious practitioners, thereby obscuring the circumstances in which religious change occurs or does not occur (Liebmann 2013:28; though see Clack 2011:234-237). These critiques mirror those made about acculturation.

Bricolage takes a different tack. Introduced by Levi-Strauss (1966) and elaborated by Comaroff (1985), bricolage also focuses on creative cultural combination but with an emphasis on individuals' choices given a limited set of options. Unlike syncretism, it acknowledges power relations, understanding cultural entanglement as a process of "making do" through which past actors navigated challenges imposed by colonial domination. Both terms understand new cultural forms as products of encounter between two existing bodies of practice, but they differ in their treatment of structure versus agency. Syncretism stresses the creativity of past agents, bricolage systems of power and control. Accounting for the structure of settler colonialism is important, but it also risks losing sight Native responses, especially given colonial government's uneven dominance over time and space (Fennell 2007:127-132; Liebmann 2002).

Archaeologists have drawn on creolization to describe several cultural processes (see Palmié 2006 for a critique of this overextension) such that there is no single, agreed-upon definition. According to Dawdy (2000:1), creolization can refer to the recombination of elements within a conservative cultural grammar, a use reflecting the term's roots in linguistics (Ferguson 1992; Wilkie 2000); the emergence of new cultural practices and identities without substantive interaction with other groups (Cusick 2000; Deagan 1983, 1996); or a process of exchange within multi-ethnic communities and households (Deetz 1996; Loren 2005).

Implicit to creolization is the idea of culture change following diaspora. As such, the term possesses less utility to studies of recent Native histories than to those of other groups, such as enslaved Africans and Spanish colonists, who drew on traditions from their ancestral homelands to generate new practices and identities in unfamiliar locales (Liebmann 2013:28-29). Certainly, removal and reservation policies forcibly resettled scores of Native communities in regions hundreds or thousands of miles from their ancestral homelands. But these communities' responses to removal are better understood as arising from existing practices and identities rather than as developments of otherwise novel cultural forms (though see ethnogenesis below).

Hybridity is similarly beset by definitional inconsistencies. The term comes to archaeology from the postcolonial writings of Bhabha (1994), whose work forwards three key ideas. First, it rejects an essentialist, homogenous view of cultural groups. Bhabha argues that "cultures" do not represent timeless, bounded wholes (as in acculturation and, to a lesser extent, syncretism and bricolage) but are products of continual negotiation. Second, colonialism engulfs colonizers and colonized alike in complex entanglements that result in new cultural forms developed alongside rather than replacing existing practices and identities. Third, hybridity is not a benign process but explicitly structured by power relations. In colonial contexts cut through with social and political asymmetries, hybridity posits that colonized peoples strategically navigate spaces between identity categories—"Third Spaces"—within which creative and subversive cultural production occurs (see also Young 1995). Archaeologists have capitalized on the term's nuanced view of social relations to examine the outcomes *and* processes of cultural emergence (Card 2013; Liebmann 2008; Loren 2013; Naum 2012; Silliman 2009).

Even so, hybridity raises a number of questions that archaeologists have failed to address (Palmié 2013; Silliman 2005a, 2009; Stewart 2011; Stockhammer 2013). Most seriously, hybridity, like its conceptual predecessors, has been disproportionately employed in analyses of colonized peoples. This marks them as "others" who, as a result of coming into contact with "civilization," have been tainted, rendered inauthentic, or at minimum made meaningfully different. Hybridity thus unwittingly reproduces terminal narratives about the ever-vanishing of Native peoples and inhibits contemporary Native communities' push for federal recognition or land claims. Despite its rich intellectual foundation, hybridity ultimately fails to fully capture the cultural processes at work within settler colonial contexts.

Ethnogenesis avoids many of hybridity's pitfalls but pertains to a narrower set of circumstances. The concept originated with Barth (1969), who argues that societies are comprised of multiple, internally heterogeneous ethnicities, each of which develops through and is defined by boundary negotiations with other groups (Hu 2013; Jones 1997; Weik 2014). Ethnogenesis refers to a rupture in the discursive and non-discursive practices ethnic groups use to maintain cultural distance between self and other (Voss 2015). It is a process of identify formation, a nascent "consciousness of difference" (Vermeulen and Govers 1994:4) occurring within specific historical moments. Archaeologists have identified compelling examples of ethnogenesis resulting from colonial entanglements (Cipolla 2013a; Voss 2008), but they should be wary of misapplication. The adoption of new ethnonyms, shifts in cultural practice, and even the emergence of new identities do not necessarily constitute ethnogenesis. Diachronic, structural ruptures in ethnic categories must be present.

The history of the Grand Ronde community illustrates this distinction. The federal government forced dozens of western Oregon Native groups to the reservation. Over time, this diverse community developed a new identity (and a set of related practices) that marked individuals as members of the Grand Ronde Reservation and thus Grand Ronde. Yet this identity emerged alongside the continuation of existing ones. It did not replace them or arise from a structural transformation in community discourse about self and other. Individuals maintained multiple identities—as Native, as Grand Ronde, and as Kalapuya or Umpqua or Rogue River—each of which they strategically deployed in different circumstances on and off the reservation. Ethnogenesis does not adequately describe this history.

Persistence and articulation present comparable understandings of Native experiences that meet the above criteria without ethnogenesis' prerequisites. Persistence incorporates constructivist notions of identity, practice theory, and understands Native actions within temporally-broad frames. In doing so, it upends settler colonialism's terminal narratives about Native disappearance and inauthenticity. Persistence acknowledges colonialism's historical and contemporary effects as well as the spectrum of culturally-situated actions taken by Native peoples to achieve individual and community continuation (Panich 2013).

Articulation presents cultural lifeways as interlinked, though the connections between different practices are continually subject to negotiation and revision. From this constructivist base, articulation focuses on the processes rather than products underlying culture change, for it is within these processes that communities fostered and maintained group cohesion in the face of unequal power relations and state hostility. For Native peoples, cultural negotiation does not unfold in a vacuum but is guided by webs of relationship that tether communities to place. This connection not only holds special prominence in shaping the trajectories of cultural production, it transcends the social and physical boundaries installed by colonial governments (Clifford 2001).

WHAT DOES SURVIVANCE OFFER ARCHAEOLOGY?

Despite their interpretive utility, persistence and articulation (and the other concepts presented above) contain three limitations. First, these concepts have been largely discussed in isolation of Indigenous Studies and the sizable corpus on colonialism and its impacts therein. Native histories are not simply archaeological histories; they were and are comprised of material and immaterial practices and preserved in written text, oral history, and storied landscape. If archaeologists aim to create comprehensive accounts of colonial era Native experiences within temporally-broad, multi-scalar frameworks, they must engage with intellectual traditions that encompass the suite of Native responses to settler colonialism, past and present. Indigenous Studies houses much of this work. The second issue is that these models lack what Atalay (2006b:608) calls a "sense of the struggle" endured by Native peoples. That is, they fail to fully acknowledge settler colonialism's impacts on Native societies and, equally, the power of Native peoples' responses. And finally, these concepts separate the interpretation of material deposits with disciplinary practice. They focus on the meanings generated from archaeological data, paying little attention to the strategies by which those data were created.

Survivance intervenes in all three respects. Archaeologists have begun to explore survivance's archaeological utility (Beaudoin 2017; Gonzalez et al. 2018; Kasper and Handsman 2015; McGovern 2015; Silliman 2014; Rubertone 2017), but few have engaged with the concept's intellectual foundations or explored its implications for archaeological interpretation *and* practice. In this and the following section, I sketch survivance's tenets and discuss its potential for bridging archaeologies of colonialism with indigenous and collaborative archaeologies.

Survivance is rooted in the writings of Anishinaabe author, poet, and essayist Gerald Vizenor (1994, 1998, 1999, 2008, 2009). Vizenor's work remains foundational to Native and Indigenous Studies in the United States, particularly among scholars of Native literatures (e.g. Blaeser 1996; Däwes and Hauke 2017; Dillon 2012; Hume 2013; Madsen 2009; Madsen and Lee 2010; Owens 1992). The concept is associated, first and foremost, with Native presence. But beyond presence, Vizenor is careful to leave survivance loosely defined; he sees survivance as "elusive, obscure, and imprecise" (2008:1). This embrace of conceptual ambiguity departs from settler colonialism's rigid (if unstable) dichotomies such as authentic/inauthentic or pure/mixed blood. Survivance creates room for expanded, self-determined senses of what constitutes Native presence across time and space. At the same time, Vizenor did not envision survivance as intellectually unworkable or referring to all aspects of Native lifeways. In this section, I provide four descriptions of survivance offered by Vizenor to map the term's conceptual boundaries and clarify its value within archaeology.

First, Vizenor (1999:vii) writes that "Native survivance stories are renunciations of dominance, tragedy, and victimry." As I discuss above, federal officials routinely described Native lifeways in terms of loss and absence. They viewed Native peoples as irredeemably corrupted by civilization's vices, reduced to vestiges of their former selves. This discourse continues to inform popular historical accounts, which present Native histories as half-millennia stories of ruin (see Lewis 2014; Schneider 2019). Associations between Native peoples and loss also extends to "deficiency models" within federal policy and social services, reinforcing the notion that Native lifeways are problems needing to be fixed (Charleston 1994). Survivance breaks with these conceptions of Native history. It explicitly challenges scholars to examine how narratives of loss persist in their work—such as in models of "culture contact"—and, furthermore, how this discourse shapes the questions they ask, the evidence they collect, and the interpretations they consider plausible. Archaeological research cannot contribute to strengthening Native presence in the present if it forecloses on the possibility of Native imagination, achievement, and success in the past.

A second and related definition positions survivance as antithetical to settler colonialism. "Native survivance is an active sense of presence over absence, deracination, and oblivion…. Survivance is greater than the right of a survivable name" (Vizenor 2008:1; see also Moore 2010). Where survivance's first definition encourages decoupling Native histories from loss, here Vizenor reminds scholars not to conflate loss with hardship. Settler colonialism's "logic of elimination" guided federal policies such as removal, reservations, allotment, boarding schools, and termination, all of which sought to achieve various forms of Native absence. Archaeologists cannot overlook these events. Their accounts of Native presence must impart a "sense of the struggle" endured by Native communities, and they must be attentive to settler colonialism's violence as well as Native communities' creativity and vibrancy in maintaining practices, relationships, and identities that unequivocally refused its campaign of erasure. Archaeologists must, in other words, remember hardship and celebrate success (Smith 2012 and see Chapter 4).

A third definition brings survivance into conversation with the models considered above. Vizenor (2008:11) argues that "survivance is a practice, not an ideology, dissimulation or theory." Lopenzina (2010:212, 217) adds that through survivance, "culture is not fixed by nostalgic longings, enscripted forms, or 'terminal creeds,' but is a form always under construction," concluding that "aspects of the old and new remain in gentle conversation with one another." Survivance intersects with tenets of practice theory and constructivist notions of identity, framing the relationship between tradition and contemporary innovation as a conversation.

Survivance is distinct, however, in that it imbues historical actors with a sense of forward momentum and purpose. Velie (2008:147, emphasis in original) argues that "*Survivance* connotes survival with attitude, implying activity rather than passivity, using aggressive means not only to stay alive but to flourish." This sense of attitude is missing from articulation and persistence. Articulation risks interpreting past lifeways as overly strategic and intentional, without a sense of seizing opportunity. And while the word persistence points to the future by definition, survivance goes further by reminding scholars that Native cultural practices were always sites of contestation. Past groups did not have the benefit of hindsight to recognize their actions as evidence of change or continuity. Tradition, social memory, and relationships influenced cultural decision-making, but so did the exigencies of life on reservations and in other colonial settings. As Silliman (2014:61) notes: "Survivance recognizes the fact that much of what we call change and continuity are analytical projections backwards by us rather than projections forward by social actors." Archaeologists must be mindful of the attitude, the sense of the struggle, the gentle conversations that took place in everyday situations, at multiple scales, and in response to obstacle and opportunity. They must leave open the possibility of what Ferris (2009) calls Native-lived colonialisms, actions that reflect tradition-informed responses rather than passive reproductions of past lifeways.

These three definitions of survivance represent a valuable interpretive framework for archaeologies of colonialism. Survivance rejects assessments of (in)authenticity and blurs distinctions between new and existing cultural forms. It dispenses with the view of Native peoples as timeless, internally homogenous, or passive and instead populates Native histories with active, inventive groups whose presence undermined settler colonial designs.

The fourth definition of survivance, however, pushes beyond interpretation to questions about the construction of archaeological knowledge. For Vizenor (2008:1) "survivance is the continuance of stories," which he presents as a medium through which Native presence, past and present, is brought into the world. Within many Native communities, the telling of stories is a vital aspect of culture life. Stories convey a constellation of epistemological and ontological teachings, link peoples to place and practice, and offer personal instruction and guidance. It is through stories that Native knowledge is expressed and passed to subsequent generations (Archibald 2008; Basso 1996; Brody 1981; Burkhart 2004; Cruikshank 2005; Wilson 2008). Furthermore, storytelling is a collaboratively and ontologically generative process. Far from a one-sided transfer of information, storytelling is a synergistic production between speaker, listener, and story (Archibald 2008:32-33; see also Cruikshank 1998; King 2005; Martínez-Falquina 2009; Million 2013). Through such co-creation, stories establish worlds and ways of being. They do not simply refer to something "out there," they create that which they narrate (Blaser 2014:54).

The key point is that if acts of survivance—whether related to settlement patterns, foodways, or spiritual practices—constitute the continuation of stories, and if stories make real distinct ways of being in the world, then the material remains of past lifeways—that is, the archaeological record—may be understood as temporally durable aspects of Native storying.

Historical investigations of Native survivance, then, must draw on elements of past groups' epistemological and ontological systems. The "stories being told," Blaser (2012:6) instructs "cannot be fully grasped without reference to their world-making effects." A full review of archaeology's engagement with ontological multiplicity and its relevance to the study of Native histories lies outside the scope of this chapter (though see Blaser 2014; Cipolla 2018; Haber 2009; Todd 2016). Suffice it to say that indigenous and collaborative archaeologies have focused primarily on the discipline's impact on Native peoples, with the reverse only recently attracting scholarly interest. Growing numbers of archaeologists realize that severing archaeology from its colonial origins depends on more than accommodation toward or superficial reference to Native epistemologies and ontologies. Rather, there is a need for deeper reflection on how working with, by, and for Native communities substantively alters the discipline's knowledge-making process (Atalay 2014; Cipolla et al. 2019; Gonzalez et al. 2018; Nicholas 2010a; Nicholas and Markey 2014; Thompson 2011).

At its most basic, archaeology seeks to understand past peoples' lives, actions, and motivations. This includes, or at least should include, their ways of being in and knowing the world. Yet the temporal and cultural distance separating archaeologists from past groups makes this anything but a straightforward process. Archaeological knowledge production is rife with opportunities for ethnocentrism: remaking those in the past in the image of present-day archaeologists. One way to combat this possibility, Martindale and Nicholas (2014) recommend, is to walk on landscapes of federated knowledge. On these landscapes, archaeologists relinquish their monopoly on historical explanation and take steps to bridge the gaps between their lived experiences and those of the people they study. And while archaeologists (and indeed, no one) can successfully "get in the head" of past peoples, cultural distance is not equally experienced among those in the present. Indeed, where non-Native archaeologists bring "external knowledge" to their work, members of descendant communities possess "internal knowledge" of special relevance to understanding the lifeways of their ancestors (Yellowhorn 2002; see also Atleo 2004; Edwards and Thorsgard 2012; Nicholas 2008; Nicholas and Markey 2014). By working with and alongside Native communities—by engaging with and indeed welcoming ontological and epistemological plurality—archaeologist may arrive at historical accounts that better represent those in the past (see also Atalay 2012:207-208; 2014; Lyons and Blair 2018). Again, fully understanding past groups from their situated perspectives is not possible within archaeologies of survivance, especially in instances where colonial projects have suppressed peoples' knowledge of a period or place. Committing to the goal of elucidating these situated perspectives via systems of federated knowledge nevertheless clarifies the boundaries of archaeological interpretation and helps avoid the imposition of ethnocentric ontological and epistemological frames.

The notion that engaging with Native communities alters archaeology's knowledge-making process also challenges the divide between practice and interpretation. As I note above, existing models of culture change concern how archaeologists understand Native spaces and activities in colonial settings. They say little about the processes through which archaeologists generate research questions or design field strategies. Indigenous authors have questioned this divide in research generally, arguing that scholarly practice emerges from, rather than develops independently of, broader theoretical and interpretive commitments (e.g. Simpson and Smith 2014). If the archaeological record constitutes past groups' survivance stories, then the practices through which archaeologists interact with these stories deserves consideration. Through fieldwork, archaeologists bring survivance stories into the present. In this process, they act not as storytellers—though they have claimed this role since the discipline's inception—but as listeners. This imparts a responsibility to bring these stories into the present in ways that honor their creators and the practices and places they describe. It requires collaborating with Native communities to (re)tell these stories properly, with communities' knowledge and connections to those stories and their ancestors fully represented. With this commitment in mind, I turn to the practical considerations of archaeologies of survivance.

WHAT DO ARCHAEOLOGIES OF SURVIVANCE LOOK LIKE?

In practice, archaeologies of survivance are broadly similar to indigenous and collaborative archaeologies. Archaeologists, especially those in settler colonial nations, have identified indigenous and collaborative archaeologies as remedies to the discipline's historical marginalization of Indigenous peoples and as opportunities to develop ethical, reciprocal, and just research practices (e.g. Atalay 2006a, 2007, 2012; Atalay et al. 2014; Bruchac et al. 2010; Colwell-Chanthaphonh and Ferguson 2008; Ferguson 1996; Gonzalez et al. 2018; Nicholas 2010a; Phillips and Allen 2010; Silliman 2008; Smith and Wobst 2005b; Stapp and Burney 2002; Watkins 2000). The history and tenets of these approaches are presented elsewhere (Cipolla et al. 2019; Colwell-Chanthaphonh et al. 2010; McNiven 2016; Nicholas 2008). Here, I take a moment to discuss four oft-cited principles of indigenous and collaborative archaeologies with relevance to archaeologies of survivance. My aim is to satisfy a need outlined by Atalay (2007:254) over a decade ago: "As change toward further collaboration continues to take place, the need for further examples of collaborative methods, and for alternative approaches to producing and sharing cultural knowledge are becoming ever more needed and relevant."

Survivance's bridge between archaeological practice and interpretation represents such an approach. By exploring the intersections between survivance and indigenous and collaborative archaeologies, I seek to advance ongoing shifts within scholarly practice, away from a "floor" of do no harm to an aspirational "ceiling" (Guilfoyle and Hogg 2015) of novel historical inquiry, mutually beneficial partnerships, epistemological and ontological pluralism, and transformed research paradigms—all characterized by Native presence.

First, no single set of practices defines projects as indigenous or collaborative archaeologies. Project scope and design vary by community, the questions and periods under examination, and participants' goals and concerns. This is true for archaeologies of survivance as well. Native presence meant (and means) different things to different peoples. When developing individual projects, archaeologists must pivot from a general commitment to Native presence to concrete steps that center the survivance stories of affiliated communities. As I discuss in the following chapter, the two community-based projects developed with the Grand Ronde HPO came with distinct interpretive and methodological strategies for understanding the community's history of survivance.

Second, though the practices that comprise indigenous and collaborative archaeologies exist along a continuum (Atalay 2012:46-54; Colwell 2016; Colwell-Chanthaphonh and Ferguson 2008), archaeologies of survivance should strive to be fully participatory. Unlike other forms of engagement such as consultation or outreach, participation empowers community members as equal partners in the development of research questions, methods, and results dissemination. Full participation may not be possible or desired by community members for certain aspects of a project (e.g. handling artifacts), but these decisions should be made by the community rather than by archaeologists. Being collaborative is more about process than product (Atalay 2012:69; Silliman 2008:9-11). It is about approaching Native communities with humility, respect, reciprocity, and openness to new ways of knowing (Colwell-Chanthaphonh and Ferguson 2006). When conducted appropriately, the process of collaboration sets the stage for decision-making and knowledge production that is meaningful to all involved.

Third, indigenous and collaborative archaeologies emphasize community capacity building. For centuries, archaeologists appropriated Native belongings and the remains of Native ancestors. A commitment to capacity building begins to remedy this history, moving the discipline toward knowledge addition rather than extraction (Smith 2012; Tamisari 2006; Walter and Andersen 2013), with the ultimate goal of providing communities with the skills and experiences necessary to pursue heritage protection independent of non-community scholars. Like participation, capacity building can take many forms. It can be personal as well as institutional. As examples of the former, archaeologists may offer community members training in survey and excavation techniques, GIS analysis, and geophysical survey, or provide opportunities to analyze and present results. These experiences may open up employment opportunities for community members within tribal departments and the historic preservation industry more broadly. And as examples of the latter, archaeologists may work with tribal departments to expand archival datasets, answer outstanding questions about the presence and nature of cultural resources at particular locations, or oversee workshops designed to start conversations about archaeology's possible uses within communities (Atalay 2012; Gonzalez et al. 2018; Nicholas 2014; Two Bears 2008).

Importantly, capacity building does not proceed unidirectionally. Though they have much to teach and contribute within Native communities, archaeologists have as much if not more to learn from communities about alternative ways of knowing the past. Thus, while archaeologists should approach capacity building as an avenue toward positive contributions, they should also prepare to revise their understanding of and approach to archaeological practice. Archaeology has made strides in countering the legacies of its colonial origins. But the discipline can and must continue to evolve to better serve, represent, and work with descendant communities. Capacity building is a two-way street (Gonzalez et al. 2018; Mills et al. 2008; Nicholas et al. 2008).

Survivance offers a link between capacity building and continuation. Through diachronic frameworks, archaeologies of colonialism have begun to see colonialism as a long-term, historical project with impacts to past and contemporary Native groups (though, as I have argued, additional research on the nineteenth and twentieth centuries is needed to strengthen these analyses). Survivance adds an additional element to this temporal dynamic with a look to the future. As I note above, the actions of past peoples were often not (or not only) discourses on change or continuity, but forward-looking expressions of Native-lived colonialism that continually reproduced Native presence. They were cultural expressions of what is and will be rather than solely of what was.

The future occupies a central place in Vizenor's writings, so much so that his work has been analyzed as science/speculative fiction. His (1978[2012]) use of slipstream thinking, for example, dissolve boundaries between temporal categories of past, present, and future, presenting Native lifeways as webs of relationships situated within multi-temporal frames (see also Baudemann 2017a, 2017b; Dillon 2012; Higgins 2016; Simpson 2017:200-210; Vizenor 2016). Slipstream thinking infuses survivance stories by empowering storytellers and their audiences to imagine (and thereby affect) varied modes of presence and continuation. Similarly, capacity building draws on slipstream thinking by realizing Native futures in the present. It advances community-specific approaches to interacting with places and histories; understands individual and institutional enskillment, knowledge co-creation, and experiential learning as vital research outcomes; and lays the foundation for self-determined heritage protection. To paraphrase Simpson (2017:228), these acts of presencing create the future (see also Rifkin 2017:114-118).

Lastly, the research methods employed in archaeologies of survivance should not only be developed with the participation of Native communities, they should reflect community values and protocols. For many Native peoples, archaeological fieldwork, particularly excavation, comes with serious risks to the physical and spiritual well-being of practitioners, the community, and/or the world (Dowdall and Parish 2002; Gonzalez 2016; Two Bears 2008). What constitutes meaningful and appropriate archaeological practice again varies by community and the nature of the proposed investigation. However, archaeologists should take steps to solicit and incorporate communities' interests and goals into their field strategies, analytical procedures, curation practices, research schedule, and strategies for results dissemination.

A growing corpus highlights the many forms culturally situated field practice can take. Eastern Pequot leaders worked with Silliman and Dring (2008) to spiritually cleanse fieldwork participants through smudging ceremonies. The field crew also took steps to return all non-archaeological material collected during excavation (e.g. unmodified rocks and screened sediment) to tribal lands. Cipolla and Quinn (2016) conducted non-invasive site documentation on Mohegan sacred landscapes. They also joined tribal leaders for daily smudging ceremonies and laying of tobacco in excavation units ahead of backfilling. Rossen's (2008) field school students worked alongside Cayuga tribal members beyond the archaeological site, planting crops and helping organize community events. And Kashaya elders completed ceremonies ahead of Gonzalez's (2011, 2016) fieldwork to demonstrate respect for the places and belongings of their ancestors and to lessen the spiritual dangers associated with ground disturbance. Field teams also demonstrated respect by remaining sober for the duration of the project and practicing k^{h}ela taboos. Lastly, the Kashia Tribal Historic Preservation Office worked with researchers to develop a multi-phase, low-impact field strategy incorporating minimally destructive or non-invasive techniques such as geophysical survey and "catch-and-release" surface collection (see also Gonzalez et al. 2006; Lightfoot 2008).

With these practices, archaeologists tailor research to Native communities' understandings of heritage and their relationships to it. These signs of respect are not simply about performance or overcoming "obstacles" to conducting excavation. Rather, they serve as bridges on the landscapes of federated knowledge, allowing project participants to think through and embody alternative relationships with the past. This process may prove transformative for all involved. For Native communities, self-determined and collaborative archaeological research transforms archaeology itself into a survivance story, one in which Native communities reshape a discipline rooted in the alienation of Native peoples from their lands and heritage into a meaningful, community-centered cultural practice. For non-community archaeologists and students, culturally situated fieldwork alters not only the logistics of data collection, but also the underlying links between data and historical inquiry. With developing and implementing these practices comes dialog with tribal members and staff. These discussions, cultivated over site visits, shared meals, and planning meetings, bring into the open individuals' culturally-situated assumptions, including archaeology's ability to disrupt and strengthen relationships to place and cultural practice. Collaborative field settings present opportunities for learning through dialog and learning through doing—opportunities to walk, both physically and intellectually, landscapes of federated knowledge. As Gonzalez et al. (2018:109) note, "It is these spaces of learning and doing together that we begin to create alternative futures that respect our collective humanity and dignity."

CONCLUSION

The literature on indigenous and collaborative archaeologies represents a new way forward for archaeology. In the United States, research partnerships with Native communities have the potential to supplant the colonial underpinnings of archaeology with commitments to explore, protect, and celebrate Native heritage through pluralistic, equitable, collaborative knowledge co-creation (Atalay et al. 2014). To be sure, this process remains in its nascent stages (Nicholas 2010b) and has been met with resistance by some within the discipline (e.g. McGhee 2008; La Salle and Hutchings 2016; and see Colwell-Chanthaphonh et al. 2010; Martindale et al. 2016; Wilcox 2010 for responses). In my view, scholarship over the last three decades has laid a foundation. The challenge for archaeologists today is to build on this foundation by continuing to ask difficult questions about power relations in research, repatriation, cultural protection legislation, and divergent understandings of the past. Survivance is no panacea. But its commitment to Native presence summarizes the challenge and opportunity for archaeologists seeking to work with, by, and for Native communities. I believe survivance has a role to play in the future of indigenous and collaborative archaeologies. It offers an expansive approach to Native-lived colonialisms, encourages deeper intellectual engagement with Indigenous Studies and Native knowledge systems, questions disciplinary divides between practice and interpretation, and adds nuance to existing collaborative principles. It supplies archaeologists with the conceptual resources needed to interpret Native perseverance and creativity in colonial contexts and obligates them, as listeners, to work with descendant communities to bring their ancestors' survivance stories into the present. Survivance tethers historical inquiry to the peoples, places, and ideas that guided and continue to guide Native lifeways.

In the following chapter, I pivot from this general discussion of survivance and archaeologies of colonialism to a focused examination on their relevance to the Grand Ronde Reservation. With the Grand Ronde Land Tenure Project and Field Methods in Indigenous Archaeology as case studies, I show how survivance may be operationalized within community-based research settings and how it facilitates new accounts of tribal history.

CHAPTER 3: AN ARCHAEOLOGY OF SURVIVANCE AT GRAND RONDE

Survivance alters the content and creation of archaeological accounts of Native peoples in colonial settings. By identifying and celebrating Native presence, archaeologists break with their discipline's ongoing relationship with settler colonialism and help bring Native stories into the present in ways their creators and descendants recognize as meaningful and culturally-informed. As such, what characterizes a particular archaeology of survivance depends on the Native community (or communities) with whom scholars work and the periods, places, and practices they come together to explore.

This chapter forwards an approach to operationalizing survivance within archaeological research, specifically with the Confederated Tribes of Grand Ronde (Figure 3.1). It details how a commitment to historical and contemporary Grand Ronde presence shifts archaeological interpretation, practice, and research outcomes. I explore survivance's applicability to the lifeways of the historical Grand Ronde Reservation community and identify residence (Silliman 2014) and transmotion (Vizenor 1998, 2015) as middle-range concepts capable of bridging survivance's commitment to Native creativity and resilience with the material remains of everyday cultural production. Importantly, this discussion does not question whether survivance occurred at Grand Ronde—the tribe's successful restoration campaign, among many other actions, demonstrates that it did—but whether survivance stories are visible archaeologically via the practices identified by residence and transmotion.

The second part of this chapter focuses on the Grand Ronde Land Tenure Project (GRLTP) and Field Methods in Indigenous Archaeology (FMIA). I begin by discussing the HPO's approach to protecting tribal heritage on and off the reservation. The efforts of HPO staff follow Grand Ronde ways of knowing and relating to historically important places and practices; they thus provide essential context for identifying ways the GRLTP and FMIA could center Grand Ronde presence.

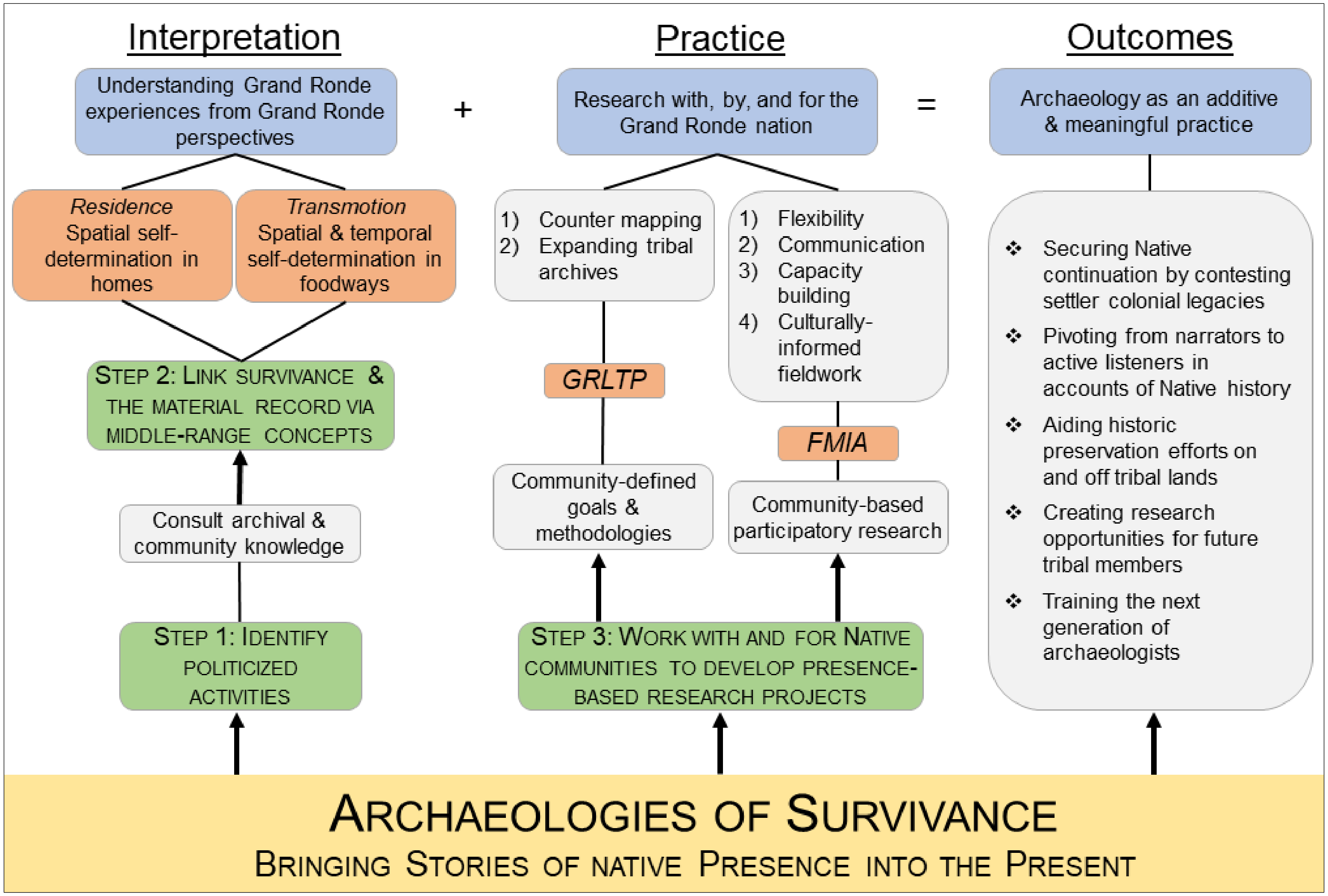

Figure 3.1 Process for operationalizing survivance in archaeological research with the Confederated Tribes of Grand Ronde.

I then turn to the development of these projects. Using the idea of the collaborative continuum (Atalay 2012; Colwell 2016; Colwell-Chanthaphonh and Ferguson 2008) as a guide, I sketch the research relationships defining each project before homing in on their specific goals and implementation strategies. I pay particular attention to the interpersonal relationships, project misstarts and successes, decision-making processes, and nuts-and-bolts of data collection within each project. In sharing these details, I hope to contribute to discourse within archaeology about the where's, how's, and why's that underlie research design (e.g. Atalay 2007; Gonzalez et al. 2018; Silliman 2008, 2018). Scholarly publications and presentations generally exclude this information, which gives archaeologists (and students) the impression that projects arise organically, with everyone on the same page from the outset. If indigenous and collaborative archaeologies offer one lesson, it is that transforming archaeological practice and interpretation occurs only through the hard work of creating new spaces of knowledge production, long-term partnership, and a commitment to imagining what archaeology can and must be. Advancing the promise of indigenous and collaborative archaeologies—that is, moving them from the discipline's margins to its center (Nicholas 2010b)—depends on sharing the false starts, revisions, and zigzagging paths that so often characterize archaeological inquiry. These details provide a fuller picture of what research entails, hopefully serving as inspiration for those interested in conducting similar work.

Survivance and Interpretation: Reservation Lifeways as Declarations of Grand Ronde Presence

Incorporating survivance into archaeological research is a three-step process. First, scholars must reasonably distinguish which actions did and did not communicate survivance. Survivance encompasses a range of material and immaterial practices, but this flexibility should not be confused for unworkability. Drawing from discussions about practice theory and archaeology (Ferris 2009:20-

22; Pauketat 2001b; Silliman 2001:192-193), it is important to recognize that not all individual or group actions are relevant to social analysis, and archaeologists should not try to characterize all aspects of Native peoples' experiences as acts of survivance (Rubertone 2012:275-276). In many cases, the actions taken by Native peoples in colonial settings unfolded outside processes of cultural negotiation; they arose out of other considerations, such as what was feasible given the exigencies of daily life. Indeed, overextension of survivance in historical interpretation not only waters down the concept's value, it tethers the totality of Native actions to colonialism. My intent in this dissertation is to understand how Native peoples, specifically the reservation community at Grand Ronde, responded to colonial intrusion, violence, and dispossession. But these actions do not encompass all aspects of Native life in recent centuries. The purview of archaeologies of survivance is constrained, therefore, to those lifeways that functioned as declarations of presence in colonial settings predicated on affecting absence. To use the words of practice theory, my focus is on *politicized activities*, those discursively and non-discursively contested by different social groups.

In order to winnow the universe of possible survivance-related activities, I examined the political terrain navigated by the Grand Ronde community. I consulted historical documents and maps, oral histories and traditions, and archaeological data within Grand Ronde's archival record (Kretzler 2017; Leavelle 1998; Lewis 2009; Lewis et al. 2013; Merrill and Hajda 2007; Olson 2011; Olson 2005; Schrock and Zenk 2017; Teverbaugh 2000; Zenk 1984). I also engaged in dialog with HPO staff and tribal members to discuss pertinent information from beyond the archive.

In the wake of forced relocation to Grand Ronde, western Oregon Native lifeways were placed under federal scrutiny, transforming formerly doxic practices—those unquestioned, unconscious everyday routines—into ideologically charged markers of cultural stasis (Cipolla 2008). Reservation agents discouraged or formally forbid practices they believed were antithetical to the reservation's "civilizing" mission. They focused on all aspects of Native cultural life but paid particular attention to houses and food. As I discuss in Chapter 4, household construction and furnishings served as benchmarks of assimilation, in part because they laid a literal and metaphorical foundation for other desirable cultural traits such as dress, gender relations, family structure, and economic activities. In the same vein, agents sought to terminate traditional hunting, fishing, and gathering to turn the community's attention away from their ancestral homelands. They worked not only to end the consumption of wild plants and animals, but to dissolve the networks through which people used food to reiterate culturally salient relationships (Cajete 2000; Twiss 2012). Travel to gathering locations as well as food acquisition, preparation, cooking, consumption, and discard grounded the Grand Ronde community in storied landscapes and long-important obligations to other human communities that rely on them and nonhuman communities that inhabit them. By supplanting these relationships with sedentism, agriculture, and husbandry, federal officials sought to undermine the practices through which Native peoples challenged settler colonial dominion over their lives and lands.

Tribal members' decisions to continue, alter, or cease traditional settlement and food practices were thus inherently political. And though individuals and families within the community almost certainly maintained divergent viewpoints about the best course to follow, the particular contours of this discourse are largely invisible in the archaeological record (though not necessarily in other sources). Material deposits nevertheless provide an opportunity to examine the community's prevailing responses—that is, their decisions in aggregate—to the dissolution of housing and foodways doxa.

The second step in developing an archaeology of survivance is identifying middle-range concepts that connect higher-level expectations about human behavior to testable predictions that may be confirmed or falsified by material observations (Smith 2011). Fortunately, Native settlement patterns and foodways have attracted considerable scholarly attention in archaeologies of colonialism. Those at Grand Ronde were far from alone in grappling with the politicization of these practices (e.g. Beaudoin 2017; Cipolla et al. 2007; Gifford-Gonzalez and Sunseri 2007; Graesch et al. 2010; Lightfoot et al. 1998; Spielmann et al. 2009; Sunseri 2017; Tveskov 2007). These studies present several middle-range concepts for linking Native persistence, resistance, and continuation with everyday materiality. Here, I draw on residence (Silliman 2014) and transmotion (Vizenor 1998, 2015) to supply these links.

Residence: Creating Spaces of Belonging

On reservations, coercion by local agents interfaced with national policy to push Native peoples into settler-style, single-family homes and adopt sedentary lifestyles. The General Allotment Act remains the most notorious and far-reaching example of these efforts. (Allotment's impact at Grand Ronde exceeded that at most reservations; see Chapter 4.) But transforming where, when, and with whom Native peoples lived proved easier said than done. Settlement patterns emerged as arenas of cultural contestation, with Native communities frequently undermining federal policies and instructions with historically-informed land use, economic activities, and housing strategies (Danziger 2009; Greenwald 2002; Hoxie 1984; Kretzler 2017; Lewis 1994; McPherson 2001; Phillips 2004).

Though it is tempting to attribute such partial implementation of federal policies to Native resistance, scholars have questioned the utility of resistance/domination interpretive frames (Frazer 1999; Oliver 2014; Scham 2001; Scott 1990). These studies do not dismiss the profound asymmetries that often characterize Native-lived colonialisms. Rather, they emphasize the shortcomings of resistance to describe the diverse actions taken by Native peoples within systems of oppression. As I discuss in Chapter 2 regarding survivance, the underlying logics structuring decision-making in many cases reflected practical considerations not necessarily linked with larger resistance efforts (Given 2004:11). Focusing on these daily, lived experiences expands the agency extended to Native actors, away from simplistic conceptions of Native peoples as reactionary, heroic revolutionaries driven by unchanging identities and toward one that "gives more weight to how, rather than just against whom, they lived" (Silliman 2014:63).

Following these critiques of resistance/domination models, I see Grand Ronde settlement patterns as acts of residence, or attempts to foster cultural belonging and continuation (Silliman 2014; see also Beaudoin 2017; Cipolla 2008; Silliman 2001). Through acts of residence, individuals and families carved out spaces of self-determination within which people lived through rather than explicitly against settler colonial structures. And while residence can assume various cultural forms and unfold at multiple spatial scales, I see promise in examining settlement patterns as everyday expressions of residence. As I discuss in the following chapter, those at Grand Ronde enjoyed a measure of freedom in constructing and organizing reservation settlements in the decades before and after allotment. These settlements present an opportunity to explore how domestic spaces supported community declarations of presence.

Residence serves as a useful middle-range concept for survivance because it ties a forward-looking, dynamic model of cultural production with archaeologically visible structures and organizational principles through which people arranged settlements, homes, and activities (e.g. Lightfoot et al. 1998). These principles are visible in contextual associations between artifacts and features within households and across settlements. And when placed within a diachronic framework—that is, when household materiality and spatial composition in reservation settlements are compared to those in pre-reservation periods—contextual associations provide insight into decision-making processes as communities worked to survive and thrive within the confines of the reservation. Furthermore, residence advances a multi-scalar approach to Native-lived colonialism. Not only did acts of residence unfold within individual homes and across settlements, but by modifying the built environment they facilitated the enactment of meaningful, smaller-scale practices (such as those related to foodways; see below). To paraphrase Bourdieu (1977:87-95), acts of residence are "structural exercises" that code meaning and action for people inhabiting and learning in space.

Transmotion: Foodways as Markers of Relationality

A substantive body of anthropological literature has shown that food acquisition, preparation, consumption, and discard—practices that together comprise foodways—function as cultural performances that are structured by and reinforce axes of identity and difference (Dietler 1990; Mosley 2004; Scott 2008; Twiss 2007). Among Native communities, foodways have been shown to articulate not only with individual identities but also with negotiations of colonialism (Bowcutt 2013; Cipolla et al. 2007; Gifford-Gonzalez and Sunseri 2007; Lightfoot et al. 1998; Reitz and Scarry 1985; Scott 2008; Spielmann et al. 2009; Sunseri 2017). The incursion of European and US colonial projects had manifold impacts on Native peoples' relationships with food. The introduction of foreign plants and animals and attendant prohibition of Native landscape management altered ecosystems and food availability. Removal from homelands and/or restricted access to gathering areas forced communities to contend with new regions and environments. And coerced participation in agricultural and ranching economies disrupted seasonal rounds and increased reliance on introduced foods. Native communities responded by adapting existing foodways and creating new ones. They consumed European plants and animals in traditional ways (Graesch et al. 2010), imbued unfamiliar taxa with novel cultural significance (Mitchell 2015), and fused new economic patterns with existing social relationships (Iverson 1994; Raibmon 2005; Rubertone 2017).

While archaeologists have examined foodways from numerous theoretical vantage points (see deFrance 2009; Landon 2005; Twiss 2012), practice-based approaches have proven particularly insightful. Foodways are composed of daily, routinized activities, providing ample opportunity for continual redrawing of boundaries between self and other (Counihan 1992; Dietler 2007; Janik 2003; Mintz 1985; Ohnuki-Tierney 1993).

Without additional conceptual resources, however, practice-based approaches cannot be incorporated into archaeologies of survivance. This is in contrast with residence, which was outlined with Native-lived colonialism in mind (Silliman 2014). Foodways recognize the complex, successive practices that transform resources into food. But for many Native peoples, plants and animals are not merely sources of sustenance or conduits toward socially significant practice. They are nonhuman persons whose communities maintain long-term relationships with Native peoples. Honoring these relationships, through landscape management, appropriate methods and timings of harvest, continuation of storytelling, and ritual reaffirmations of human-nonhuman relationships, among other practices, ensure the survival and flourishing of all communities and the lands they occupy (e.g. Boyd 1999b; Cajete 2000; Cruikshank 2005; Kimmerer 2013; Lewis et al. 2013; Simpson 2017). To be applicable within archaeologies of survivance—that is, to recognize the webs of obligation and interdependence that characterize Native peoples' relationships with land, plants, and animals—foodways must be expanded. In a survivance-based framework, archaeologically visible food remains and activities must be seen as both products of food creation and evidence of travel, storying, and relationship building/continuation.

Survivance-related foodways, in other words, must convey movement and relationality. The cultural production of food unfolds over time and across space and through interwoven ecological and cultural systems. Vizenor's (1998, 2015) concept of transmotion supplies these connotations. Vizenor defines transmotion as "visionary motion" (2015:67), as a "sense of native motion … [that is] *sui generis* sovereignty. Native transmotion is survivance, a reciprocal use of nature, not a monotheistic, territorial sovereignty" (Vizenor 1998:15, emphasis in original). Vizenor draws on transmotion to refer to a range of actions through which Native peoples physically, intellectually, and spiritually traverse settler colonial boundaries.

Transmotion is applicable to examinations of Grand Ronde foodways because it was through these practices that individuals and families refused settler colonial boundaries. As I discuss in Chapter 5, existing accounts of Grand Ronde history indicate that the reservation community travelled throughout their ancestral homelands to acquire foods and pursue economic opportunities, at times despite agents' protests. Transmotion understands these travels not simply as responses to the reservation's lack of basic necessities (though they were this as well), but as declarations of spatial self-determination through which the community countered the government's attempts to isolate western Oregon Native peoples from their homelands. Transmotion does not ignore the ways settler colonial boundaries were made real and limited individual and group choice. During Grand Ronde's early years, for example, agents imprisoned those who left the reservation without permission (Barth 1959:137). Instead, transmotion highlights the "sense of the struggle" inherent to these travels—how the community remained oriented to other ways of being that rendered the reservation spatially permeable.

Furthermore, acts of transmotion destabilized settler colonialism's temporal boundaries. Native foodways in western Oregon take place at specific times of year, in response to the blooming of plants, migration of animals, and shifting weather patterns. Agents' attempts to install "civilized" food practices enacted in "proper" spaces and over "proper" periods failed to prevent those at Grand Ronde from journeying, at precise moments, to storied landscapes, reaffirming millennia-old ties with nonhuman relations, passing place-based knowledge to subsequent generations, and consuming wild plant and animal taxa. These acts of transmotion carried forward "the momentum of a much longer time frame than that posited in and materialized through federal Indian policy"

(Rifkin 2017:115). Archaeological investigation may expand these survivance stories by offering specificity: an account of which foods were consumed and what these foods reveal about the community's ontological, epistemological, and place-based connections (Rifkin 2017:179-192; Simpson 2017:185, 196-197).

Together, residence and transmotion offer a roadmap toward recognizing Grand Ronde survivance in the archaeological record. They speak to two domains of politicized practice, each with archaeologically visible material outcomes. And with their emphasis on diachronic, multi-scalar relationships and practices, they satisfy the methodological criteria I outline in Chapter 2. Lastly, they do not depend on dichotomous understandings of identity. They displace conceptions of static "Native" or "Euro-American" identities in favor of the "gentle conversation" of Native-lived colonialism within the challenges and opportunities of life on a federal reservation. Acts of transmotion and residence were building blocks in the community's survivance stories with which they shaped the spatial and temporal contours of their lives.

Survivance and Practice: Historical Inquiry with, by, and for Grand Ronde

Understanding the archaeological record as temporally durable elements of historical survivance stories dissolves boundaries between archaeological interpretation and practice, refashioning research as a form of storytelling. To accurately and appropriately bring survivance stories into the present, scholars must work with and for descendant communities. The third step then in developing an archaeology of survivance is assembling research projects defined by Native presence, one in which Native communities have opportunities to guide and contribute to research on their lands and heritage. Their distinctive presence must shape the conversations through which research questions are generated and the field and laboratory methodologies through which survivance stories are identified and brought into the present. This approach guides archaeologists toward historical insight that accounts for past groups' situated perspectives and, furthermore, transforms the research process into a vehicle for confronting settler colonialism's historical legacies and contemporary manifestations. Alongside Native peoples, archaeologists have the opportunity to challenge disciplinary and popular assumptions about Native disappearance and inauthenticity and leverage research for the benefit of descendant communities (Atalay et al. 2014).

The Grand Ronde Historic Preservation Office

In 2011, Grand Ronde successfully applied for a Tribal Historic Preservation Office (THPO). The National Historic Preservation Act (NHPA), National Environmental Policy Act (NEPA), and other legislation mandate that federal agencies consult with tribal nations to discuss potential impacts of federally-funded projects on cultural resources in tribes' ancestral homelands. Consultation, as a base legal requirement, does not proceed from a position of community oversight or feature democratized knowledge production. Federal agencies must solicit tribes' input on project goals and implementation but are not bound to follow their recommendations. Even so, consultation provides opportunities for tribal staff to communicate and encourage community-centered approaches to identifying, protecting, and celebrating connections to place, practice, and history (Banks and Boen 2016; King 2013; Stapp and Burney 2002).

Amendments to the NHPA in 1992 established the THPO program, which empowers federally-recognized tribes to assume some or all responsibilities of State Historic Preservation Officers (SHPOs) on tribal lands. The scope of THPOs' responsibilities include coordinating historic preservation efforts with relevant agencies and governments, most commonly on economic development projects spearheaded by the tribe; maintaining inventories and determining the significance of cultural resources (i.e. archaeological sites, historical buildings, traditional cultural properties, etc.) on tribal lands; and developing historic preservation plans that outline tribes' approaches to managing cultural resources (Stapp and Burney 2002:113-118). Through THPOs, tribes present self-determined ways of relating to and celebrating their lands and heritage. The growing literature on tribal historic preservation highlights communities' successes in cultivating innovative forms archaeology that at once satisfy legal guidelines and strengthen Native knowledge systems, cultural practice, and community goals (Backhouse et al. 2017; Burney 1998; Edwards and Thorsgard 2012; Gonzalez 2016; Gonzalez et al. 2018; Hunn et al. 2015; Kretzler 2017; Kuwanwisiwma et al. 2018; Minthorn 1998; Thompson 2011). Today, nearly two hundred tribal nations in all fifty states operate THPOs (NATHPO 2019).

THPOs face several obstacles in carrying out these duties. Federal grants for the THPO program, which stem from the National Park Service's Historic Preservation Fund, regularly fall well-below tribes' personnel, equipment, and office needs. In fiscal year 2017, THPOs received an average annual grant of $58,000 (NATHPO 2019). Budget shortfalls force tribes to make difficult decisions about allocating funds between historic preservation programs and other community needs. In addition, THPOs encounter resistance when attempting to extend community-centered historic preservation to their ancestral homelands. Welch and Ferris (2014) argue that the historic preservation industry has been and remains fundamentally archaeocentric. Archaeologists, not tribes, ultimately advise project decision-makers regarding the treatment of Native lands and heritage. And their recommendations predominantly rely on excavation—that is, extraction of Native belongings and the destruction of the archaeological record—rather than avoidance or minimizing impacts in project mitigation (see also Allen 2010; King 2009; McManamon et al. 2016). Ferris and Welch (2014) add that the archaeocentric nature of historic preservation is also clear in the valuing of tangible over intangible heritage, even though it is through intangible aspects of place that cultural significance so often derives. Indeed, the archaeological record *becomes* cultural heritage only when local and affiliated communities have the opportunity to engage with and feel a connection to the historical accounts it supports (Ferris and Welch 2014:224).

THPOs present alternative ways of knowing and valuing the past. They expand the definition of what archaeology is and can be in contemporary society. But they face an uphill battle in convincing the staff of agencies and consulting firms to seriously consider alternative modes of significance and, in turn, disrupt the archaeocentric agendas inherent to historic preservation (see also Edwards and Thorsgard 2012; Ferris 2003; Ferguson 2003; Gonzalez 2016; Hawkins 2016; King 2003; Murray et al. 2009; Waterton and Smith 2009).

These challenges are felt in the day-to-day work of HPO staff. The office's six-person team is responsible for reviewing federally funded projects in the tribe's 14 million-acre homelands, which include approximately 70% of the state's population and its three largest cities (Portland, Salem, and Eugene). Each year, they receive over 6,000 notices of federal undertaking, many of which lead to consultation with relevant agencies and historic preservation firms. Protecting tribal heritage in Grand Ronde's ancestral homelands is a tall undertaking, one that siphons much of the office's time away from documenting historical properties on tribal lands.

HPO staff also grapple with pervasive historical narratives that "cover the tracks" of settler colonialism by erasing Native peoples from the present. These narratives describe Native communities in the past tense, situate them within a romanticized "prehistory," and presuppose that "authentic" Native peoples (or Native peoples altogether) disappeared with the arrival of settlers and thus have little relevance to contemporary Oregon society (Lewis 2014). These narratives are not confined to popular discourse; they operate within the historic preservation industry as well. HPO staff frequently encounter surprise from their consulting partners that the tribe maintains an interest in—and can demonstrate connections to—off-reservation places with nineteenth and twentieth century significance.

So widespread is the association between Grand Ronde and "prehistory" that the HPO pursued formal recognition of the reservation's "historic" landscape. In 2012, HPO staff successfully nominated the reservation's train depot to the National Register of Historic Places. Between 1922 and 1960, the depot served as an economic hub within the community as part of the Willamina & Grand Ronde Railroad, which transported timber and passengers between the Willamette Valley and the Coast Range. Following Grand Ronde' restoration in 1983, the tribe acquired the depot and used it for office space until 1997. Historic preservation staff highlighted both periods as significant in nominating the building to the National Register. The depot linked the community to the Willamette Valley, economically and otherwise, and was the first building purchased after the pall of termination had been lifted. The depot played a role in the "growth and development of the region as well as the growth and development of a Sovereign nation" (Harrelson and Edwards 2012:9). The depot is one of the first historical structures successfully nominated by a THPO for National Register inclusion. It reminds the tribe's consulting partners that Grand Ronde is inseparable from any discussion of Oregon history—past, present, or future.

Lastly, HPO staff challenge the archaeocentric nature of historic preservation by emphasizing tangible and intangible heritage. In their discussion of traditional cultural properties (TCPs), which are eligible for inclusion in the National Register based on cultural, artistic, social, and spiritual associations with living communities (King 2009; Parker and King 1990), Edwards and Thorsgard (2012) argue that significance arises out of relationships. These relationships at times take physical form (and may be understood as archaeological sites) but often leave no lasting traces. TCP identification, then, must privilege action rather than object. Edwards and Thorsgard (2012:3) instruct historic preservation practitioners: "don't begin the consideration of TCPs as an examination of nouns—places and things—but begin by looking for verbs—actions and interactions." The verbs of Native history encompass social ties and trade, foodways and relationships with nonhuman persons, travel across storied landscapes, and song and dance.

Knowledge about these verbs may exist primarily within communities (rather than published sources) and may be inaccessible without in-depth consultation. Edwards and Thorsgard's comments focus on TCPs, but their description of dynamic, continuing Native presence on landscapes is relevant to all historical properties.

In practice, HPO staff realize a verb-centered approach to historic preservation through what they call meaningful consultation. Meaningful consultation takes three forms. First, consultation is as much about resolving one project's impacts as it is about developing interpersonal relationships between HPO staff and members of agencies and firms. These relationships serve as starting points for dialog about Grand Ronde history and ways of knowing and valuing the past. They move consultation from a legal requirement to a shared journey across landscapes of federated knowledge.

Second, historic preservation staff draw on a plurality of knowledge systems when assessing the significance of a place. They weave information rooted in three domains: contemporary observations, historical records, and *ikanum*. Contemporary observations include present-day practices and concerns within the community, knowledge generated by scholarly examinations of existing landscapes such as archaeology and geology, and oral histories and traditions. Historical records include ethnographies, government documents, maps, and diaries produced by past authors. And *ikanum*, which comes from the Chinuk word for "myth," are stories that reveal the creation and ordering of the world. HPO staff give equal weight to these lines of evidence during project evaluation.

Third, meaningful consultation expands the community of individuals invested in protecting Grand Ronde heritage. HPO staff pursue creative forms of project mitigation that share cultural knowledge and histories with agency personnel and the public. These acts of sharing bring teller and listener into webs of co-creation and obligation. Like my experience at *Achaf-Hammi* in July 2016, once someone learns about the deep history of a place, they have a responsibility to ensure its continuation (King 2005; Stapp and Burney 2002:144-151).

The Lake Oswego-Tigard Water Partnership is one example of HPO staff using meaningful consultation to strengthen existing connections and create new connections to place. In 2008, the two cities embarked on a series of water infrastructure upgrades. One proposed pipeline cut through a National Register-eligible archaeological site within Grand Ronde's ancestral homelands. During consultation, historic preservation staff presented a mitigation plan that included archaeological data recovery and a contemporary art installation illustrating the tribe's ties to nearby Lake Oswego. Project partners consented to this plan. The tribe installed a sculpture and an associated information display in Lake Oswego's George Rogers Park in 2015. The sculpture, created by tribal member Travis Stewart, depicts a historical Native leader who, during a harsh winter, taught local communities how to harvest and prepare eels from Willamette Falls. Those that listened to his teachings survived the winter. Those that did not died and turned to stone. In a project with impacts to Grand Ronde heritage, mitigation could have proceeded in a familiar, archaeocentric fashion. Instead, the HPO combined archaeological data recovery with a lasting, public reaffirmation of ancestral ties and, in the process, brought project partners and park visitors into conversation of what place meant and means to Grand Ronde. As David Harrelson, Grand Ronde's Historic Preservation Officer, said at the installation: "[This is] a story to be told by everyone. It's not just tribal members' history, but everyone's history. It's Oregon's history, and to know that and share it with your little ones is important" (Pursinger 2015).

Grand Ronde's approach to meaningful consultation decenters archaeology in the protection and celebration of tribal heritage. It refuses divides between "cultural" and "natural" resources and understands historic preservation as inseparable from other forms of cultural resurgence. Edward and Thorsgard (2012:1) make this point: "When asked 'What is culture?' a Grand Ronde Tribal elder replied simply '*Kanwai ikta*'. It is everything. Tell me what it is not." Grand Ronde's holistic understanding of historical and contemporary lifeways informs tribal departments beyond the Historic Preservation Office. The Cultural Education Program offers food gathering, beading, and Chinuk Wawa lessons to tribal members. The Department of Natural Resources works with elders to determine which plants should be grown in the tribal nursery and then reintroduced to community foodways and western Oregon landscapes. And the Lands Department uses property acquisition to protect areas threatened by development or harm within the tribe's ancestral homelands. These actions reproduce and expand Grand Ronde presence.

Academic Research in the Service of Grand Ronde Historic Preservation

It is within this context that the GRLTP and FMIA developed. Both projects sought to enhance the capacity of the Grand Ronde HPO to implement self-determined forms of heritage protection. They arrived at this goal via different research relationships and methodological strategies. The collaborative continuum, introduced by Colwell-Chanthaphonh and Ferguson (2006) and elaborated by Atalay (2012) and Colwell (2016), clarifies these differences.

In its original formulation, Colwell-Chanthaphonh and Ferguson (2008) argue that archaeological practice is not dichotomous—it is not simply collaborative or not collaborative. Instead, projects exist along a spectrum defined by degrees of engagement and cooperation between stakeholders (Figure 3.2). The continuum contains three benchmarks. In projects defined by resistance, archaeologists shut Native communities out of research. They alone develop project goals, leaving the interests and concerns of tribal members unconsidered. Colwell-Chanthaphonh and Ferguson note that the dispute surrounding the remains of the Ancient One (also known as Kennewick Man) is a fitting example of resistance research (see also Burke et al. 2008; Thomas 2000). I would add that the vast majority of archaeological research on Native lands and heritage,

Resistance	*Participation*	*Collaboration*
Goals develop in opposition	Goals develop independently	Goals develop jointly
Information is secreted	Information is disclosed	Information flows freely
No stakeholder involvement	Limited stakeholder involvement	Full stakeholder involvement
No voice for stakeholders	Some voice for stakeholders	Full voice for stakeholders
No support is given/obtained	Support is solicited	Support is tacit
Needs of others unconsidered	Needs of most parties mostly met	Needs of all parties met

Figure 3.2 The continuum of archaeological research practices with Indigenous communities (adapted from Colwell-Chanthaphonh and Ferguson 2008:11).

especially during the discipline's first century, also qualify. The second benchmark is participation, in which Native communities hold limited involvement in a project. Tribal members may contribute to fieldwork or interpretation, but project goals and methodologies are usually set independent of community input. "Public" or "community" archaeology are examples of this research relationship (see Atalay 2012:49-50).

Finally, in projects characterized by collaboration, project stakeholders come together to determine research goals, methodologies, interpretive strategies, and dissemination procedures. Collaboration builds multiple, mutually beneficial research outcomes into research design, ensuring work makes lasting contributions to scholars and descendant communities. It democratizes the knowledge-making process and begins to rectify archaeology's history of epistemic injustice (Fricker 2007) through which Native peoples were marginalized from the study of their lands and ancestors. As I discuss in Chapter 2, collaboration may not be possible or desirable in all project phases. A commitment to collaboration throughout the life of a project is key.

Atalay (2012:43-50) reimagines the collaborative continuum as a ladder of research practices (Figure 3.3). Unlike Colwell-Chanthaphonh and Ferguson, Atalay distinguishes forms of archaeological practice on the basis of community participation and decision making rather than the

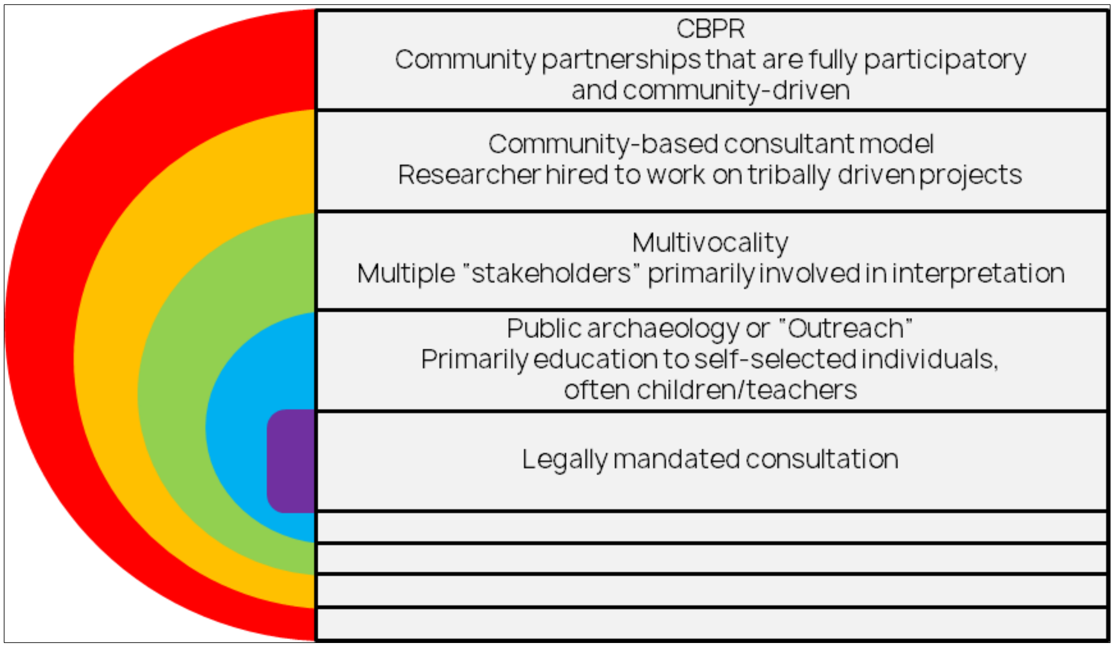

Figure 3.3 Forms of archaeological research practice with Indigenous communities (adapted from Atalay 2012:48).

degree of interaction between project stakeholders. At the lowest rung is legally mandated consultation, a non-voluntary form of engagement in which archaeologists are required to solicit—but not follow—Native communities' perspectives and concerns. Consultation represents the bare minimum of community engagement. The next two rungs are similar to Colwell-Chanthaphonh and Ferguson's participation benchmark. Community members may be contacted following the project's completion (outreach) or assist in the interpretation of recovered materials (multivocality). At the top of Atalay's model is community-based participatory research (CBPR). Atalay (2012:63) outlines five principles for CBPR: (1) they draw on a community-based partnership; (2) they aspire to be fully participatory; (3) they build community capacity; (4) they engage in reciprocity; (5) and they recognize multiple knowledge systems. As I discuss below, FMIA is an example of CBPR.

The GRLTP, by contrast, follows a community-based consultant model, the second highest rung on Atalay's ladder: Under a community-based consultant model, Native communities oversee project development before hiring an outside scholar to complete specialized tasks. In my view, this research relationship sits uneasily within Atalay's framework. Community-based consultant research does not necessarily include collaboration, nor are all participants intended to benefit equally. This is not to say that outside researchers play no role in or benefit from these projects. They advance analysis, collect data, and offer interpretive strategies and in doing so acquire valuable educational and professional experience. But their role is ancillary to the project's overarching focus: answering community-defined questions through community-defined methodologies. These projects are better described as expressions of indigenous archaeologies rather than a form of collaboration.

In a more recent formulation of the collaborative continuum, Colwell (2016) reverses the order of CBPR and community-based consultant models (Figure 3.4). In doing so, he reframes what the goal of archaeological engagement with Indigenous peoples should be: building the capacity of Indigenous communities so that they can protect, celebrate, and know their heritage on their terms.

Colwell's continuum, then, is about who controls research on Indigenous heritage. He forwards a five-part spectrum, ranging from colonial control, to resistance, to participation, to

Colonial control	Resistance	Participation	Collaboration	Indigenous control
Goals set solely by archaeologists	Goals develop in opposition	Goals develop independently	Goals develop jointly	Goals are set by tribe
Information is extracted and removed from community	Information is secreted	Information is disclosed	Information flows freely	Information is proprietary and controlled by tribe
Descendants involved as laborers	No stakeholder involvement	Limited stakeholder involvement	Full stakeholder involvement	Archaeologists are employees or consultants of tribe
No voice for descendants	Little voice for descendants	Some voice for descendants	Full voice for descendants	Full voice of descendants is privileged
Acquiescence is enforced by state	No support is given/obtained	Support is solicited	Support is tacit	Support is authorized by tribe
Needs of science are optimized	Needs of others are not considered	Needs of most parties are mostly met	Needs of all parties are realized	Needs of tribe are privileged

POWER AND CONTROL

ARCHAEOLOGISTS ↔ TRIBES

Figure 3.4 Modes of interaction between archaeologists and tribes (Colwell 2016:117).

collaboration, to Indigenous control. As his visualization makes clear, while collaboration is important because it gives voice to descendant communities, there is value in privileging these voices from the outset, as in the GRLTP. Thus, while the GRLTP featured both a community-driven consultant model and Indigenous control over research, the latter characterization more accurately encompasses the project's values and purpose within the Grand Ronde community.

The Grand Ronde Land Tenure Project

In July 2014, I received a phone call from Briece Edwards. I had met Briece, then the HPO's Senior Archaeologist, the previous April at the Society for American Archaeology (SAA) Annual Meeting in Austin. During this initial meeting, which focused on the possibility of a summer field school at Grand Ronde (see below), Briece introduced me to the HPO's approach to meaningful consultation, the capacity-related challenges staff face, and outstanding questions about reservation history. Over the spring and early summer, I reflected on how archaeology, and a field school specifically, could enhance the capacity of the HPO in the context of archaeological investigation and education. At that point, the field school was tentatively scheduled for the following summer, so I figured my contributions would come later, and not until the start of the academic year.

Briece called with a different idea in mind. He asked if I would be interested undertaking a research project focused on reservation land use and ownership during the nineteenth and twentieth centuries. The work would involve archival research and GIS digitization and span the rest of the calendar year. I was intrigued by his proposal but expressed concern that my familiarity with GIS and archival research, which to that point had been limited to coursework and small projects, was not up to the task. Briece shrugged off these doubts and asked me to drive to Grand Ronde to chat more in person.

Two weeks later, I met with Briece and David Harrelson, then the HPO's Program Manager, to discuss project details. Briece explained that HPO staff had recently used GIS digitization of General Land Office (GLO) surveys to identify historical settlements, homes, and possible archaeological sites on and off the reservation. They envisioned the GRLTP as an extension of this work. My charge was threefold. First, I would search for and acquire scans of georeferenceable visual data (i.e. maps and aerial photographs) and associated documents pertaining to lands within and immediately surrounding the Grand Ronde Reservation. Temporally, historic preservation staff expressed interest in the reservation's first century, from the 1850s through termination in the 1950s. Second, I would import these datasets to a GIS environment to generate a baseline of land ownership and associated attribute information. Finally, I would examine trends in land ownership, with emphasis on the impact federal policies had on tribal land tenure. Staff knew, for instance, that the implementation of the General Allotment Act led to substantial declines in land ownership by individual tribal members. But they were unsure about how dispossession unfolded through time and across space. They hoped my analysis would shed light on this question. Project deliverables included a list of map source citations, a series of GIS layers containing digitized datasets, and a report summarizing my findings.

The tribe presented the project to me in the form of a contract. The contract outlined a work schedule, complete with weekly check-ins to ensure the tribe's goals were being met, identified me as a consultant who would complete the bulk of the archival research and analysis, and stipulated that all information generated over the course of the project would be owned by the tribe. As we discussed each section, Briece showed me examples of digitized GLO maps and supplied a list of local repositories at which to begin my search. By the end of our discussion, I understood that while I would be responsible for realizing the project, HPO staff would be ready to help resolve difficulties I might encounter. This assuaged my lingering concerns about my archival and GIS capabilities. I left Grand Ronde with a signed contract and, though I did not realize it at the time, the beginnings of this dissertation.

That the GRLTP reflected the needs and interests of the Grand Ronde community was clear from the outset. The tribe set all research goals, privileged the needs of the community, employed an archaeologist as a consultant, and owned all results and datasets. The GRLTP was not an example of CBPR. Certainly, historic preservation staff encouraged me to offer my ideas throughout the project and hoped the work would refine my research and analytical skills. But the fundamental aim of the project, as stated in the contract, was to expand the tribe's understanding of reservation history to improve their protection of tribal heritage.

Over the next several months, I conducted archival research at federal, state, and county repositories in Oregon and Washington and digitized scans of relevant information. These first two stages of the project proceeded smoothly, with Briece offering advice during weekly check-ins about appropriate attributes to collect and strategies for georeferencing hand-drawn, impressionistic maps. Analysis, however, raised challenging questions about identifying Grand Ronde presence within these datasets. Non-community observers composed the vast majority of project maps and associated documents, and I found it difficult to assess the extent to which they distorted and/or effaced evidence of cultural persistence and adaptation within the community. If the project had proceeded without HPO oversight, my analysis would have risked reproducing these depictions of the reservation community. At the very least, my ability to challenge them with community-centered insights—that is, to center Grand Ronde presence—would have been limited. Fortunately, because the GRLTP began from a place of Indigenous control, analysis took a different path. Briece and David offered recommendations for critically engaging in the colonial archive, what they called "counter mapping." They referenced historical and ethnographic accounts that presented alternative understandings of tribal history and shared unpublished knowledge held within the community that complicated agents' accounts. This centering of Grand Ronde perspectives ensured analysis gave full weight to the varied strategies the tribe took in surviving and thriving on the reservation (see Chapter 4 for additional discussion on the opportunities and limitations of research within the colonial archive).

The GRLTP formally concluded in the summer of 2015. I delivered all recovered maps, associated documents and GIS layers, and an initial report to HPO staff (Kretzler 2015). However, this did not constitute the end of my investigation into reservation land tenure. Over the next two years, I continued to examine changes in reservation land ownership, which eventually led me to an in-depth examination of allotment's implementation and impact at Grand Ronde (Kretzler 2017). During this work, I contributed new sources and analytical results to the tribe's archives and updated the report as needed. Currently, land tenure data are being used by HPO staff to identify possible historical properties during land use planning on tribal lands and by the Lands Department as part of future parcel acquisition efforts.

Field Methods in Indigenous Archaeology

FMIA developed out of existing relationships between Sara Gonzalez, Eirik Thorsgard (then Grand Ronde's Tribal Historic Preservation Officer), and Briece Edwards. Conversations about the possibility of a community-based research partnership began in earnest in the spring of 2014 at the SAA Annual Meeting in Austin and at the Northwest Anthropological Conference in Bellingham. Following these initial discussions, HPO staff invited Sara and me to visit Grand Ronde. In May, we made our first of many trips to Grand Ronde and the Chachalu Museum and Cultural Center, which houses the Historic Preservation Office. Our discussion began with place. Briece and David supplied a brief history of the reservation before identifying several tribally-owned properties in need of archaeological survey and/or associated with outstanding questions about past land use or activities. To address these needs, they proposed using collaborative fieldwork, including a summer field school, to document preserved cultural resources. The rest of our meeting focused on the possible methodological strategies such as geophysical survey and intensive surface collection that would be appropriate, both culturally and archaeologically, to use at these properties.

Briece and David then led Sara and me on a tour of Grand Ronde. We visited other tribal departments in Chachalu; *Achaf-Hammi* and the powwow grounds; the former Grand Ronde Agency Schoolhouse, which was slated for demolition later that spring; and the tribe's governance campus. The tour reiterated that archaeological research at Grand Ronde is inseparable from wider efforts within the community to create and sustain a vibrant sovereign nation. Later that afternoon, we joined HPO staff and community members at Willamette Falls for First Salmon Ceremony. There, we witnessed the reaffirmation of relationships between western Oregon's Native peoples, salmon, and the falls. Sara and I returned to Seattle brimming with ideas about how archaeology could expand existing accounts of reservation history and, more so, with an understanding that we had much to learn to be able to do this work.

From its inception, FMIA proceeded from a place of collaboration. HPO staff, Sara, and I committed to joint development of project goals, to support the needs and interests of the tribe and outside researchers (i.e. Sara, me, and our students), and to meaningfully incorporate Grand Ronde knowledge and concerns regarding fieldwork into research design. Most importantly, our trip to Grand Ronde emerged out of existing interpersonal relationships, and we envisioned the field school as the first iteration of a long-term collaborative partnership. As numerous archaeologists have discussed (e.g. Atalay 2012; Atalay et al. 2014; Colwell-Chanthaphonh and Ferguson 2006; Lightfoot 2008; Zimmerman 2005), archaeology's history of extractive research has left contemporary Native communities rightly distrustful of academics' interest in their lands and heritage (see also Smith 2012; Wilson 2008). Establishing a collaborative research project thus relies not only on commitments to transparency, inclusion, and support. It also requires trust that, from the community's perspective, researchers will adhere to these commitments. At Grand Ronde, Sara's existing relationships with HPO staff jumpstarted discussions about the potential of a collaborative research partnership. But Sara and I knew the project's success hinged on repeated demonstrations that our words accorded with our actions.

Over the course of the summer and the following academic year, FMIA came into focus. Through ongoing dialog, we developed eight guiding principles of community-based archaeology at Grand Ronde (Table 3.1; see Gonzalez et al. 2018 for an in-depth discussion of these principles). Community oversight is a common theme. The tribe holds final approval over all field and analytical methodologies, reserves the right to terminate and/or alter research in response to emerging finds or community needs, and serves as a final reviewer for all project grant proposals, presentations, and publications. FMIA acknowledges and respects the sovereignty of the Confederated Tribes of Grand Ronde to define research on its lands and heritage.

As this framework emerged, HPO staff sought input from the rest of the Grand Ronde community. They made formal presentations to and conducted one-on-one meetings with members

1. Community works in partnership the HPO and Dept. of Culture to set standards and protocols for research
2. Research goals integrate community needs and perspectives at the outset of the project
3. Community members are compensated for their time and work at levels consistent with other paid research consultants. Grand Ronde and other tribal and indigenous students are provided with stipends to offset cost of attendance
4. The HPO and Dept. of Culture have the right to determine how to share and/or disseminate the results of research. All resulting research outcomes, as well as grant and funding applications, are reviewed and approved by these entities
5. Community has the right to determine the process of research on sensitive topics
6. Collaboration is envisioned as a long-term relationship. Research partners are thus committed to finishing all projects and assisting with related needs beyond the life of the project
7. Research methods are developed in accordance with community perspectives and values
8. Research contributes to the capacity of a community to manage its cultural resources

Table 3.1 FMIA's principles of community-based archaeology (Gonzalez et al. 2018:90).

of Tribal Council as well as the elders and cultural advisers that make up the tribe's Culture Committee. Staff presented their vision for the project, answered questions, and discussed concerns regarding fieldwork, knowledge creation, and data ownership. Later that year, the Tribal Council authorized the Historic Preservation Office to proceed with the project and begin fieldwork in the summer of 2015.

Leading up to FMIA's first field season, Sara and I worked with HPO staff to outline appropriate field strategies. For many Native communities, land-disturbing archaeological practice such as excavation raise numerous concerns. These activities alter the composition of the landscape, destroy *in situ* relationships between material deposits, and most seriously bring people into contact with culturally sensitive, sacred, and/or dangerous places or objects, which can threaten the physical and spiritual well-being of practitioners and the tribal community (Gonzalez 2016; Two Bears 2008; Welch and Ferris 2014). Grand Ronde shares these concerns. FMIA thus followed from the position that documenting cultural resources and generating new accounts of tribal history were important but not so much to warrant harm to the reservation landscape or community. At places in which HPO staff deemed appropriate for investigation, FMIA sought to maximize the amount of information gained while minimizing impacts to it.

From this position, Sara, HPO staff, and I developed a Grand Ronde-specific project methodology centered on four commitments. First, fieldwork respects and incorporates Grand Ronde cultural practices and concerns. FMIA avoids sensitive places that should never be disturbed (e.g. burial grounds), minimizes impacts (see below), and mandates respectful conduct from project participants. The bulk of FMIA's research takes place in the context of a summer field school. During the field school, students and researchers live on the Grand Ronde Reservation for five to seven weeks. They spend the summer living *on* tribal lands and *in* community, both of which come with obligations. For example, field school participants are expected to treat tribal lands, including the FMIA campsite and fieldwork locales, with respect. This means being mindful of these lands' nonhuman inhabitants, their cultural significance, and the impacts of FMIA's work on them. Furthermore, the field school participates in weekly HPO-led trips to places of importance in the tribe's homelands. To date, FMIA has visited Mt. Hebo, Willamette National Forest, Baskett Slough, Cascadia Caves, Sauvie Island, Fort Vancouver, Hobsonville Point, and numerous locales in the Salem area. Just as the history of the Grand Ronde community has been and continues to be routed through place, so too are FMIA's lessons.

Living in community comes with similar obligations. For Grand Ronde, archaeology is only one way through which the community interacts with heritage. Cultural practice, language, stories, food, and land situate people within webs of history and relationship. The field school takes time to learn about and support these non-archaeological modes of heritage engagement. The field school has attended powwows and ceremonies at *Achaf-Hammi*, assisted with Canoe Journey preparations, collected maple bark and berries, helped run an archaeology day for tribal youth, and processed and woven bear grass. FMIA also requires students and staff to remain sober for the duration of fieldwork, as this demonstrates respect for tribal lands, governance (drug and alcohol use are forbidden on tribal property), and belongings.

Living on tribal lands and in community personalizes the importance of indigenous archaeologies. Experiential learning is a vital component of Native pedagogies (Archibald 2008; Wilson 2008), and through the field school FMIA creates spaces for participants to see and enact indigenous and community-based archaeologies. Students and staff develop their own connections to place that are grounded in learning, listening, and action.

Second, FMIA values flexibility (Silliman 2008). Flexibility guides archaeological and non-archaeological aspects of the project. Like other forms of historical inquiry, archaeological methodologies require continual refinement in response to emerging archival and material discoveries. Within a community-based research setting, flexibility takes on additional meanings. FMIA alters research strategies in response to community concerns and remains open to new sources of information that may significantly change field schedules and goals. During the field school, Sara and I completed weekly planning meetings with HPO staff to outline short-term field and laboratory goals and strategies for achieving them. At times, community projects and needs necessitated rapid revision of these plans, with Sara and I becoming aware of community events a day or a few hours in advance. But if we could help tribal members process plant resources or pack for Canoe Journey, we shifted our work schedule accordingly. In other instances, FMIA tailored fieldwork to community events. During investigations at the Molalla Encampment (see Chapter 6), field teams removed all field equipment and backfilled open units before the start of Veteran's Powwow in July and concluded all fieldwork by the start of Contest Powwow in August so as to not interfere with cultural practice.

Third, FMIA emphasizes communication and transparency. In addition to weekly planning meetings, during the field season Sara and I completed daily check-ins with HPO staff. And each fall, we presented at the annual Grand Ronde History & Culture Summit to update the community on project results and solicit suggestions for project improvements. Though Sara and I worked primarily alongside the HPO, we knew members of the community were interested in and had concerns about archaeological research, especially on the reservation. Summit presentations afforded opportunities to discuss how indigenous and collaborative archaeologies diverge from historically dominant forms of archaeological practice; how FMIA has been guided by Grand Ronde knowledge, practice, and interests; and most importantly how the project can better meet community needs.

FMIA's Low-Impact Methodology

The final aspect of FMIA's approach was the use of a low-impact, multi-phase field methodology (Figure 3.5). Adapted from Gonzalez's (2011, 2016) work with the Kashia Tribal Historic Preservation Office, this methodology privileges the use of minimally invasive and non-destructive techniques before (or in lieu of) higher-impact actions (see also Cannon 2018; Glencross et al. 2017; Greenfield 2000; Schmader 2016). In addition to lessening the impact of archaeological research on the physical landscape and the well-being of the community, this approach structures fieldwork around community-informed decision making.

I initiated this multi-phase research process at the Umpqua Encampment in 2015 and the Molalla Encampment in 2016 (see Chapters 5 and 6). At the conclusion of each phase, I met with HPO staff to discuss preliminary results and whether proceeding to the next (and higher impact) phase was culturally appropriate and intellectually necessary. I did not assume at the outset that fieldwork would proceed through all project phases.

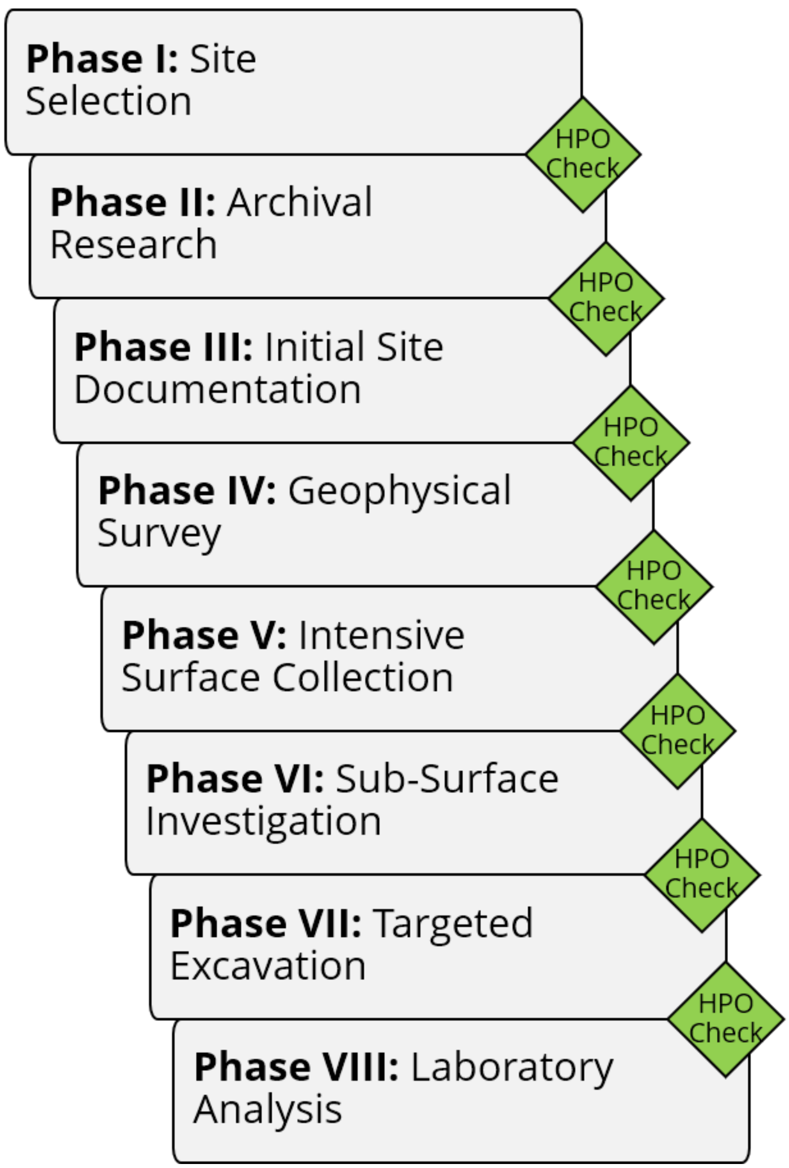

Figure 3.5 FMIA's low-impact field methodology.

For example, if archival research, geophysical survey, and surface collection supplied enough information to evaluate the project's hypotheses and answer outstanding questions, fieldwork would not proceed to excavation. The *in situ* preservation of the archaeological record—that is, Grand Ronde heritage—assumed primary importance.

During Phase I, site selection, I worked with HPO staff to identify properties for archaeological investigation. Four site selection criteria emerged from these discussions. The property must be tribally owned and held in trust or reservation status. Fieldwork on trust and reservation lands does not require a permit from or reporting to the State Historic Preservation Office. The Tribal Historic Preservation Office maintains authority over the extent and nature of work on these properties. The value of this criterion was that it placed fieldwork under the sole jurisdiction of the tribe. Should the project need to revise field strategies in response to emerging discoveries and/or community concerns, I could do so without seeking outside approval or amending permits.

Material deposits also must be intact. Following archaeological research on the reservation (Becker et al. 2008; Ross 1996; Roulette et al. 2002; Wilson 1998) and Fort Yamhill (Adams 1991; Eichelberger 2010), HPO staff and I assumed nineteenth and early twentieth century materials would exist within 1 m of the surface. Shallow deposits, though easy to access, are also vulnerable to damage or removal by plowing and construction. We therefore selected properties likely to contain undisturbed deposits, as indicated by archival and community knowledge.

The history of the property must be temporally relevant. We consulted results of the GRLTP, previous map digitization efforts, county property records, and community knowledge to identify properties at which the Grand Ronde community maintained settlements during the nineteenth and early twentieth centuries. We focused on properties with extended occupation histories, as these were more likely to contain household deposits and materials from multiple periods. Such long-term occupation is important because Grand Ronde survivance strategies were never static. The community faced unique challenges—and likely developed unique responses to them—in 1860 versus 1890 versus 1920. Provided we could identify distinct periods of occupation—a difficult proposition given the expected shallowness of cultural material—properties with temporally broad histories would offer insight into the shifting economic, political, and material context of the reservation and the ways survivance was realized through time.

Lastly, fieldwork at the property must be deemed culturally appropriate. The property must not be held as significant such that fieldwork would impede cultural practice or endanger the physical and/or spiritual well-being of tribal members. It must not, in the estimation of historic preservation staff, contain burials or other sensitive deposits that should never be disturbed by archaeological investigation. Importantly, the cultural appropriateness of fieldwork was left as an open question. It could change depending on subsequent field or archival discoveries. HPO staff maintained full authority to alter or terminate any aspect of our methodology before and during field seasons.

Phase II, archival research, is central to developing an archaeology of survivance. As I note above, a thorough understanding of existing accounts of reservation history, as preserved in documentary sources and community knowledge, is critical for generating hypotheses about past groups' decision-making. Archival research occurred before arriving on site and continued throughout the project in response to emerging finds, questions, and community concerns.

Phase III, initial site documentation, utilized aerial photography and surface survey to develop a basic understanding of site landforms, semi-permanent and permanent features, and surface deposits. During the 2015 field season, I used a DJI Phantom 3 Professional drone to take aerial photographs of the Umpqua Encampment and the Agency Schoolhouse (see Campana 2017 and Hamilton 2017 for discussions of drones in archaeology). In subsequent seasons, I relied on the tribe's substantial drone photography database. I then used a total station and GPS units to map site boundaries, permanent and semi-permanent structures, surface finds, and other notable features.

In Phase IV, fieldwork turned to sub-surface deposits. Between 2015 and 2017, I oversaw geophysical survey, specifically ground penetrating radar, gradiometer, and metal detection survey, at the Umpqua and Molalla Encampments. Geophysical survey worked to identify anomalies potentially indicative of sub-surface features or structures. This field strategy builds on a growing body of literature highlighting geophysical survey's ability to satisfy the dual goals of documenting cultural resources while maintaining the integrity of the archaeological record, especially in indigenous archaeologies (e.g. Byram et al. 2018; Panich et al. 2018; Sunseri and Byram 2017; Tveskov et al. 2019).

Phase V, intensive surface collection, was conducted at the Molalla Encampment between 2016 and 2018. It involved collecting artifacts from the ground surface to the base of the root mat and, following analysis, returning artifacts to the site for in place curation. This approach is best suited to sites with low ground visibility, minimal vegetation, and shallow material deposits. Furthermore, it builds on Gonzalez's (2011:145-147; 2016:543-544) work with the Kashia THPO to develop a "catch and release" approach to site survey. Limiting field teams' "catch" of artifacts to the soil A horizon reduced fieldwork's physical impact and lessened the spiritual dangers resulting from ground disturbance and artifact handling. Yet a low-impact approach is not a zero-impact approach. The removal of artifacts from their depositional contexts alters landscape composition, and long-term artifact curation places financial and cultural burdens on collections staff. It is for these reasons that the second step to intensive surface collection—"release"—is so vital. Returning artifacts to their respective surface collection units helps repair the physical and cultural relationships interrupted by fieldwork. It also demonstrates the feasibility of in place curation to the tribe's consulting partners, who are sensitive to the curation crisis currently afflicting archaeology (Kersel

2015; King 2008; Voss 2012). FMIA will return surface collection artifacts to Grand Ronde in the summer of 2020.

During Phase VI, sub-surface investigation, field teams used augers and test excavation units to acquire additional information about site stratigraphy and sub-surface deposits. Importantly, the quantity and spatial extent of auger bores and test units was limited to areas in which other forms of investigation were unfeasible (e.g. auger survey in riparian areas), other sources of information (e.g. geophysical survey and/or intensive surface collection) pointed to the presence of sub-surface deposits, and/or HPO staff believed the benefits of sub-surface testing outweighed its impacts. Sub-surface investigation occurred across different landscape strata at the Umpqua Encampment in 2015 and at the Molalla Encampment between 2016 and 2018.

Phase VII, targeted excavation, further explored sub-surface site composition. This phase took place only at the Molalla Encampment during the 2018 field season. When selecting areas for excavation, FMIA again proceeded with spatial precision. All units were placed in areas that had been examined in previous phases and contained compelling evidence—as determined by HPO staff—warranting more invasive investigation.

Lastly, Phase VIII, laboratory analysis, focused on cleaning, cataloging, and analyzing recovered materials. FMIA utilized digital curation and photogrammetry to improve community access to project results, conducted non-destructive analyses (unless explicitly approved by historic preservation staff), and set aside non-archaeological material collected during fieldwork (usually non-modified rocks and plant material) for return to the reservation. Laboratory analysis occurred over four academic years, between autumn 2015 and summer 2019.

FMIA's multi-phase methodology weaves multiple lines of evidence to build an increasingly informed understanding of surface, near-surface, and sub-surface deposits. It incorporates collaboration and community-informed decision making between each phase and continually balances field investigation with preservation and cultural sensitivity. In many ways, this methodology aligns with practical recommendations provided by society ethics statements (e.g. Lynott and Wylie 2000) and agency standards (e.g. Secretary of the Interior guidelines, see Department of the Interior 1983). What FMIA adds is an awareness that research design and implementation can and should draw on diverse knowledge systems, rather than solely on those of academic researchers. This commitment to intellectual inclusion combats the discipline's history of epistemic injustice (Fricker 2007) by expanding the community of those seen and valued as knowers and creating platforms through which they can contribute to the research process. Like other aspects of indigenous archaeologies, the specifics of FMIA's multi-phase methodology are not necessarily applicable to other Native communities, who maintain unique relationships with land and heritage. However, its use of progressive field exploration, built-in collaborative decision making, and preservation of the archaeological record has broad relevance to those working in community-based settings and in tribal historic preservation.

CONCLUSION

Survivance offers an approach to historical inquiry that structures archaeological interpretation and practice around Native presence. This dissertation realizes a commitment to Native presence in interpretation via the middle-range concepts of residence (Silliman 2014) and transmotion (Vizenor 2015). With these concepts, I explored whether and how the Grand Ronde community fostered spatial and temporal self-determination in the organization of their homes and the journeys and relationships inherent to their foodways. In a larger disciplinary context, this approach replaces outmoded conceptions of identity and fixations on authenticity with cultural creativity and resilience. And in practice, this dissertation used two community-based research projects to develop and implement a Grand Ronde-specific approach. These projects featured different research relationships, but both sought to enhance the capacity of the HPO to implement self-determined forms of heritage protection. The GRLTP answered questions of direct interest to HPO staff in identifying cultural resources on tribal lands while FMIA employed a field strategy grounded in four commitments: (1) cultural sensitivity and respect, (2) flexibility, (3) transparency and communication, and (4) a low-impact, multi-phase methodology. In the following four chapters, I present the results of these projects and discuss what they reveal about stories of survivance on the Grand Ronde Reservation.

CHAPTER 4: SPATIAL POLITICS ON THE GRAND RONDE RESERVATION

In this chapter, I draw on the theories of settler colonialism introduced in Chapter 2 (Veracini 2011; Wolfe 2006, 2011) to trace the federal government's "logic of elimination" toward western Oregon Native peoples. I begin by reviewing the history of western Oregon during the first half of the nineteenth century. During this period, promoters, settlers, and federal officials pursued a tripartite mission: acquire Native land, displace Native communities, and affect the physical and/or cultural extermination of Native peoples. These actions imposed a settler colonial structure whereby Native peoples were "made savage" in their own lands. At the same, Native communities did not passively accept settler incursion. They steered the region's fledging economy, bent initial treaty negotiations to their interests and, during the Rogue River War, mounted sophisticated campaigns against settler aggression (Bergmann 2008; Lang 2013; Tveskov 2017; Whaley 2010). Though a full review of these actions lies outside the scope of this dissertation, it is important to note that Native peoples responded to challenge and opportunity in early colonial Oregon with the same creativity and persistence they would later draw on at Grand Ronde. Indeed, it was these early colonial encounters that set the stage for the reservation community's circumvention and resistance to assimilationist policies decades later.

Settler colonialism in western Oregon culminated, in the 1850s, with the removal of Native peoples and the establishment of the Grand Ronde Reservation. As I discuss in Chapter 2, reservations were proving grounds for new federal policies that replicated the state's commitment to long-term Native erasure. I explore this history via the Grand Ronde Land Tenure Project (GRLTP). I first outline the project's approach to identifying acts of survivance in the archival record despite the colonial underpinnings of source materials and cartographic tools. I then turn to reservation settlement patterns during Grand Ronde's early decades and following the implementation of the General Allotment Act. I argue that the Grand Ronde community imported long-important settlement patterns—and the relationships upon which they depended—to the reservation. In doing so, they refashioned Grand Ronde in the image of pre-reservation western Oregon. Reservation settlements, despite their outward similarities to those of settlers, functioned as fundamentally Native spaces. They were acts of residence that fostered spatial self-determination. It was not until the early twentieth century, when allotment morphed into a vehicle of mass dispossession, that this strategy faltered, requiring new strategies for residing at Grand Ronde.

WESTERN OREGON IN SETTLER COLONIAL IMAGINATIONS AND POLICIES

Over the past two centuries, the region bordered by the Columbia River to the north, the Pacific Ocean to the west, the Cascade Mountains to the east, and California to the south—what is now western Oregon—has been the site of a protracted colonial struggle. From the first explorer accounts in the late eighteenth and early nineteenth centuries, western Oregon piqued settler imaginations as a site of economic, agricultural, and territorial potential. Outsiders' first extended foray in the region came via the burgeoning Pacific fur trade. After brief trading encounters by Robert Gray, Lewis and Clark, and others, British and US mercantile companies established permanent footholds with Fort Astoria in 1811 and Fort Vancouver in 1825. In their pursuit of furs, primarily otter, beaver, and muskrat, traders became incorporated into and reliant on existing Native political networks and knowledge of local ecology. And while the small number of traders kept relations relatively peaceful, the threat of violence was ever-present (Douthit 1992). Traders rarely questioned their access to furs and saw Native peoples as uncivilized if useful pawns in achieving economic goals (Bergmann 2008; Lang 2013; Whaley 2010; Wilkinson 2010:62-64).

In the 1830s, two events upended this dynamic. First, epidemics of introduced diseases devastated Native populations. These ailments impacted Native communities well before traders' arrival, though the spread of malaria—"fever and ague" as it was known—in the early 1830s proved particularly deadly. Upwards of 90% of the region's Native population was lost (Boyd 1999a, 2013). Epidemics reordered western Oregon demography. Euro-American traders comprised an increasingly larger share of the resident population. And, as epidemics disrupted Native settlement patterns and political networks, they commanded greater control over the regional economy.

Second, declines in populations of beaver and other fur-bearing animals shifted colonial priorities. After nearly three decades of joint British and US occupancy, the Oregon Treaty of 1846 redrew imperial boundaries, ceding interest in Oregon to the United States. The treaty signaled the nation's growing interest in the region as a site of religious proselytization and permanent settlement. As Harley (1988:282) writes: "Insofar as maps were used in colonial promotion, and lands claimed on paper before they were effectively occupied, maps anticipated empire" (see also Brody 1981:117).

Indeed, during the in the 1830s and 1840s western Oregon became synonymous with the United States' presumed destiny of coast-to-coast territorial control. Promoters, many religiously affiliated, described the region's agricultural potential and agreeable climate in utopian terms, as a "New Eden" within which US promise would be realized (Robbins 2005:41; see also Clark 1981). The federal government took steps to ground Oregon's promise in tangible opportunity. In 1850, Congress passed the Donation Land Act, which awarded 320 acres to single individuals and 640 acres to married couples in Oregon Territory. That title to this land remained with Native groups did not prevent the act from passage. Encouraging settlers to stake out claims served as a self-congratulatory declaration of US territorial control, free from British interference and, Congress predicted, Native presence (Robbins 1974:11). Settlers would "hold their land against all comers" (O'Callaghan 1960:35).

Various pushes and pulls combined to encourage settlement in Oregon (Bowen 1978:17-21; O'Donnell 1991:8-11). In addition to land guarantees and agricultural promise, the discovery of gold in California and southwestern Oregon in the 1840s reinforced the region's image as synonymous with opportunity. Difficult economic and living conditions in the Mississippi and Ohio River Valleys supplied additional impetus. Together, these forces ushered in one of the most significant population movements in the nation's history. Between 1840 and 1860, 250,000 people migrated to the Pacific Coast. Of these, more than 50,000 settled in Oregon (Unruh 1979:290).

Settlers wasted no time establishing claims, especially within the fertile Willamette Valley, with little regard for existing Native settlements or seasonal rounds. As the settler population increased, so did impacts to Native lifeways. Imported pigs decimated camas fields, wild game populations decreased, and farm fences impeded Native movements and food gathering (Clyman 1928:149; Spores 1993:172).

The Donation Land Act exacerbated this process. Commentators later celebrated the act as coming "very near to meeting the classic homestead ideal—award of the best farmland to the actual settlers" (O'Callaghan 1960:34). It distinguished "actual" settlers from the region's Native residents and consigned Native landscape management and resource harvesting as improper uses of land. The act made manifest the federal government's commitment to the Jeffersonian ideal of the yeomen farmer in their emerging settler colony. It also followed from providential decree. For citizens of the young nation, "cultivation of land was a command of God and the Congress was merely facilitating the Lord's work in awarding land to settlers" (O'Callaghan 1960:35). Propelled by such rhetoric, settlers viewed the Oregon landscape as free for the taking and uniquely designed for US exploitation. Upon arrival, one settler remarked: "the great agricultural spots … are yet as the Creator left them, uncultivated, unclaimed" (Boag 1992:50).

Where newcomers saw an unchanging landscape of divine creation, Native peoples understood land as an outcome of reciprocity, of actions and relationships. *Illahee*, "land" in Chinuk Wawa, was imbued with stories, ecological intention, and social connection. It bore evidence of transformer figures who created the world and whose actions offered lessons for appropriate behavior toward human and nonhuman communities (Deur 1996; Jacobs 1990; Lewis et al. 2013). Its diverse topography and mild climate supported diverse plant and animal populations, though the abundance of these resources—which was widely celebrated by settlers—stemmed from sustainable harvest, prescribed burning, tending of plant beds, and other management strategies (Ames 2005; Boyd 1999b; Darby 2005). *Illahee* was both product and driver of Native lifeways.

Native settlement patterns exemplify this recursive connection between land and practice. For centuries, the location and composition of villages followed seasonal resource availability and inter-kin group relationships. During the winter months, extended families took up residence in autonomous, semi-permanent villages situated along waterways. Villages were often located near and regulated access to important fishing or plant gathering locations. They contained one or more households of related families and ranged in size from a few people to several hundred. In the summer months, residents dispersed into food harvesting groups, constructing expedient living structures throughout the region. They gathered, processed, dried, and stored plant and animal foods, which offered security for the leaner winter months to come.

Travel to fishing, gathering, and hunting areas also reinforced social and political networks. It placed families in contact with those from other winter villages, providing opportunities to strengthen ties via marriage and trade. Marriage patterns were exogamous, with wives generally relocating to the winter village of their husband. These women added linguistic and cultural diversity to their new homes and acted as ambassadors and translators between those of their natal villages and their husbands' residences. Affiliation with a particular village did not prevent individuals from strategically emphasizing ties with other groups or relocating to other villages as they saw fit. The diversity of familial bonds made group membership flexible. Settlements served as an important marker of Native identity, but they were not synonymous with discrete political units or "tribes" (Hajda 1984, 2013; Teverbaugh 2000; Zenk 1984).

The complexity of group identity in western Oregon complicated the federal government's expansionist aspirations (Robbins 1986:53-57). Since the nation's inception, the federal government had formally acquired Native land via treaty (Prucha 1994). During the late eighteenth century, treaty-making featured negotiations between relative equals (Banner 2005; Clinton 2014; White 1991). The US government depended on peaceful relations with Native groups along its western frontier and the treaties it signed were, if not advantageous to Native groups, far from the one-sided, coerced negotiations of later decades. As the nineteenth century progressed, treaty-making became increasingly asymmetrical. Native signatories came to the table by force or out of desperation, grappled with language barriers and US legal jargon, and were compelled to sign for diverse linguistic and cultural groups irrespective of local decision-making processes (Wilkinson and Volkman 1975).

The absence of bounded, hierarchical political units in western Oregon emerged as a problem. In 1851, treaty negotiators complained:

> The habitations of these people are…not only permanent but hereditary. Divided into bands or families, now reduced in number, but retaining each their separate chiefs, occupying their own lodges in the different districts of country, having no generic name, and no ties but a common language, it has been found generally impossible to amalgamate portions of even the same people. [Gaines et al. 1851:469]

In the face of this diversity, treaty negotiators drew on a taxonomy of "band" and "tribe" ethnonyms. These descriptors, borne out of early explorers' and traders' perceptions of Native groups, were arbitrary and inconsistently specific (Teverbaugh 2000:10-14). For example, Native groups in the Willamette Valley, with whom settlers had more frequent interactions, were frequently described along "band" lines synonymous with the river valleys of their winter village locations. By contrast, the culturally and linguistically diverse groups of southwestern Oregon were summarized as "Rogue Rivers." This moniker has roots in early 1830s violence between Native groups and Hudson Bay Company and US traders (Douthit 1992; Whaley 2010:79-81). Perceptions of "Rogue Rivers" as inherently violent persisted, laying the groundwork for settlers' genocidal campaigns in the 1850s.

The cultural accuracy of these ethnonyms was less important than was their political expediency. They offered rhetorical simplicity, a strategy for importing the region's complex cultural landscape into a familiar political framework. And more importantly to the federal government, ethnonyms established groups whose "chiefs"—another concept rooted more in settler expectations than Native political organization—could legitimize the transfer of title (Zenk 1990:549, 2017:7-8).

Through the manufacture of regional band and tribes, and their codification via treaty, the federal government affected another reordering of the western Oregon landscape. It reduced aspects of Native lifeways that federal officials did not understand—fluid group association, interrelated trade and political networks, and diverse familial backgrounds and obligations—to a series of rigid political entities with exclusive rights to vast swaths of territory. As Gooding (1994:1211) writes: "[ethnonyms] initiated a decontexualization of indigenous identity, a remapping from indigenous into tribal terms." By the time Native groups arrived at treaty negotiations, they were largely unable to dispute this new settler colonial landscape.

The final aspect of this "remapping" campaign was relocating Native groups. Treaties signed in western Oregon were among the first to incorporate the federal government's new reservation policy. As I discuss in Chapter 2, as waves of settlers inundated western territories, it was no longer feasible to segregate settler and Native populations. Federal officials responded by proposing small, isolated reservations that were to be located far from settlers—for the ostensible protection of both groups—monitored to track the movements and activities of Native communities, and bring about

Native cultural improvement. If Native peoples would not vanish under the crush of civilization, as many believed, reservations would achieve Native erasure.

In Oregon, the push for formal treaties began in 1850 when Congress passed the Oregon Treaty Act. The act directed the federal government to negotiate treaties with local Native groups. Treaties were to extinguish Native title, thereby clearing the way for land development and exploitation by settlers, and remove Native peoples from their homelands, preferably east of the Cascade Mountains. Congress selected newly appointed Oregon Superintendent of Indian Affairs, Anson Dart, to the lead the commission. Whaley (2010:183) argues that by establishing the treaty commission alongside rather than before the passage of the Donation Land Act "Congress acted as if the Indians and their claims were a mere formality to be accounted for on paper," further stating that these actions "[speak] volumes about how seriously the legislators took issues concerning Native sovereignty."

Commissioners' experiences in Oregon soon demonstrated that acquiring title was easier said than done. Over six months of negotiations at Champoeg in 1851, Native leaders steadfastly refused to leave their homelands. The place-based nature of Native lifeways made groups resistant to relocation, especially across the mountains. Santiam leader Al-que-ma summarized his community's position:

> We have been willing to throw away the rest of our country and reserve the land lying between the forks of the Santiam—you thought it was too much. Then we agreed to take only half of it and to take in the Kallapooyas beyond our south line, if they were willing—you thought it was too much…you want us still to take less. We can not do it…. We do not wish to leave this [land]. We would rather be shot on it than to remove. [Beckham 2006:122-123]

“The Natives of western Oregon,” commissioners conceded, “are possessed of local attachments of the strongest kind” (Gaines et al. 1851:469). Dart eventually abandoned removal altogether in favor of small reservations within each group’s ancestral homelands, complete with reserved hunting and fishing rights (Prucha 1994:247). He ultimately signed nineteenth treaties with Native leaders, primarily those in the Willamette Valley. When the treaties arrived in Washington, federal officials deemed them failures of the original Congressional directive and overly generous to Native groups. They were never ratified (Coan 1922; Spores 1993).

The failure of the Dart treaties, combined with the influx of settlers under the Donation Land Act, led to increased Native-settler tensions and ultimately to war. With the discovery of gold in California in 1848, thousands of settlers poured into the Rogue River Valley across the border in Oregon. Violent conflicts with local Native groups over land and resources became increasingly frequent. By 1853, volunteer militias composed predominantly of miners acted as vigilantes against Native aggression, real or imagined. The *Oregon Statesman* declared: “The present outbreak [of violence] has justly led all to the conclusion that *extermination is the only way to secure peace*” (O’Donnell 1991:149, emphasis in original). This genocidal intent was repeatedly put into action. Over the next two years, militias terrorized Native communities throughout southwestern Oregon. By late 1855, hostilities had erupted into open war. Eighteen months later, the conflict had claimed the lives of over four hundred Native people and nearly two hundred settlers. It was one of the deadliest Native-settler conflicts west of the Mississippi River (Douthit 2002:200-201; see also Schwartz 1997; Whaley 2016).

In an effort to limit further violence and rectify Dart’s failure to secure treaties sufficiently advantageous to the United States, new Superintendent of Indian Affairs Joel Palmer restarted treaty negotiations. Palmer laid the blame for hostilities at the feet of settlers bent on Native extermination and, more generally, of Congress for failing to acquire title before encouraging settlement (Robbins

1974:12). But he believed extinguishing Native title remained the only viable course of action: "My convictions of the propriety and necessity [of securing treaties] are daily deepened" (Coan 1922:29). Though Palmer's charge was identical to Dart's, he adopted different tactics during treaty-making. He criticized the Champoeg negotiations as a "gathering of different bands and tribes…to be paraded, petted and feasted at the public expense," which he suggested "gives them an importance in their own esteem to which they are by no means entitled" (Coan 1922:30). Instead, Palmer suggested approaching Native groups during "seasons [when] their wants are so numerous and pressing, that they yield a ready ear to terms" (Coan 1922:31). Palmer understood that foreign epidemics, settler violence, and unrelenting immigration left Native groups in a weaker bargaining position compared to only a few years prior. At the same time, he knew Native leaders would remain unwavering in their refusal to remove east of the Cascades. He conceded this point but took local reservations off the table. In his view, reservations should serve as retreats that would shield Native peoples from settler violence and vice and provide the government with an opportunity to "save and elevate a fallen race" (O'Donnell 1991:146). He surveyed the central Oregon coast in 1854 and concluded that it represented a suitable reservation site. Between September 1853 and December 1855, Palmer negotiated seven treaties with Native groups that formally transferred title over 14 million acres of western Oregon land. All received Congressional ratification. Palmer negotiated an additional treaty with Native groups along the coast. For logistical and political reasons, the treaty was never ratified, though Native signatories, who were removed to Siletz, were held to its terms (Wilkinson 2010:141).

In exchange for nearly all of western Oregon, Palmer's treaties established several temporary reservations at which tribes would reside until a single, permanent reservation was selected. Palmer's preferred location was a 100-mile stretch along the coast. The one million-acre Coast Reservation (later, Siletz Reservation) was established via executive order in 1855. Palmer originally conceived the 61,440-acre Grand Ronde Reservation, situated along the South Yamhill River immediately to the east, as a temporary holding area for Willamette Valley groups. In 1857, President Buchanan instead established Grand Ronde as a separate reservation by executive order (Lewis and Kentta 2010).

The location of the reservation outraged local setters. They saw the confederation of Rogue River War combatants in western Oregon, let alone the Willamette Valley, as an affront to their safety (Bancroft 1888:397-398). One accused Palmer of working for the "accommodation of the natural enemy of the white man" (O'Donnell 1991:261). Another warned: "You have aided and encouraged Indians to commit outrages upon the whites…setting yourself up as the special advocate of the savage" (O'Donnell 1991:262). These statements found sympathetic ears among Oregon's politicians, contributing to Palmer's dismissal in 1856.

Whatever settlers' opinions of the treaties, their signing set in motion Oregon's Trail of Tears. The first Native removals took place in late 1855 in the Willamette Valley. Palmer recruited local agents to begin "collecting" communities onto temporary reservations. The following January and February, Native groups were forced to leave their homelands and possessions and march to Grand Ronde (Spores 1993). Native communities in southwestern Oregon faced more arduous journeys. In January, about 500 Umpqua and southern Willamette Valley people were forced to march to Grand Ronde. Enduring heavy rains and snow, the march lasted nearly a month. Four died of sickness; one was murdered by local settlers (Bancroft 1888:398; O'Donnell 1991:251-252). The following month, 400 people set out from the Table Rock Reservation in southwestern Oregon. Thirty-three days and over 250 miles later, they arrived at Grand Ronde. Eight died along the way, including one at the hands of extermination-minded settlers (Beckham 1996:17-18). Tribal members continue to question the timing of these marches. With spring, and a less difficult journey, only a few weeks away, they "wonder if [the government's] real goal was attrition" (Merrill and Hajda

2007:123). In June and again in July, military personnel loaded 700 people camped at Port Orford along the southwestern Oregon coast onto the steamship *Columbia*. The ship's average passenger load was 100. After a difficult three-day journey, the ship arrived in Portland, after which its passengers were ferried to Dayton, marched to Grand Ronde, and then on to Siletz. Also in July, over 100 people were marched 200 miles from Port Orford to Siletz. Many of these individuals had been involved in the Rogue River War and, rather than travel via steamship, were forced to walk as retribution. Military personnel rained abuse on individuals throughout the journey, and many are believed to have died along the way (Wilkinson 2010:164-165). By the end of 1857, removal had brought approximately 2,000 people to Siletz and 1,200 to Grand Ronde.

The establishment of these reservations was the culmination of a decades-long effort by the United States to wrest control over western Oregon land and resources. Foreign epidemics, demographic shifts, and violence combined to destabilize Native connections to their homelands. By the mid-1850s, Native groups had little choice but to sign treaties exchanging their land for a reservation a fraction of the size. And yet, this was not the end of the government's campaign to disrupt Native settlement patterns or to acquire Native land. Over the next century, the community at Grand Ronde grappled with assimilationist policies and dispossession. The Grand Ronde Land Tenure Project was established to understand this history across space and time.

SURVIVANCE STORIES REFRACTED THROUGH COLONIAL DATASETS AND TOOLS

The Grand Ronde Land Tenure Project sought to document the spatial history of the Grand Ronde Reservation. Grand Ronde has been the subject of historical (Beckham 1977, 2018; Lewis 2009, 2014; Lewis et al. 2013; Merrill and Hajda 2007; Teverbaugh 2000), linguistic (Johnson 2013; Schrock and Zenk 2017; Zenk 1984), and archaeological (Gonzalez et al. 2018) research. This corpus provides valuable information about the reservation's economic and political landscape during the nineteenth and twentieth centuries, including the strategies employed by reservation families to balance participation in assimilationist policies and preserve pre-reservation practices. Missing from these accounts, however, is an understanding of this history in spatial terms. This leaves several questions unanswered. Where did reservation families live on the reservation at different points in time? How were reservation settlements organized? And how did allotment change patterns of land ownership?

These questions are not simply gaps in Grand Ronde historical scholarship. They are barriers to historic preservation and, in turn, tribal members' access to and understanding of their heritage. Without information about the location and nature of reservation homes, land ownership, and economic activities, HPO staff are unable to identify and fully protect cultural resources ahead of land use planning, economic development, and parcel acquisition. The Grand Ronde Land Tenure Project thus understood capacity building and historical inquiry as interrelated goals. By expanding the breadth of tribal archives, the project would create future research opportunities for tribal members and affiliated scholars. Digitization and analysis would aid historic preservation efforts and enhance the community's understanding of their history and land. And the project's emphasis on community-defined research questions ensured that resultant information would be relevant and useful to tribal members and staff.

Arriving at a fuller understanding of reservation spatial politics was not a straightforward endeavor. It required that I work with HPO staff to develop an approach to identifying and extracting evidence of Grand Ronde survivance from maps and documents composed by non-Native authors. I had to simultaneously recognize archival datasets' role in the "management" of the reservation community and develop analytical procedures capable of reclaiming them for the benefit of the tribal nation.

Throughout the life of the project, HPO staff emphasized the partial and fragmentary nature of these sources' representations of reservation life. Some of the maps, such as allotment surveys, were part of campaigns to extend federal control over tribal land. Others actively erase tribal members from the reservation landscape. Metsker Atlases made in the 1940s, for instance, list the names of settler landowners while omitting those of many Native landowners. Regardless of whether these individuals held their parcels in fee or trust, the maps list these parcels as simply "Indian Land" or "U.S. Government." That I could repurpose datasets rooted in the dispossession and erasure of Native people and contribute to tribal historic preservation could not be assumed at the outset. I first had to confront the relationships between map making, archival knowledge, and the United States' settler colonial project.

In Chapter 3, I argue that the HPO's approach to meaningful consultation and support of other tribal departments springs from a holistic understanding of Native heritage and its contemporary resonance. At the same time, HPO staff regularly rely on the reports, surveys, maps, and other archival information created by non-Native authors, many of whom expressed hostility toward Grand Ronde lifeways, identities, and self-determination. That staff draw on these sources to advance community-defined projects speaks to their commitment to counter-mapping, whereby the tools of historical oppression are remade into products of social good (Palmer 2012; Peluso 1995). Counter-mapping is rarely an easy process. Engaging with colonialist datasets recalls difficult tribal and, for many, personal histories. Removal, allotment, and termination strained tribal members' connections to their ancestral homelands, cultural lifeways, and extended families. Moreover, as I discuss below, maps and documents do not simply reflect these histories but contributed to the development and implementation of related policies. HPO staff know, however, that associating these datasets exclusively with trauma and loss is an incomplete telling, one that overlooks the diverse ways the community secured continuation.

The Grand Ronde Land Tenure Project is an expression of the HPO's counter-mapping efforts. Historic preservation staff challenged me to create a comprehensive account of reservation land and its competing roles in settler colonial policies and acts of Grand Ronde survivance. Doing so required that I look beyond surface readings of archival material, to peruse the margins and read between the lines for evidence that destabilized the narratives of "progress" presented by agents. To use the words of Māori scholar Linda Tuhiwai Smith (2012:146-147), my task was to implement an Indigenous project of remembering and celebration. According to Smith (2012:147), Indigenous histories contain "frequent silences and intervals in stories about what happened" after traumatic events. Filling in these silences, documenting what occurred and how people responded, can contribute to healing. This process also gives cause for celebration. The Grand Ronde historical record supplies ample evidence for tribal members' persistent, creative resistance to the wishes of reservation agents and federal policymakers. These stories "are important not just because they speak to [tribal members'] survival, but because they celebrate being at an ordinary human level and affirm [their] identities as indigenous women and men" (Smith 2012:146). The authors of historical maps and associated documents, for all their rhetoric about the inferiority of Native lifeways, preserved evidence of the community's success in proving those assessments wrong.

Framing the GRLTP as one of remembrance and celebration clarified my approach to engaging with archival material. I then worked to broaden my understanding of how, why, and to what end these datasets were used during the nineteenth and early twentieth centuries at Grand Ronde. To do so, I turned to the sizable body of anthropological and historical scholarship on the colonial archive—the vast assemblage of spatial, documentary, visual, and ethnographic observations made by colonial agents about Indigenous and non-European peoples (Zeitlyn 2012). Stoler (2002, 2009) contends that the colonial archive maintains dual functions: (1) as a repository of ideologically and culturally situated representations of colonial subjects and (2) as a locus of knowledge production whereby the creation, curation, and dissemination of state-sanctioned information sustained and justified colonial projects. The documents, reports, maps, and photographs that comprise the colonial archive propped up insulated discursive arenas in which the "simulated realities of tribal cultures" (Vizenor 1999:23-24) were both manufactured and act upon. The colonial archive is thus both an assemblage of representations and a propeller of policy, and it says as much about its recorders as its subjects.

For contemporary scholars, these dual functions come with opportunities and challenges. On the one hand, the selective and biased depictions of colonial subjects, what Palmié (2002:56) terms "archival disfiguration," may render certain questions about Native history unanswerable, regardless of analytical procedures or reliance on complementary lines of evidence. On the other hand, Lopenzina (2010:210) argues that even if the "past lives of Native peoples flicker like shadows" within the archive, "a shadow may still form an impression, may still inform the manner by which we judge space and distance" (see also Vizenor 1999:63-106). To train their eyes to see these shadows of presence, scholars must focus on the archive's content—what sources emphasize and overlook about Native lifeways—as well as its priorities and discursive norms. Why and with what language did reservation agents describe Native lifeways? What messages were they attempting to impress on their superiors? And how were these observations used to support colonial policies? Keeping these questions in mind is necessary for cultivating a critical engagement with the archive, one that does not unwittingly reproduce its semantic or ideological underpinnings and, at the same time, produces fuller accounts of Native histories.

As I note above, the federal government leveraged observations about western Oregon Native peoples supplied by explorers, traders, missionaries, and settlers well before the creation of the Grand Ronde Reservation. The treaty-making process, Donation Land Act, and creation of regional "tribes" incorporated archival insights and increasingly justified US colonial interests—primarily economic exploitation and territorial expansion. Archival knowledge also crystallized federal officials' cultural expectations about Native people—namely, that they were doomed to extinction without the intervention of cultural "uplift." This presumed destiny facilitated removal, reservation administration, and, later, termination. Archival knowledge clarified Native peoples' place, or more accurately absence, in US society (Comaroff and Comaroff 1992:35). "The theses of extinction, abandonment, and assimilation," Wylie (1995:260) writes "became self-fulfilling colonial ambitions."

The work of the first federal surveyors in Oregon exemplifies the archive's dual roles and the importance of spatial information within it. In 1851, a team of surveyors extended the township and range system to western Oregon. In doing so, they "helped…sustain the continuum of western expansion, shape the mid-nineteenth-century landscape, and promote growth" (Atwood 2008:4). Stegner (1962:86) celebrates surveyors as "[dousing] with system what was once the incandescent excitement of danger and the unknown." The township and range system reified settler understandings of property division and ownership with little regard for existing Native conceptions of or connections to land. It "anticipated empire" by paving the way for the Donation Land Act, settler immigration, and treaties and by submitting to the colonial archive a vision of western Oregon devoid of Native presence or action.

The ideological basis of Stegner's position—that land requires systematic taming—is not a relic, nor is it confined to historical datasets. It also underpins the analytical tools used in the GRLTP. I completed map digitization and analysis in ArcMap, a GIS program rooted in settler conceptions of the natural world. The software allows users to place ostensibly chaotic geospatial phenomena into bounded, hierarchical datasets. These datasets may then be manipulated in isolation, with little to no reference to related atmospheric, geological, biological, or human processes (Rundstrom 1995:47). For all its analytical power, the application of GIS to Native history is fraught with ontological dilemmas. For many Native communities, humans and nonhumans exist within relational webs of obligation and connection. Analyzing these phenomena individually may at best produce partial understandings of the larger cultural and natural systems they inhabit (Rundstrom 1995; Palmer 2012); at worst, such fragmentary understandings may destabilize these systems altogether (Atleo 2004).

Furthermore, GIS risks eroding modes of inter-generational knowledge transmission. Within many Native communities, cultural landscapes are known through action and story. Visiting hunting, gathering, and fishing locations, places of spiritual power, and sites that reveal the creation and ordering of the world renews human relationships with their surroundings. Within GIS, these teachings may be flattened into static and simplistic representations, divorced from their experiential and instructive contexts. And once Native cultural knowledge exists digitally, the process by which it is organized and analyzed may be tailored to users' culturally-specific views of the environment and humans' role within it. If these users do not belong to or work alongside Native communities, their use of GIS may result in negative impacts.

Lastly, importing Native spatial knowledge into a GIS environment raises questions about data access and sharing within and beyond the community. Telling stories about particular places may be restricted to certain seasons or gatherings. It may be inappropriate to share certain information with individuals outside specific families, genders, or age classes. And some knowledge may be sensitive such that sharing with non-community members can cause physical and spiritual harm. Without proper data curation policies, GIS digitization functions as another extraction of Native knowledge into the colonial archive (Harris and Hazen 2006; Rundstrom 1995).

These concerns are not hypothetical. Palmer and Rundstrom (2013) found that over a period of three decades, the Bureau of Indian Affairs (BIA) failed to incorporate tribes' interests in GIS land and resource management. Analysis of BIA archives showed that federal officials shut tribes out of planning meetings and frustrated their attempts to pursue self-determined policies. These actions, they argue, arise from federal paternalism, which has long-cloaked settler colonial policies under the guise of "what is best for" Native communities (Palmer and Rundstrom 2012:1154). The history of GIS is thus little different from that of archaeology, and this baggage cannot be overlooked when proposing GIS-based study of Native lands.

GIS in the Service of Native Nations

As with most aspects of Native history, however, the actions of the BIA do not tell the full story. During the same period analyzed by Palmer and Rundstrom, Native communities developed sophisticated GIS programs that reflect and contribute to tribal goals. They have shown that the software, though grounded in non-Native ontologies, is also suitably flexible to be of use to tribal nations (Pearce and Louis 2008:107). A growing corpus highlights the potential of tribally-driven GIS in governance, cultural heritage preservation, natural resource management, land and water rights advocacy, and economic and health care planning (Berry 2008; Cancel and Backhouse 2017; Hunn et al. 2015; Laituri 2011; Rundstrom et al. 2000; Taylor et al. 2017). Though the use of GIS within Native communities does not by itself resolve potential issues in the representation and analysis of Native spatial knowledge (Rundstrom 2013), tribes are taking steps to balance the software's analytical utility with culturally-appropriate data curation guidelines and participatory mapping programs that strengthen place-based, inter-generational learning.

In the same vein, Grand Ronde historic preservation staff see GIS as a tool like any other. When used carelessly, it poses real danger to Grand Ronde knowledge and places. But when used within a community-centered research design, it opens up new avenues for celebrating and coming to know past and contemporary landscapes. HPO staff have used GIS to create story maps visualizing the travels of South Wind, collaborated with the researchers to model paleoshorelines potentially used by western Oregon Native communities in the Pleistocene (Curteman et al. 2018), and drawn on tribal members' knowledge to identify and protect food gathering locations.

During the GRLTP, I worked with historic preservation staff to interrogate the origins and goals of recovered maps, discussed the motivations of reservation agents and authors of primary sources, and ensured GIS procedures mirrored those used in their office. Staff regularly referenced historical accounts and community knowledge that added new dimensions to my surface readings of project datasets. We also continually updated the project's analytical approach to maximize the information recovered from maps and documents. We were mindful of the "weight of histories of dispossession, disappearance, and displacement" (Shanley 2015:6) within these datasets but took steps to open up possibilities for new historical insight.

PROJECT METHODS

The GRLTP employed a three-step methodology. In Step 1, I visited regional archives to identify spatial datasets with relevance to reservation history. In Step 2, I digitized these datasets within ArcMap. And in Step 3, I investigated what these datasets reveal about early reservation settlement patterns and the short- and long-term impacts of allotment on tribal land tenure. These phases were not strictly sequential. As new sources became available or known to me, I restarted the acquisition, import, and analysis process. That being said, the bulk of Steps 1 and 2 took place between August and December 2014 and Step 3 between January 2015 and March 2017.

Step 1: Data Acquisition

After formally establishing the GRLTP, I worked with HPO staff to identify regional archives likely to contain georeferenceable, visual data (i.e. maps and aerial photographs) with information about parcel division, economic activity, and/or land use in the townships including and immediately surrounding the boundaries of the original reservation (Figure 4.1). Between August and December 2014, I visited 12 visual data repositories in Washington and Oregon and contacted National Archives repositories in Washington, D.C. I identified 47 maps and hundreds of pages of associated documents that were not present in tribal archives. No new aerial photographs were identified. High-resolution scans of each map and photographs of documentary material were obtained in late 2014 and early 2015. The 47 maps date to between 1868 and 1975. The authors, purposes, and intended audiences of the maps vary, ranging from assessments of timber holdings to inventories of county tax lots. The land tenure information within these maps is similarly broad. Some note only parcel division and owners' names. Others provide higher resolution data such as the location of structures and land use activities.

Step 2: Map Digitization

At the University of Washington's Digital Archaeology Laboratory, I imported map scans into ESRI's ArcMap software. None of the maps contained spatial reference information. Digitization, the conversion of map information to vector data (points, lines, and polygons, each with associated attribute information), does not necessarily require spatial reference. However, without this information, I would not be able to conduct advanced analytical procedures and HPO staff would be unable to integrate project datasets into tribal archives. I thus georeferenced all map images before proceeding with digitization. With two exceptions, all maps were re-projected using the Oregon Statewide Lambert Feet International coordinate system, which is used by the HPO and the state's GIS office. I placed control points at permanent features present in map scans and publicly available datasets on the Oregon Geospatial Enterprise Office. For most maps, I used the intersections of Oregon townships. In maps without townships boundaries, I used other permanent or semi-permanent features (road intersections, river courses, structures, etc.).

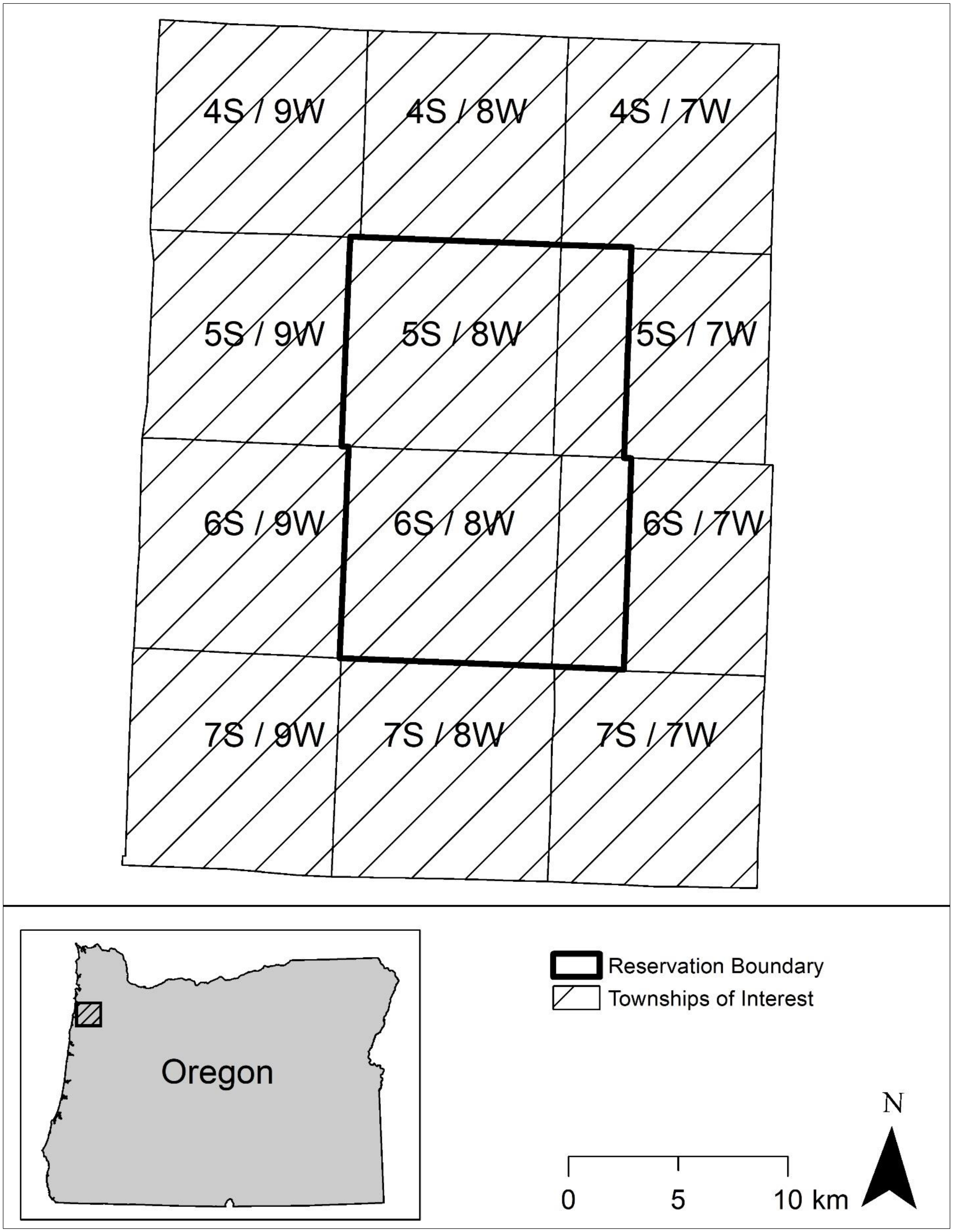

Figure 4.1 Townships targeted during data acquisition.

I selected at least four control points for each map to minimize root mean square error and relied on first-order transformations to complete the georeferencing process while minimizing image distortion.

I then began digitization. Using ArcMap's vector editing tools, I created feature classes for each map. Within each feature class, I traced polygons for each parcel and structure. The structures category included buildings as well as larger non-physical entities such as national forests. I left natural features (e.g. rivers and mountains) and transportation networks (e.g. roads and railroad lines) undigitized. Attribute fields for each polygon depended on map information but at minimum included map name, date of creation, parcel size in acres, notes (i.e. other information included on the map), and comments (i.e. my observations about possible relationships between this parcel and other parcels, in this and other maps). When parcel owners were listed, I created attribute fields for individual, government, and company names. Structure attributes were recorded in two places: in the polygon representing each structure and in the polygon of the parcel in which it was located. This approach allowed me to select structures individually while preserving links with the larger parcel. In the final step of the digitization process, I used ArcMap's topology tools to identify and correct gaps and overlaps between parcel polygons. I then submitted all georeferenced map images and associated GIS layers to the HPO for inclusion in Grand Ronde archives.

Step 3: Analysis

Lastly, I turned to analysis. I focused on answering two questions, both of which were developed in collaboration with HPO staff. First, what do project datasets reveal about daily life at Grand Ronde between the establishment of the reservation and the implementation of the Dawes Act in 1889? During this period, reservation residents grappled with a host of challenges while living on an unfamiliar landscape. Yet they also enjoyed a degree of freedom—at least relative to the post-allotment period—to use and settle the reservation as they saw fit. I explored this dynamic with three sources of data. The first was the Hazen Map (Figure 4.2). This hand-drawn map, created by Fort Yamhill's Lieutenant William Hazen, depicts the location and population size of reservation settlements in 1856. According to Hazen, the initial reservation population, which he lists at approximately 1,500, lived in group-specific encampments along the South Yamhill River in the east-central reservation.

I combined the Hazen Map with the writings of Grand Ronde agents to sketch an image of early reservation life. In their yearly reports to the Commissioner of Indian Affairs, reservation agents described the community's "progress" in adopting settler lifeways, noted administrative and budgetary issues, proposed policy improvements, and offered their overall assessment of the state of the reservation. As discussed above, their assessments cannot be taken at face-value—agents were quick to emphasize the success of their initiatives and disparage those of their predecessors—but their descriptions offer clues into the ways reservation families built new lives on the reservation. Focusing on agent reports published between 1855 and 1890, I noted each reference to reservation houses, settlements, and land use.

Allotment records provided a temporal bookend to this early reservation period. When allotting Agent Collins arrived in Grand Ronde in 1889, he entered a thoroughly settled landscape. Over the preceding three decades, Native groups had built homes, tended farms and gardens, and established settlements. Federal officials, aware that they could not overlook these "improvements" during the allotment process, instructed agents to preferentially awarded parcels encompassing allottees' existing homes and/or farms. At Grand Ronde, this stipulation effectively summarized tribal members' existing settlement and land use activities. By examining the distribution of allotments and cultural affiliation information recorded by agents, I examined how settlement patterns had changed, if at all, compared to the Hazen Map.

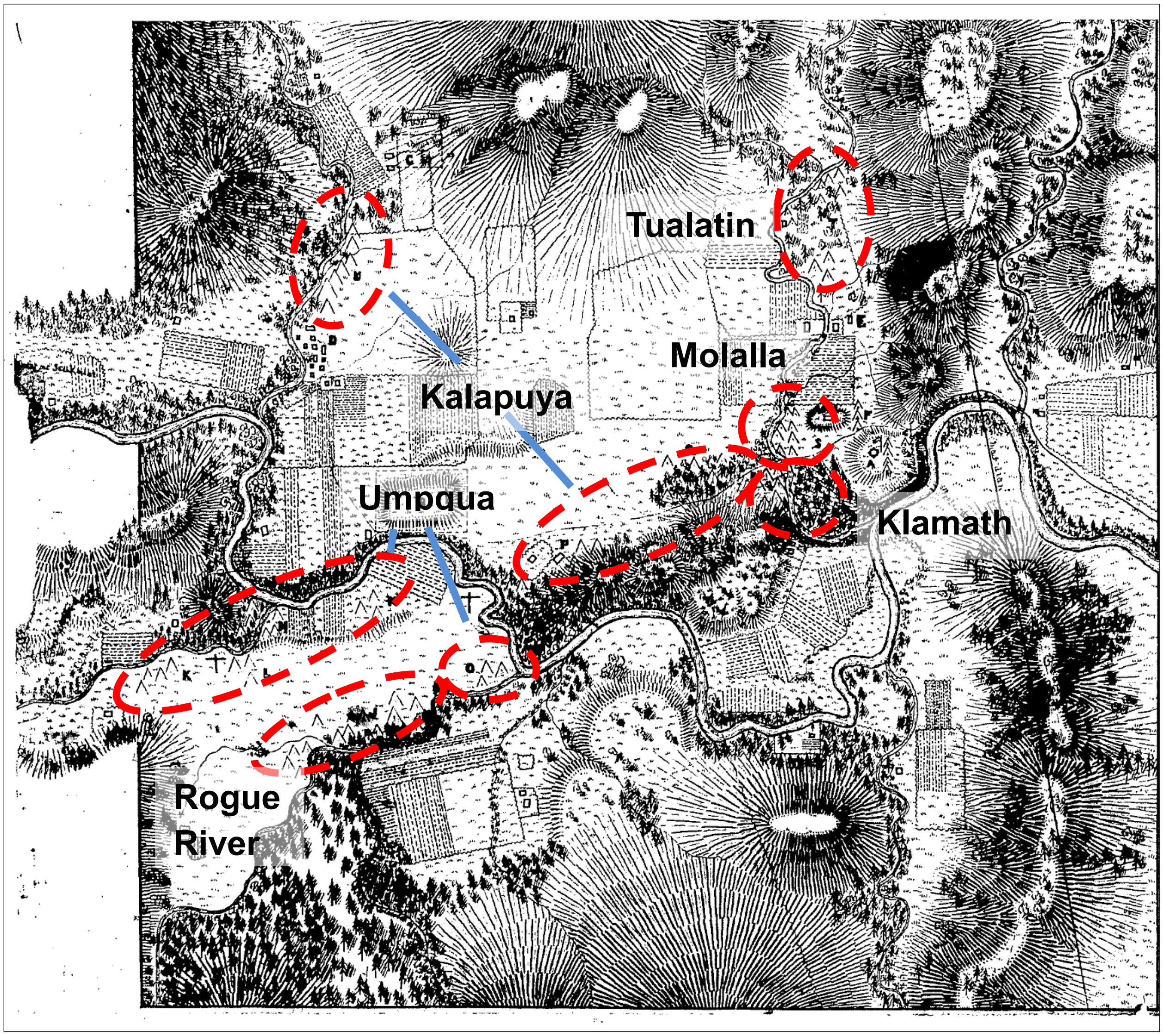

Figure 4.2 The Hazen Map (1856), showing the location and affiliation of early reservation encampments.

The second question I sought to answer concerned allotment's impact on tribal land tenure. In 1889, Grand Ronde was among the first group of reservations selected by President Cleveland to be allotted. Allotment was to be an "Indian Magna Carta" (Hoxie 1984:70), a liberation from traditional lifeways and a thrust toward assimilation. In reality, the policy led to widespread Native dispossession. Before the start of the GRLTP, historic preservation staff knew allotment led to significant land loss during the early twentieth century. But they were unsure about the pace of dispossession across time and space. To bring additional clarity to this question, I compared allotment distributions with federal surveys and reports from subsequent decades to create a timeline of individual trust ownership at Grand Ronde.

GRAND RONDE DAILY LIFE, 1856-1889

In the winter of 1855 and 1856, western Oregon Native peoples endured traumatic, lethal removals from their homelands to the Siletz and Grand Ronde Reservations. Agents reported that by the end of 1856, approximately 1,900 people were camped at Grand Ronde (Miller 1857:361). The following May, agents transferred most Rogue River and Shasta families to Siletz, out of concern that these "warlike…proud and haughty" (Miller 1857:361) groups posed a threat to settler towns and farms to the east. Agent Miller assured his superiors that "by far the most peaceably disposed of the whole tribe" (Miller 1857:361) remained at Grand Ronde. The remaining reservation population stood at approximately 1,200 people (Browne 1858:22; Nesmith 1858:216).

In 1858, with the Grand Ronde Reservation officially established by executive order, Oregon Superintendent of Indian Affairs J.W. Nesmith summarized his goals for the territory's reservations:

> separating the two races…giving [Natives] subsistence until they could be taught to obtain it for themselves by cultivating the soil…[and] inculcating in them such habits of industry and sobriety, as would eventually result in at least their partial reformation from the most abject barbarism to something approaching a civilized state. [1858:215]

This three-pronged plan—physical isolation, agricultural instruction, and cultural reformation—was enacted by reservation agents with varying degrees of success. Physical isolation was maintained by the military garrison at Fort Yamhill. The fort was situated along the reservation's eastern border and offered clear sightlines of the encampments noted by Hazen—and presumably later settlements.

Officially, the fort was installed for the mutual protection of settlers and reservation residents. In practice, it functioned as the reservation's jail, incarcerating individuals that attempted to leave Grand Ronde without permission (Barth 1959:137; Merrill and Hajda 2007:126).

Attempts to establish a self-sustaining agricultural economy proved challenging. In 1857, Agent Miller (1857:367) "caused the arable portions of the reservation to be surveyed and set apart to the several tribes." Yet reservation residents had little familiarity with settler agriculture and endured shortages of treaty-promised supplies and agricultural staff. Agents submitted yearly entreats for additional funds, rations, and equipment, often to no avail. In 1858, faced with steep budget shortfalls Superintendent Nesmith (216) resorted to sarcasm: "I shall have no alternative left but to turn the Indians loose to obtain their living by robbing the whites." The reservation landscape also stymied agricultural efforts. Grand Ronde's damp weather and "notoriously unproductive" (Miller 1859:430), clay-rich soils led to uneven yields of potatoes, wheat, oats, and garden vegetables in good years and widespread failures in others (Browne 1858:25). In 1861, Superintendent Overman (166) expressed what was by then a common frustration: "The crops this season have been very light…. The land was so foul as to seriously injure the grain." The lack of food and supplies, combined with inadequate health care, led to widespread suffering. That the Hazen Map, created only months after removal, includes several ostensible cemeteries, speaks to the hardships endured by the early Grand Ronde community (Figure 4.2). The reservation population steadily declined over the reservation's first three decades; the 1887 reservation census listed less than 400 people (McClane 1887:184).

Amidst this hardship, families supplemented their diets with wild foods. Fortunately, what Grand Ronde lacked in arable land, it made up for in productive hunting and fishing grounds and gathering areas. The reservation landscape supported a variety of plants and animals, including deer, elk, small mammals, berries, and other plant foods (Barth 1959; Jacobs 1959b:565; Lafollett

1869:168-169; Ostrander 1857:369; Sinnott 1877:170). However, local food sources were likely insufficient to feed the reservation population, as families often left Grand Ronde to visit food harvesting locations. These included fishing locations along the coast (Condon 1863:83; Sinnott 1877:170) and in the Willamette Valley (Miller 1860:217), including the lamprey eeling grounds at Willamette Falls (Beckham 2018; Lewis et al. 2013). Agents at Siletz complained that students frequently left school to accompany their parents on hunting and fishing trips (Geary 1860:212). Similar practices likely occurred at Grand Ronde.

Beginning as early as 1861, Native families also found work off-reservation, primarily during the summer months. Men worked in the timber industry, as farm hands, and at canneries. Women sold baskets and worked in settlers' homes. And entire families travelled from farm to farm picking hops, beans, and berries (Berreman 1934:58; Ead 1861:163; Harvey 1867:78; McClane 1887:184; Rector 1862:256; Schrock and Zenk 2017:86-98, 136-140). These activities placed Grand Ronde families in contact with those from other reservations, presenting opportunities to strengthen familial and cultural bonds. For centuries, summer was a time for harvest, travel, and socializing. Though removal altered summer activities, the season's underlying cultural importance remained much the same. Farm labor was a new expression of the seasonal round (Lewis 2009:124; Raibmon 2005). Agents disagreed on the merits of off-reservation work (compare Lafollett 1870:62 and Lane 1887:190), but even opponents conceded that in the absence of local employment opportunities they had little choice but to permit leave.

The third prong of agents' assimilationist mission, "inculcating in them such habits of industry and sobriety" (Nesmith 1858:215), took several forms. Agents discouraged reservation residents from continuing pre-reservation medicinal practices, compelled children to attend on-reservation day schools—and later, off-reservation boarding schools—endorsed the efforts of Christian missionaries, and urged families to adopt settler dress, gender divisions, and household practices (see Lewis 2009; Merrill and Hajda 2007; Zenk 1984, 2017 for a review of these practices). Often regarded as central to "elevating" Native lifeways was the erosion of reservation "tribes," or what is better understood as pre-reservation social organization. In 1879, Agent Sinnott proclaimed: "I have now succeeded in entirely dissolving the tribal relations among these Indians…and it is now often difficult to ascertain to what tribe some of the younger Indians belong, so completely have they ignored their former chiefs" (Sinnott 1879:124-125).

The actions of the Grand Ronde community present a different story. Records from the reservation's legislative assembly, which were composed by Grand Ronde residents rather than federal overseers (Zenk 2017:9), reveal that community representation originally adhered to tribal distinctions. This changed in 1876, when the community opted for representations based on three reservation precincts. As I discuss below, these precincts approximate the location of different reservation groups during the period between removal and allotment. Furthermore, marriage patterns remained exogamous (Zenk 1984:106-110), and during reservation games and competitions, bystanders backed members of their tribe or reservation precinct (Schrock and Zenk 2017:286-290). If anything, the reservation's early decades were characterized by a decline in the importance of "tribal" identities, which had always been flexible and multi-faceted, and an attendant emergence of identities rooted in reservation residence location.

This period also witnessed the emergence of a reservation-wide, Grand Ronde identity. Persistent assimilation pressures, federal paternalism, and settler prejudice fostered an acute awareness within the community that they were part of a very particular Native group. Despite their diverse familial backgrounds—as Tualatin, Shasta, Umpqua, and so on—those living on the reservation were marked as "Grand Ronde" (Zenk 1984:115).

Perhaps the clearest sign of an emergent Grand Ronde identity was the adoption of Chinuk Wawa as the reservation's unofficial language. Also known as Chinook Jargon, Chinuk Wawa served as the primary linguistic medium between Native people and traders and settlers in the Pacific Northwest during the late eighteenth and early nineteenth centuries (Zenk and Johnson 2010, 2013). For the founding Grand Ronde community, Chinuk Wawa served a similarly functional role, facilitating communication and cooperation between speakers of the reservation's eight Native languages. Over time, the language became a common part of daily life, especially among younger generations, who spoke it at reservation day and boarding schools (Clark 1866:82; Sawtelle 1863:84). And even as community members became increasingly proficient in English, many continued to speak Chinuk Wawa, both out of respect to elders and to signal their identity as a member of the Grand Ronde Reservation community (Zenk and Johnson 2010:458-459). In recent years, Grand Ronde has published a Chinuk Wawa dictionary (Chinuk Wawa Dictionary Project 2012) and established elementary education immersion programs and adult learning courses. The language remains a vibrant part of community life and is a salient marker of Grand Ronde survivance.

Nineteenth century settlement patterns offer another discrepancy between agent accounts and on-the-ground lifeways. As noted by Lieutenant Hazen, the founding reservation population lived in band- and tribe-specific encampments immediately following removal (Figure 4.2). As discussed above, the use of "band" and "tribe" ethnonyms misrepresent group affiliation among Native communities. The encampments more likely represent collections of extended families with one or more primary languages and seasonal rounds tied to particular ancestral homelands. Given what these groups had just experienced—land seizures under the Donation Land Act, environmental degradation, and settler violence—the establishment of familial habitation groups is not altogether surprising. More notable is that familial relationships appear to have determined settlement location as well as composition. Native groups with ties to northwestern Oregon ("Kalapuya" and "Tualatin" on Figure 4.2) settled north of those with ties to southwestern Oregon ("Rogue River" and "Umpqua") and west of those with ties to the Cascade Mountains and eastern

Oregon ("Molalla" and "Klamath"). The South Yamhill River, which tribal members later described as a cultural and linguistic boundary and divider between the reservation's south and east/west precincts (Zenk 1984), separated the two groups.

With this initial settlement strategy, the Grand Ronde community refashioned the spatial underpinnings of the reservation landscape into a microcosm of pre-reservation western Oregon. This was the community's first declaration of Native presence, a signal that they would not acquiesce to the federal government's assimilationist agenda or abandon the relationships that had structured lifeways for millennia. Grand Ronde was a foreign and hostile landscape, but it also quickly became a landscape marked by Native intention and action.

Unfortunately, little else is known about these early encampments, including the types of structures they contained and whether they represent short-lived campsites or more permanent settlements. Victoria Howard later recounted to anthropologist Melville Jacobs that following removal "they gave us just sail houses (tents)" (Jacobs 1959b:552). Howard may have been referring to canvas Sibley tents, an interpretation supported by Hazen's use of triangles to denote encampment location. Other details about early reservation structures come from agent reports. In 1857, Agent Miller claimed nearly 200 temporary, dirt-floor houses had already been built on the reservation (see also Browne 1858:26). Ten years later, Agent Harvey (1867:78) claimed that the reservation community had lived in "brush or dirt houses" following removal. These structures may have been temporary, built alongside or to replace Sibley tents. Alternatively, Harvey may have been describing summer dwellings, not unlike those mentioned by John B. Hudson. He told Jacobs that during the summer months families camped in five-foot-tall "windbreak shelters," which they built of fir limbs and placed under oak trees (Jacobs 1945a:39).

"Speedily," Howard continued, "we lived in log houses" (Jacobs 1959b:552). Log and timber frame houses similar to those built by contemporary settlers appear to have been the primary reservation dwelling (Miller 1857:362). No plank or pit houses, common residences in pre-reservation periods, were built at Grand Ronde until the twentieth-first century. Whether this stemmed from a lack of necessary materials and/or labor, explicit sanction by agents, or both is unknown. Within a few years, log and timber frame houses dotted the landscape. "Nearly all of these Indians have comfortable houses, and many of them have fenced in, and to some extent, cultivated small gardens" (Miller 1859:431). One federal inspector commented that "This the first Indian agency yet visited by me where *all of the Indians* live in houses, understand the English language, and engage with reasonable diligence in civilized pursuits" (Pollock 1880:2, emphasis in original). Celebrating their construction efforts, Agent Sinnott (1873:321) asserted that "it would be difficult to find any community, of the same number, a more industrious people" and that "the Indians here are far in advance of any other tribes of the Pacific coast" (see also Meacham 1875:135). By 1887, Agent McClane (184) reported that over 100 houses had been built.

In the assimilating mission of the reservation, houses served as proxies for Native "progress." Cabins "improved" the land and encouraged a range of desirable habits including sedentary lifestyles, nuclear family structures, and a commitment to agricultural production. In agents' reports, the cultural significance of houses sits close to the surface. Agents discussed homes alongside other material aspects of daily life. "[Reservation homes] are neatly furnished with comfortable furniture—chairs, beds, bedsteads, tables, and table-ware, clocks, cooking and heating stoves" (Sinnott 1877:170). "[Reservation residents] dress as the whites, have good houses and barns, use the same food, stoves and cooking-utensils; [and] have entirely abandoned…their old customs" (Sinnott 1875:346). "In proof of their civilization, I will state the fact that many of the Indians are living in far better houses, built by themselves, than either the agent or employés" (Lafollett 1869:169). It is difficult to parse the accuracy of these statements given agents' consistent self-aggrandizement. What comes through clearly, however, is that houses were assimilation benchmarks, tangible evidence that the reservation's goals were being realized.

At the same time, agents provided, perhaps unwittingly, evidence for the continuation of pre-reservation settlement strategies. Sinnott (1881:142-143) reported that houses were arranged in clusters and contained multiple families, up to 50 people per dwelling (see also Brentano 1894:259; Odeneal 1872:360). He and others (e.g. Geary 1859:356) also noted that houses were not occupied year-round but functioned primarily as winter residences, as families consistently left the reservation during the summer months to pursue other economic and cultural activities. These details suggest that the strategies visible in the Hazen Map were not fleeting. Whatever the outward appearance of reservation homes or their interior trappings, families adapted these elements into existing conceptions of how and near whom it was appropriate to live.

Allotment records offer additional evidence for the continuation of traditional settlement strategies. Before discussing these records, however, it is first important to review allotment's origins, goals, and stipulations.

The Development and Aims of Allotment

In 1887, Congress passed the General Allotment (Dawes) Act amid mounting criticism that the federal reservation system was failing to assimilate Native peoples into US society (Hoxie 1984; Lewis 1994; Prucha 1973). On reservations, Native communities faced considerable challenges, to say nothing of the traumas of removal and the violence and epidemics that had preceded it. Yet they also found a degree of freedom to refashion cultural practices and identities on their own terms. For example, during their relocation from Grand Ronde to Siletz in 1857, Rogue River families destroyed the temporary houses constructed following removal. When faced with complaints from agents, "they said it had always been their custom when leaving a place to burn the houses in which they lived, and as the government forced them to live here against their will, it must be content to abide by their customs" (Browne 1858:23). Though reservation administration followed the opposite course—namely, the government repeatedly demonstrated that it would not abide by the persistence of Native lifeways—by the 1880s legislators agreed that additional steps were needed if reservations were to meet their assimilationist goals. The persistence of Native social and political systems, combined with pressure to make reservation lands available to growing settler populations, prompted legislators to explore reservation "reform." Legislators proposed fragmenting reservations into privately owned plots, or allotments, which they hoped would undermine ties between Native groups and landscapes. As Theodore Roosevelt later wrote, allotment was to be a "mighty pulverizing engine to break up the tribal mass" (Dippie 1982:244).

Under the act, single individuals received 80 acres of land, married heads of households 160 acres, and children under eighteen 40 acres. If a reservation lacked sufficient agricultural land, individuals would receive larger tracts deemed suitable for grazing. Reservations were to be allotted at the president's discretion. Provisions requiring allotment to be met with approval from tribal members were struck from early versions of the bill. To prevent (or merely delay) exposing reservation land to market forces, allotments were to be held in trust for 25 years. Allottees could not lease, sell, or will their land until the trust period expired, after which they would receive fee simple ownership and US citizenship.

To its backers, the Dawes Act fit into a nationwide effort to assimilate Native peoples culturally, legally, and economically (Greenwald 2002:24). Reservation day-schools and beginning in the 1880s and 1890s off-reservation boarding schools furthered cultural assimilation (Adams 1995; Parkhurst 2014). This is clear in schools' mission, which centered less on providing academic educations than on suppressing attachments to languages and cultural practices and replacing them with "proper" habits, gender roles, and religious beliefs. Allotment furthered legal and economic assimilation. Akin to Grand Ronde agents celebrating the construction of reservation homes, lawmakers lauded the power of private property ownership to discourage communal economic and social activities (Lewis 1994:7-21). Tethering individuals to specific plots forced otherwise "lazy" Native individuals to develop an agricultural land base and adopt sedentary lifestyles. In the words of Siletz Agent Gaither (1889:275), "I believe that allotting [tribes'] land in severalty will do more to inspire them with a pride of ownership and build them up more rapidly than any one thing that can be done for them." Upon demonstrating their commitment to "improvement," allottees would be granted citizenship, thereby integrating them into the US body politic. Through allotment, Native peoples would be emancipated from their tribal nations and remade into atomized US citizens.

Inextricably linked to this assimilationist program was an effort to extend the United States' spatial dominion over Native lands. Greenwald (2002:11) argues that allotment was rooted in a prolonged agenda of constraining patterns of movement, residence, and land division within Native communities, what she terms "spatial control." Indeed, allotment did not constitute new policy in the late 1880s but had been part of treaty negotiations and reservation management for decades. At Grand Ronde, informal 20-acre allotments were awarded in the early 1870s. Agents reported the benefits of allotment "are clearly shown in the satisfaction of the Indians, their industry, habits, and manifest desire to improve in every way" (Sinnott 1873:321). But because tribal members did not hold title to their parcels, these allotments provided little long-term security.

True to its name, the General Allotment Act nationalized these treaty land programs (Wolfe 2011:26-27). With the act and its amendments, the federal government laid a path toward individual Native land ownership. It also set the stage for widespread dispossession. The act stipulated that all reservation land not awarded to tribal members be declared "surplus" and made available for purchase to non-Native parties. Since allotments were all that was required to develop an economic land base, lawmakers reasoned, leftover reservation land was of little benefit to the tribe. This position overlooked economic opportunities such as tribal ownership and management of tracts with timber or ranching potential and the fact that "surplus lands" could far exceed those allotted, depending on the size of the reservation and Native population. This was the case at Siletz. After allotment, nearly 80% of the 225,300-acre reservation, much of it prime timber land, was declared surplus (Wilkinson 2010:225-226).

Federal control over Native land expanded in the early twentieth century. In 1902, the "Dead Indian Act" endowed the Secretary of the Interior with the power to settle the growing problem of heirship allotments, those held in trust when allottees died. Since allotments could not be willed, the secretary could sell the parcels and divide the proceeds among allottees' heirs or partition the land to heirs with trust or fee patents. The Burke Act of 1906 allowed the secretary to award fee simple patents to allottees deemed "competent" to manage their land. These decisions were made regardless of allottees' wishes and at times without their knowledge. Full land ownership benefited some individuals, but many more were unable to pay the property taxes that then accrued, leading to widespread foreclosures and sales. The following year, Congress extended to the secretary the power to sell allotments of "non-competent" allottees. While this statute was written in reference to specific disabilities, the Commissioner of Indian Affairs encouraged agents to interpret the policy liberally. "Such sophistry," Hoxie (1984:166) contends, "had a single purpose: the rapid sale of as many homesteads as possible."

By the time the Indian Reorganization Act formally ended allotment in 1934, 118 reservations had been subjected to the policy. Surplus declarations claimed roughly 60 million acres of Native land. Of the 40 million acres allotted, nearly 27 million were sold under various policies. The fragmentation of communally owned parcels disrupted rather than accelerated Native farming operations (Carlson 1981; Lewis 1994) and led to widespread land fractionation that continues to vex tribal communities (Ruppell 2008). All told, between 1887 and 1934 allotment and related land cessions led to the loss of approximately 60% of all Native land (Carlson 1981:185, 204; Limerick

1987:198-199).

Though this was a period of widespread dispossession, Greenwald (2002:5-6) cautions that to cast Native communities solely as victims of allotment overlooks the ways they creatively navigated the allotment process and, in many cases, bent this assimilationist program to support their interests. Allotment did not affect tribes equally, nor were its effects preordained or instantaneous. It played out over time amid competing agendas between eastern politicians ostensibly interested in the welfare of Native groups and western politicians who viewed reservations as obstacles to land development. These political positions ran up against the motivations of reservation communities seeking to preserve cultural practices and ensure access to economic opportunities and resources. Tribes' goals influenced their position on the Dawes Act. Some worried about dispossession and successfully received exemptions. Others actively lobbied the government to allot their reservations, believing that situating land tenure with individuals would provide greater security compared to government oversight. For residents of Siletz, whose 1.1 million-acre land base in 1856 had been reduced to 225,000 acres despite their protests, allotment presented an attractive alternative (Wilkinson 2010:220-223). Their neighbors at Grand Ronde were of a similar mind. According to Oregon Superintendent of Indian Affairs William Rector, the community called for allotment as early as 1862 (Rector 1862:255). Notably, Rector reported that Grand Ronde's interest in allotment was rooted in self-determination: "[they] manifested a desire to make the allotment themselves—to say how it should be divided, and to whom certain parcels should be assigned" (1862:255). With removal still fresh in their minds, those at Grand Ronde likely saw allotment as way to relocate land decision-making to the community, which would afford greater protections against the whims of federal officials. Rector, perhaps understanding these implications, quickly dismissed the idea of self-determined allotment, claiming that it would "lead to insurmountable difficulty" and that "they would not be able to agree among themselves" (1862:255).

When the Dawes Act ultimately arrived on reservations, federal officials held final say over the awarding of allotment parcels. But tribes played a key role in determining the location and extent of each parcel. Per Interior guidelines, "selections of allotments shall be made by Indians…[and] shall embrace the improvements made thereon by the respective Indians" (Atkins 1887:iv). By favoring improvements such as agricultural fields or homes, the act conceded a measure of spatial control to reservation communities. The result was that on many reservations allotment did little but formalize existing settlement and economic systems (Leibhardt 1991; Lewis 1994; Moore 1980; Tonkovich 2012).

The key point is that allotment's long-term, nationwide impact on Native communities reveals little about the policy's on-the-ground implementation. Shifting the scale of analysis to specific reservations complicates the celebratory rhetoric of politicians preserved in documentary sources and brings the "tensions of empire" inherent to reservation administration to the fore. In doing so, the story of allotment shifts—despite the challenges it brought to many Native communities, it initially strengthened the very practices the policy's visionaries sought to disrupt.

Allotment at Grand Ronde

Because its residents were "known to be generally favorable" (Atkins 1887:vii) to the Dawes Act, the Grand Ronde Reservation was among the first group to be selected for allotment. Allotting Agent Collins arrived on the reservation in June 1889. By year's end, the 61,440-acre reservation had been divided into 269 allotments comprising 683 parcels and 33,000 acres. The discrepancy between allotments and parcels suggests the reservation population was sufficiently clustered so as to prevent awarding the required amount of land and preference individuals' existing improvements. The experience of John Kelly was common. He received 60 acres in the central reservation, likely encompassing agricultural land and/or his existing residence, as well as 160 acres located in the forested uplands to the north.

With the allotment of the reservation, Grand Ronde settlement patterns officially re-entered the colonial archive. Allotment cards note the precise location—parcel boundaries were determined via township quarter sections—and acreage of allottees' parcels. With this information, I set out to digitize Grand Ronde allotment records. For allottees who received fractions of township sections, this process was relatively straightforward. I segmented existing townships into half, quarter, and eighth sections and then combined or divided these as necessary to create allottees' parcels. For allottees who received all or part of a survey lot, I referenced the 1887 Reservation Lottings Map (Figure 4.3). This map, identified during Step 1 of the project, was created by federal surveyors in 1887 in advance of the reservation's allotment. Lots, which tended to be smaller 10- to 20-acre parcels, were concentrated in the east-central reservation, especially around Donation Land Act claims held by settlers.

Crucially, allotment records also list the (single) cultural affiliation of each allottee. Whether Agent Collins solicited this information or assigned it using reservation censuses is unknown. If the former, allottees may have strategically associated themselves with specific groups to secure land near extended family members. In either case, single tribal affiliations and the absence of many women from allotment records—among married couples, only husbands' affiliation was noted—obscures the complexity of reservation group association. The issue is further complicated by the inconsistent specificity of "band" and "tribe" ethnonyms used by agents. I mitigated these problems by placing allottees into new cultural groups. My approach drew on Zenk's (1984:94) interrogation of "tribes" as the primary unit of political or cultural organization at Grand Ronde. He shows that "a good case may be made for equating these [groups], not with aboriginal 'tribes,' but with aboriginal local groups." I used this idea of aboriginal local groups to create two distributions of Grand Ronde communities. The first, what I called regional interaction groups, comprised bands and tribes with similar linguistic backgrounds, shared marriage patterns, and abutting or overlapping regions of residence and food harvest. The second, ancestral homelands groups, combined bands and tribes based solely on the location of their winter residences in western Oregon. This process, conducted in collaboration with historic preservation staff, is summarized in Table 4.1.

Reclassifying reservation ethnonyms marked the end of digitization. My next step, analysis, proceeded in two steps. First, I examined allotments in the area depicted by the Hazen Map. I compared the distribution of Grand Ronde allotments by tribal affiliation, regional interaction group, and ancestral homeland group to assess differences, if any, in the absolute and relative location of reservation communities in 1889 compared to 1856. Second, I examined allotment parcels across the entire reservation. I investigated whether the settlement patterns visible in the Hazen Map area also characterized those on the wider reservation landscape.

Allotments and the Hazen Map

In this analysis, I assumed that the area depicted by Hazen in 1856 and allotted in 1889 was occupied during the intervening three decades. This assumption was based on the fact that the east-central reservation offered easiest access to settler towns to the east, included agency buildings, and contained the bulk of Grand Ronde's arable land. Combined with federal guidelines to award allotment parcels in places where families already lived and worked, I interpreted allotments not as *new* settlements and/or farms but as evidence of an *existing* settlement system that Agent Collins was essentially documenting for the first time.

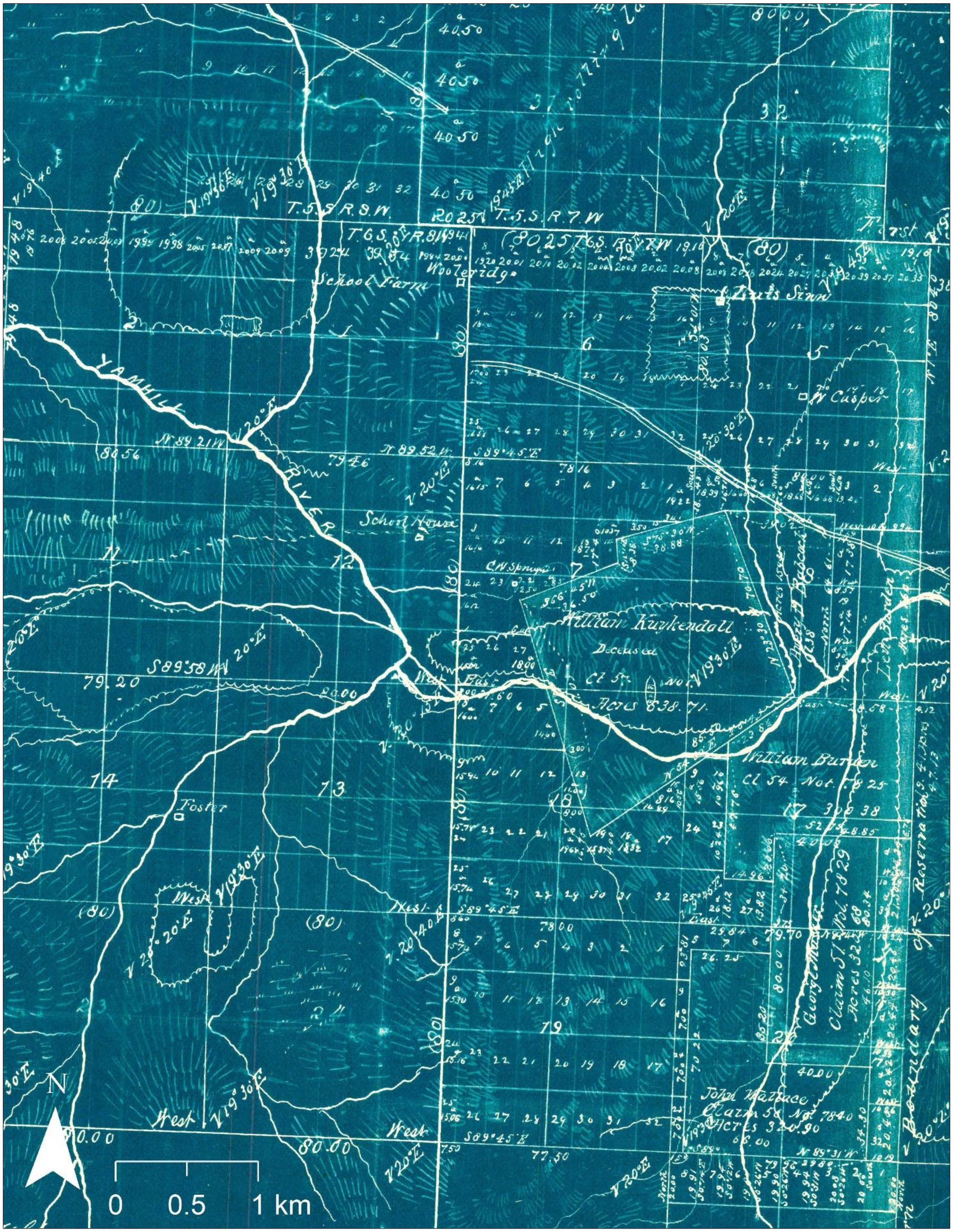

Figure 4.3 Detail of 1887 reservation survey map showing township and lot boundaries.

Tribal Affiliation on Allotment Card	Regional Interaction Group	Ancestral Homeland Group
Clackamas	Chinook	North
Clawiwalla	Chinook	North
Calapooia	Kalapuya	North
Luckiamute	Kalapuya	North
Mary's River	Kalapuya	North
Santiam	Kalapuya	North
Yamhill	Kalapuya	North
Yoncalla	Kalapuya	North
Wapato Lake	Kalapuya	North
Tillamook	Kalapuya	North
Shasta	Shasta	South
Rogue River	Rogue River	South
Cow Creek	Umpqua	South
Umpqua	Umpqua	South
Klamath	Molalla	East
Molalla	Klamath	East
Iroquois	Other	Other

Table 4.1 Affiliations of Grand Ronde allottees.

Grand Ronde allotment parcels in the east-central reservation and symbolized by tribal affiliation are shown in Figure 4.4. Parcels do not appear randomly distributed but appear clustered. This suggests reservation residents selected parcels near those with whom they shared a close relationship, whether familial or otherwise. Even so, the number of affiliation categories recorded by agents adds noise to Figure 4.4 by separating potentially closely related groups into separate “tribes.”

When parcels are symbolized by regional interaction group (Figure 4.5) and ancestral homeland group (Figure 4.6), clustering becomes more apparent. For allottees, the single affiliation recorded by reservation agents was less important than the overlapping webs of shared history, inter-marriage, and obligation between families. It is within these larger groups that settlement and land use decisions were likely made.

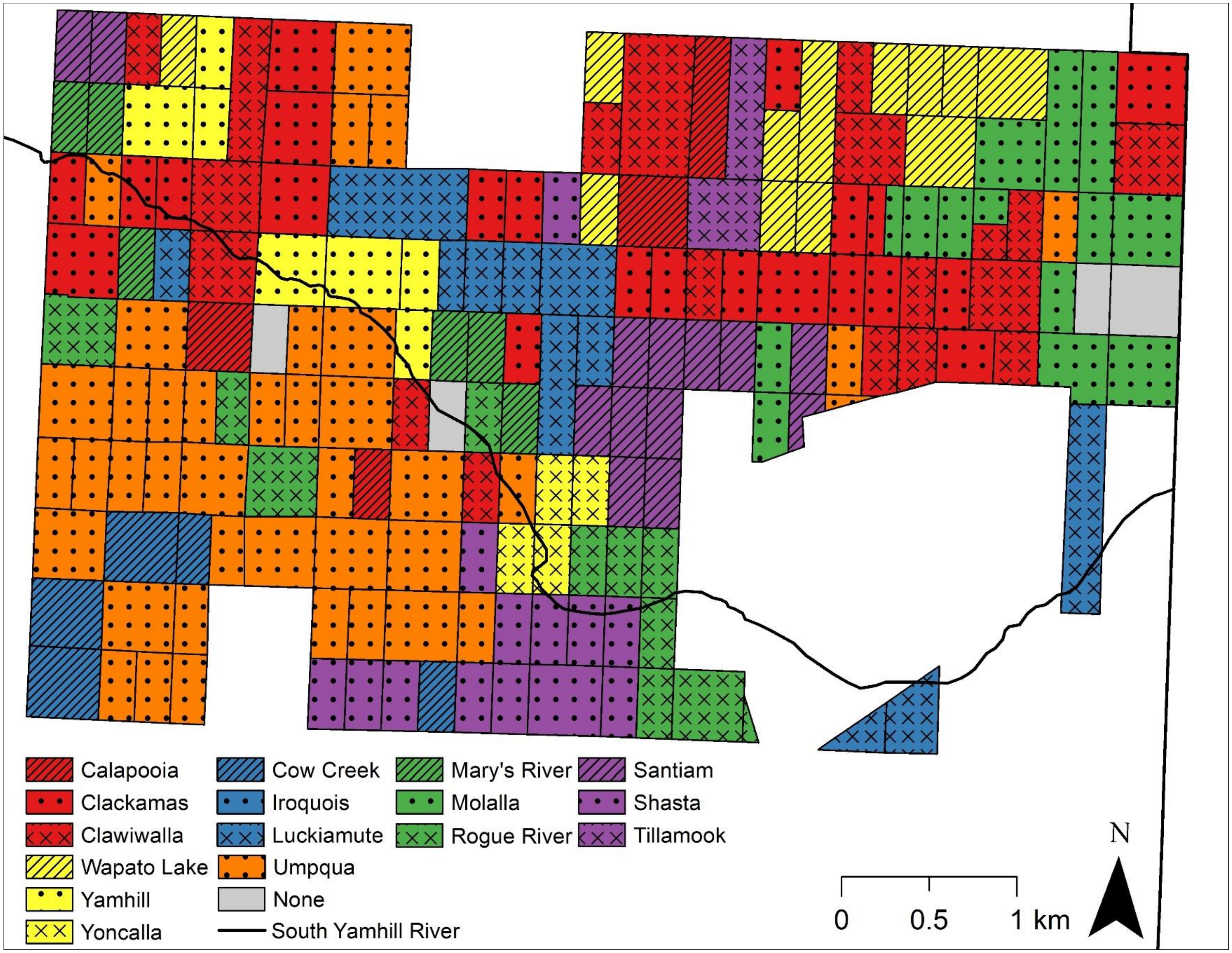

Figure 4.4 Grand Ronde allotment parcels by tribal affiliation in the Hazen Map area, 1889.

Beyond these visual assessments, spatial autocorrelation tools within GIS allowed me to quantify the degree to which allotment parcels were clustered. Spatial autocorrelation is a measure of covariance between features based on geographic distribution and attribute information. It evaluates the null hypothesis—that inputted features are randomly distributed—via the Moran's Index, which ranges from -1.0 to 1.0. An index value approaching 1.0 indicates that features with similar attribute information are spatially clustered. A value approaching -1.0 points to feature dispersal. Measuring spatial autocorrelation for allotment parcels in the Hazen Map area according to tribal affiliation returned an index value of 0.20. When attribute information was changed to regional interaction group, this value increased to 0.47. For ancestral homeland group, the value increased further to 0.59. All three values disprove the test's null hypothesis, indicating that allotment parcels from one group are significantly more likely to be situated near parcels with similar attribute information. Test results are summarized in Table 4.2.

I then compared the average location of each group's allotment parcels to the location of the Hazen Map encampments. Since Hazen's hand-drawn map provides only general information about the location and size of each encampment, I could not precisely compare the distribution and acreage of allotments and encampments. Instead, I compared the average location, or spatial mean center, between encampments and allotments. Ethnonyms again emerged as a problem. Some of the band and tribe names employed by Hazen were not recorded by allotting agents and vice versa.

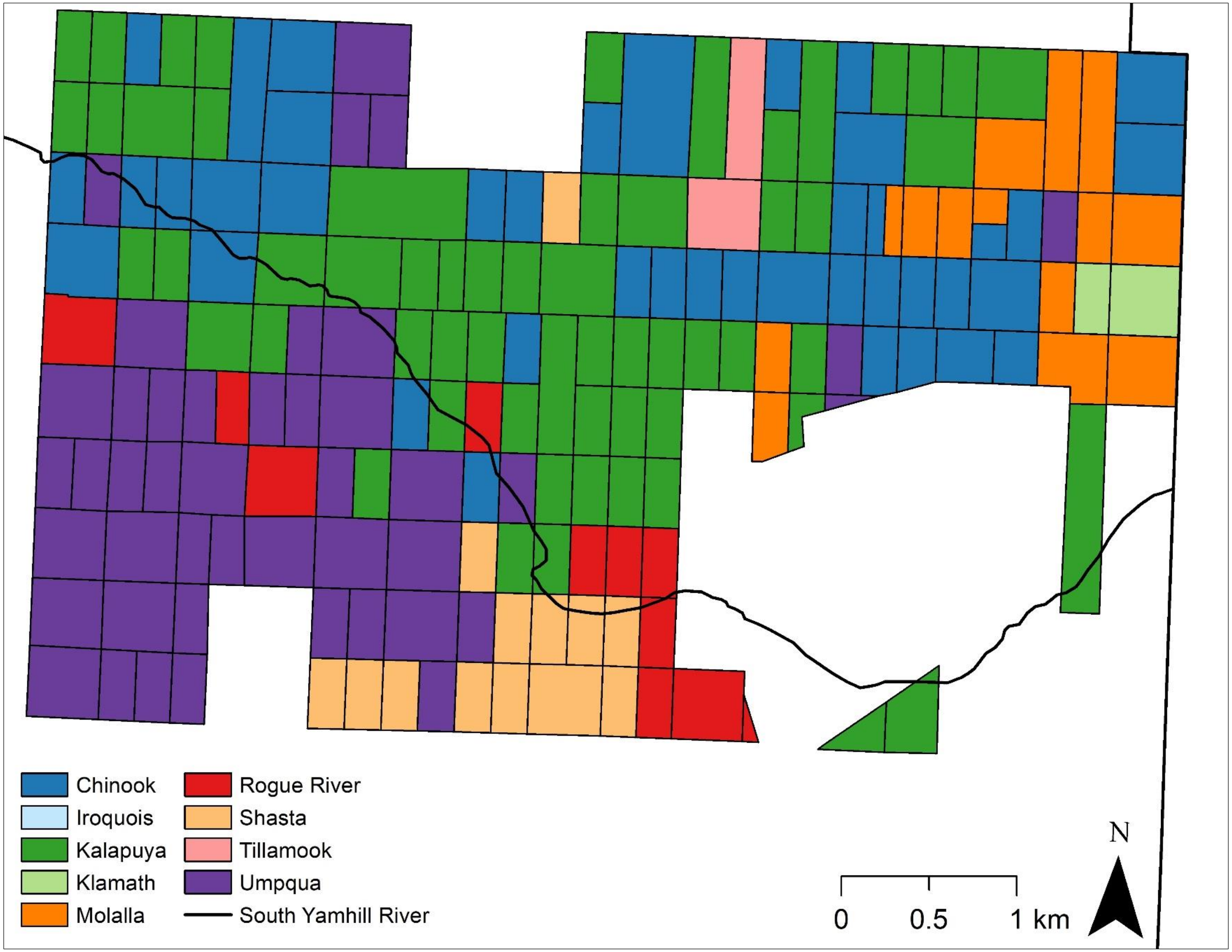

Figure 4.5 Grand Ronde allotment parcels by regional interaction group in the Hazen Map area, 1889.

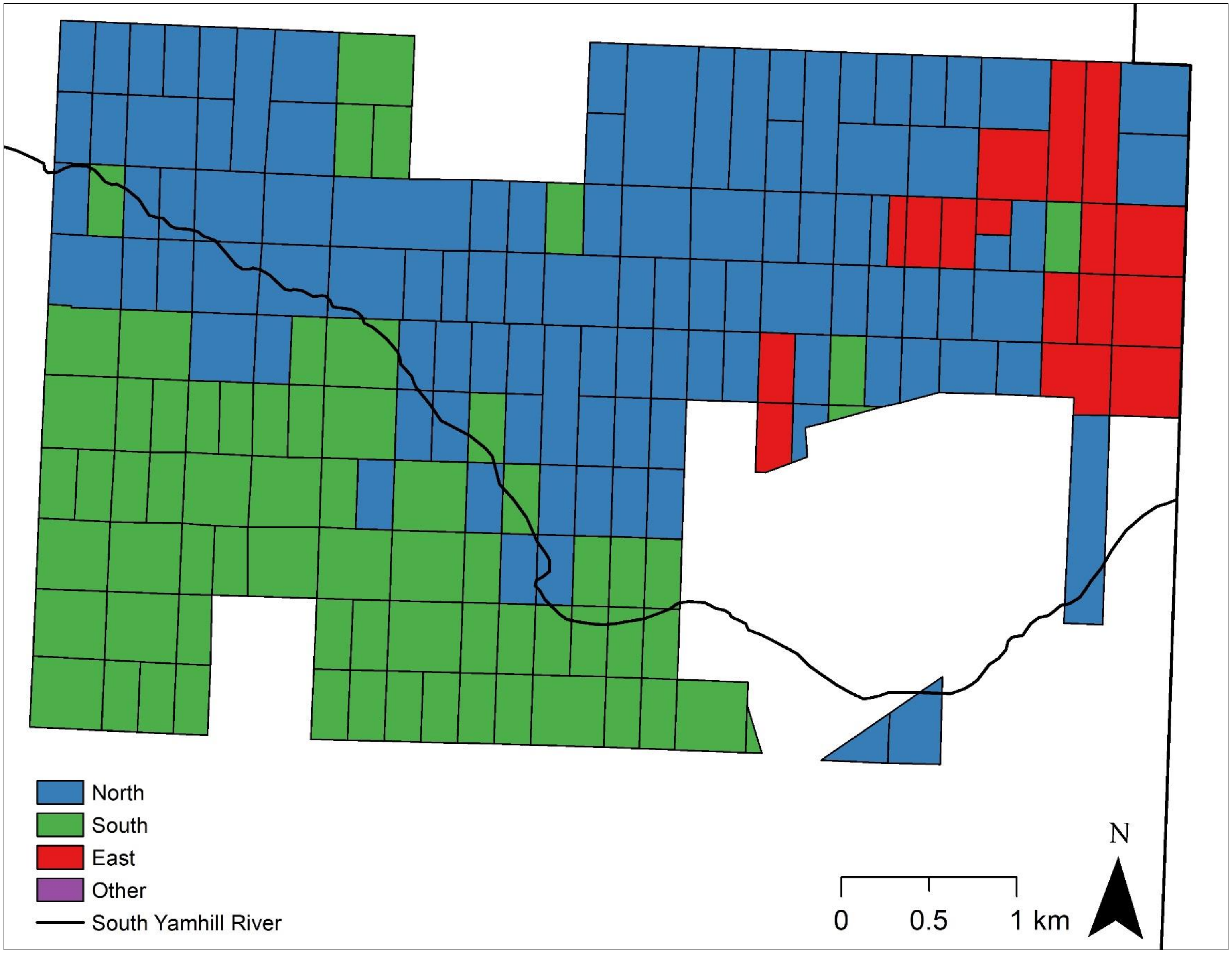

Figure 4.6 Grand Ronde allotment parcels by ancestral homeland group in the Hazen Map area, 1889.

Location	Parcels by	Moran's Index	*p*	Interpretation
Hazen Map Area	Tribal Affiliation	0.20	<0.001	Clustered
	Regional Interaction Group	0.47	<0.001	Clustered
	Ancestral Homeland Group	0.59	<0.001	Clustered
Entire Reservation	Tribal Affiliation	0.13	<0.001	Clustered
	Regional Interaction Group	0.38	<0.001	Clustered
	Ancestral Homeland Group	0.48	<0.001	Clustered

Table 4.2 Spatial autocorrelation results.

Furthermore, the relatively small number of allottees in this area made direct comparisons between regional interaction groups difficult. I therefore skipped these first two steps of analysis and placed encampment groups directly into ancestral homeland groups. I then plotted the spatial mean centers for each set (encampment and allotment) of ancestral homeland groups (Figure 4.7). On this map, the distance between each pair of spatial mean centers is at most 1.1 km. Furthermore, the relative distribution of each set of spatial mean centers remained broadly similar. Groups with ties to southwestern Oregon secured allotments in the southern and western extents of the Hazen Map area of the reservation; those with ties to northwestern Oregon in the northern part; and those with ties to the Cascade Mountains and eastern Oregon along the reservation's eastern boundary.

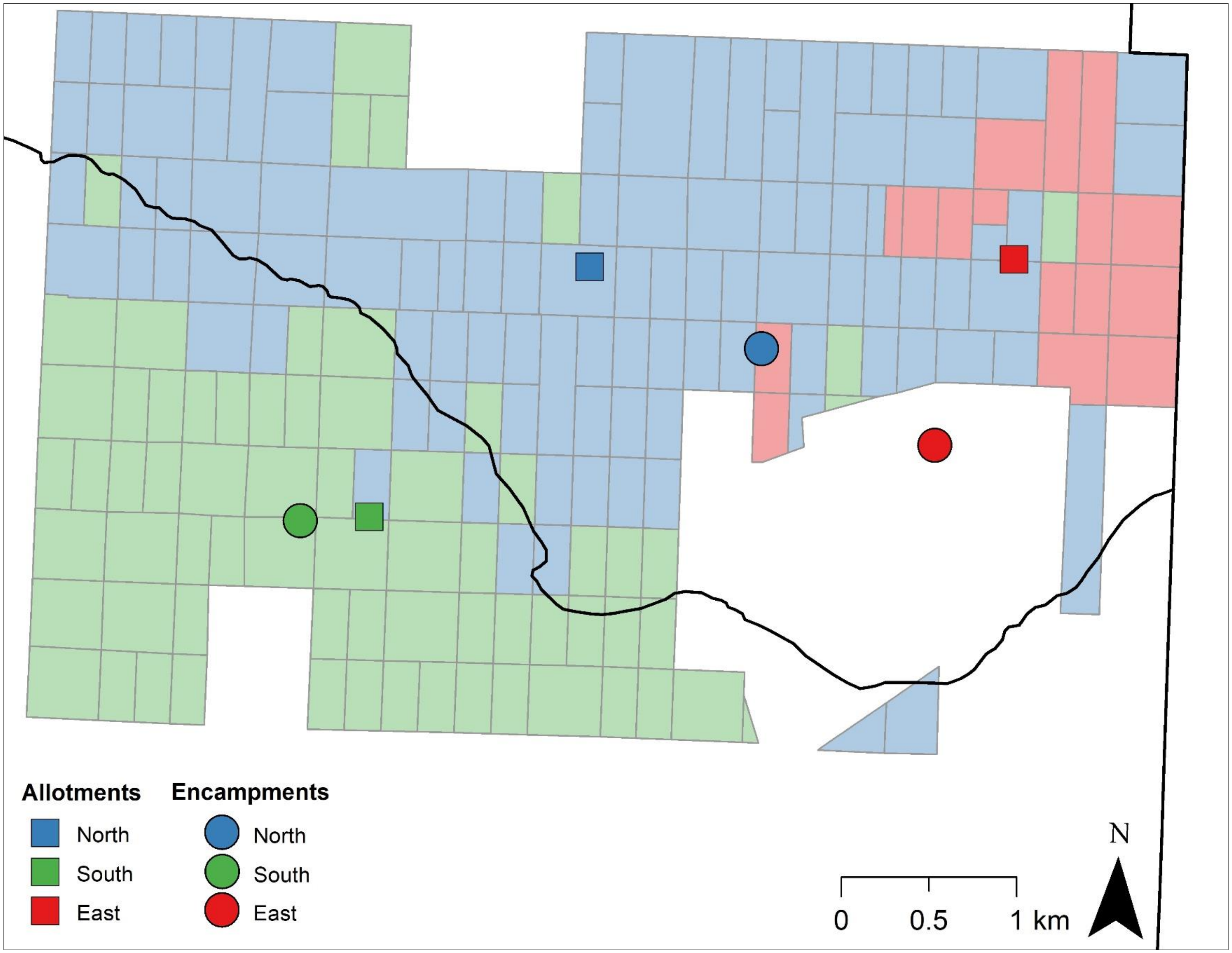

Figure 4.7 Spatial mean centers of Grand Ronde allotment parcels and Hazen Map encampments.

Allotment Reservation-Wide

Next, I examined whether these patterns guided allotment selection across the rest of the reservation, including in places in which people likely did not live and/or farm. The number and average size of Grand Ronde allotment parcels per square mile (Figures 4.8-4.9) shows that in both respects parcels were not evenly distributed. They increase in size and decrease in density with distance from the east-central reservation. Assuming the density of parcels within each section serves as an approximation of population distribution, Figure 4.8 indicates that the reservation's population and agricultural hub in the 1850s persisted as such into the late 1880s.

These maps also show the extent to which Grand Ronde residents were allotted land with little economic utility. Roughly 12% by number and 20% by acreage of allotment parcels were located in areas surveyors described in 1887 as "unfit for settlement." Most of this land was steep and densely forested. It may have included valuable hunting, fishing, or gathering locations but was generally unprofitable within a market economy. If the land had been left intact as a community asset, the tribe may have been able to take advantage of its timber value (as Grand Ronde does today). But for individual allottees, isolated tracts of dense forest offered little economic benefit. It is thus unsurprising that over the next three decades, most tribal members decided to sell these parcels. By the 1930s, most of this land had passed into the hands of timber companies.

Spatial patterning of individual allotment parcels reservation-wide exhibits similarities with that of the Hazen Map area. Parcels appear clustered when symbolized according to allottees' tribal affiliation (Figure 4.10), regional interaction group (Figure 4.11), and ancestral homeland group (Figure 4.12), with clustering more apparent with increases in group size. This visual pattern is confirmed by spatial autocorrelation. Allotments reservation-wide returned a Moran's Index value of 0.13 for tribal affiliation, 0.38 for regional interaction groups, and 0.48 for ancestral homeland groups (Table 4.2). The relative distribution of reservation groups mirrors that seen in the Hazen

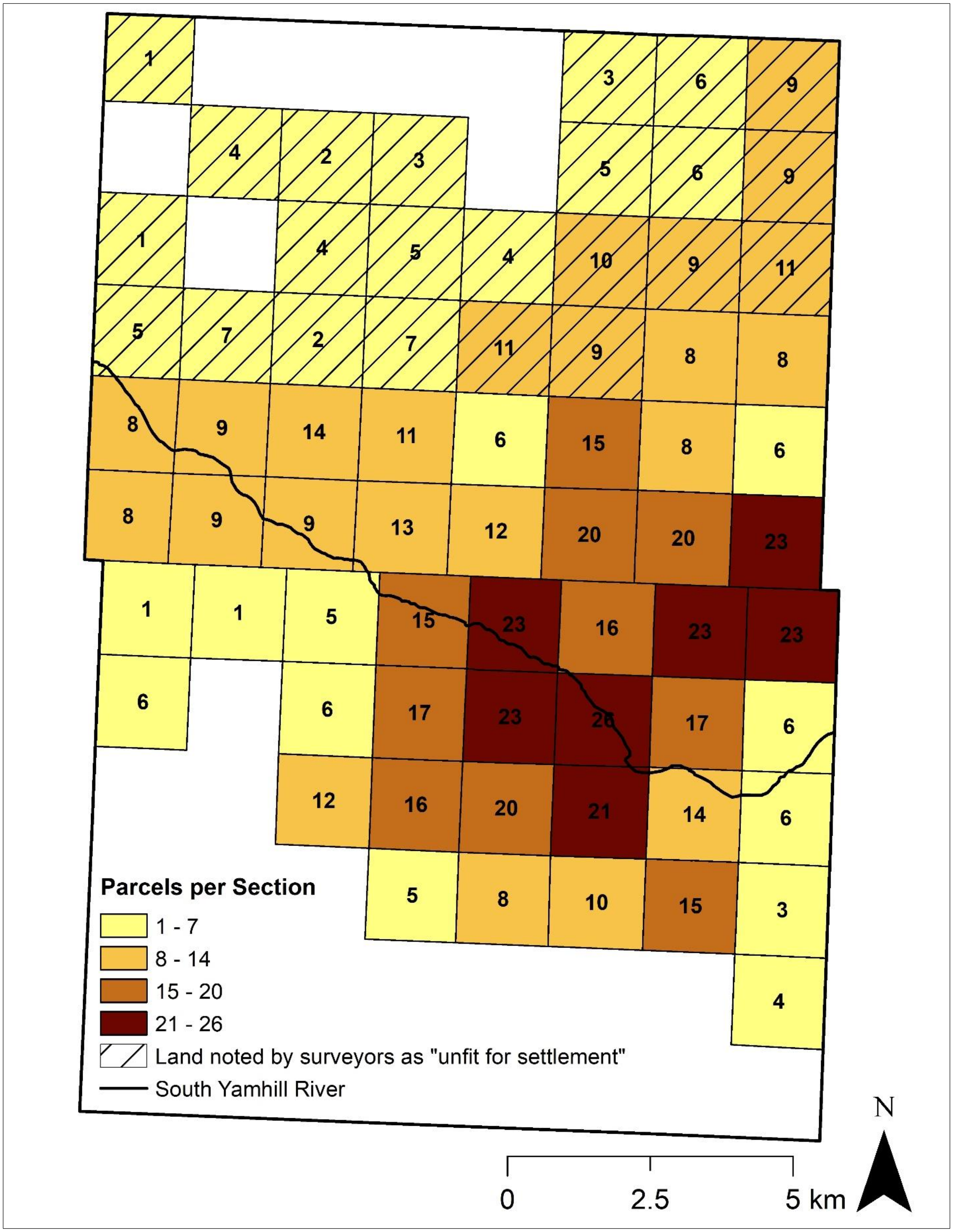

Figure 4.8 Number of Grand Ronde allotment parcels per section, 1889.

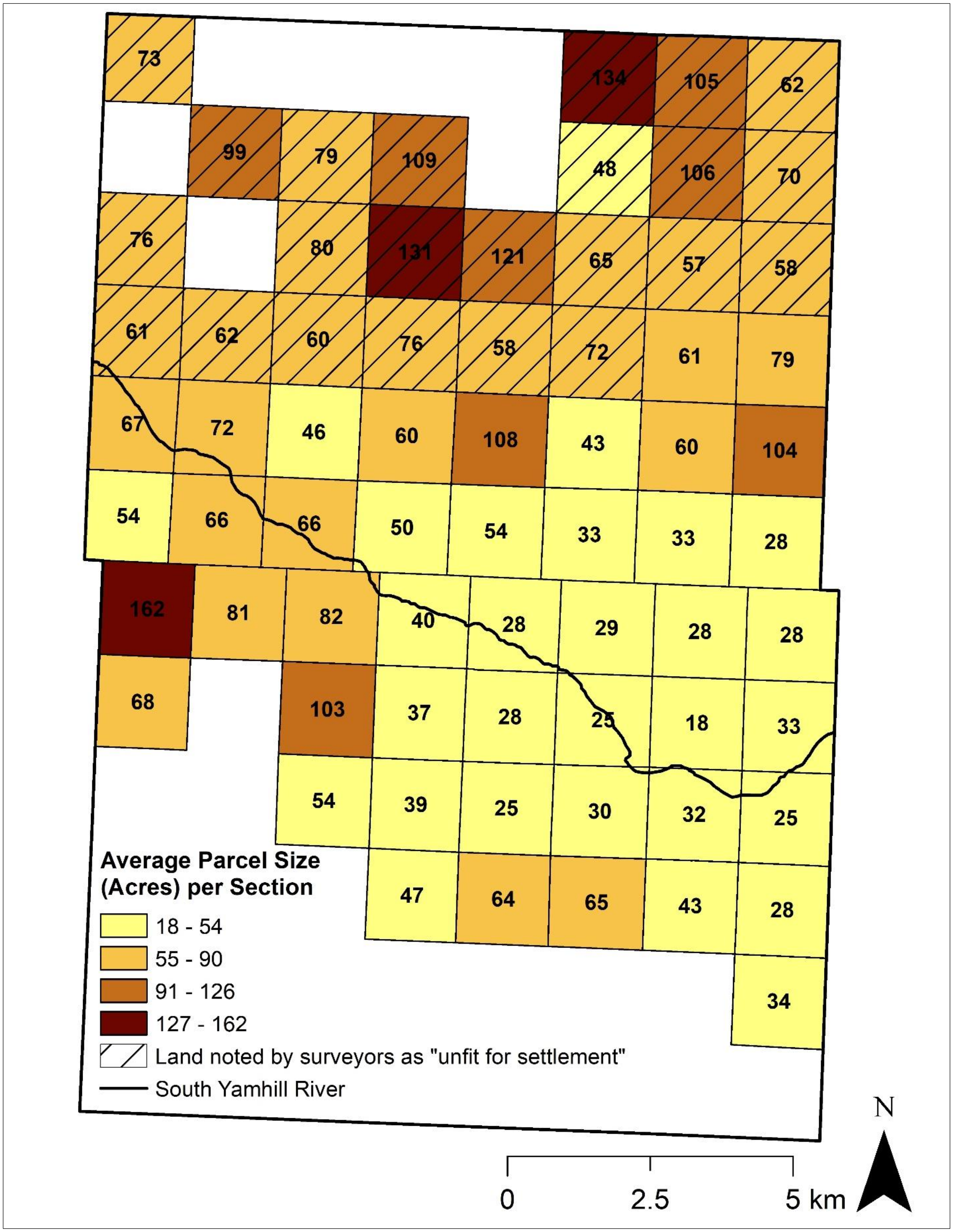

Figure 4.9 Average size in acres of Grand Ronde allotment parcels per section, 1889.

Map, with the South Yamhill River continuing to function as a division between northern and southern groups. Lastly, the relative location of allotment spatial mean centers (by ancestral homeland group) is broadly similar to those in the Hazen Map area (Figure 4.13).

Federal politicians celebrated the Dawes Act as a tool for undermining social organization within Native communities. In practice, tribes' guidance of the allotment selection process followed from and served to reinforce long-standing familial and cultural ties. At Grand Ronde, relationships between historical neighbors influenced the location and cultural composition of encampments immediately following removal. This culturally informed settlement system likely persisted over the next three decades, as residents leveraged the relative freedom to settle land on their terms. When Agent Collins arrived in 1889, the division of the landscape into privately owned plots presented an opportunity to solidify this system of land tenure. Residents were not all able to secure land in Grand Ronde's densely populated, agricultural hub. Even so, land selection across the rest of the reservation, including in the forested uplands, drew on inter-community relationships. Far from the start of an assimilationist campaign, allotment was the latest expression of Grand Ronde ingenuity and persistence through which the community imported settler notions of land ownership to existing systems of settlement and interaction.

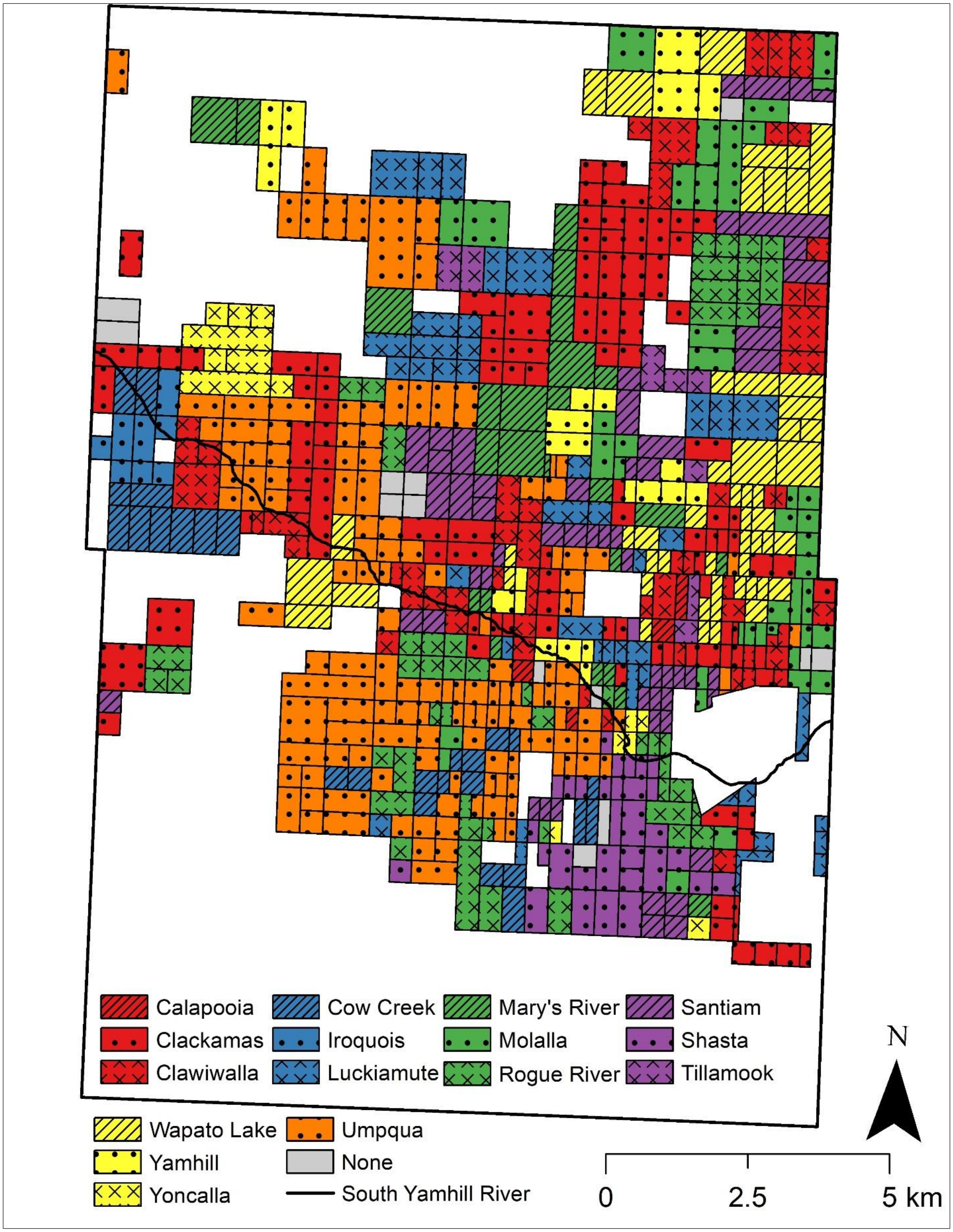

Figure 4.10 Grand Ronde allotments by tribal affiliation, 1889.

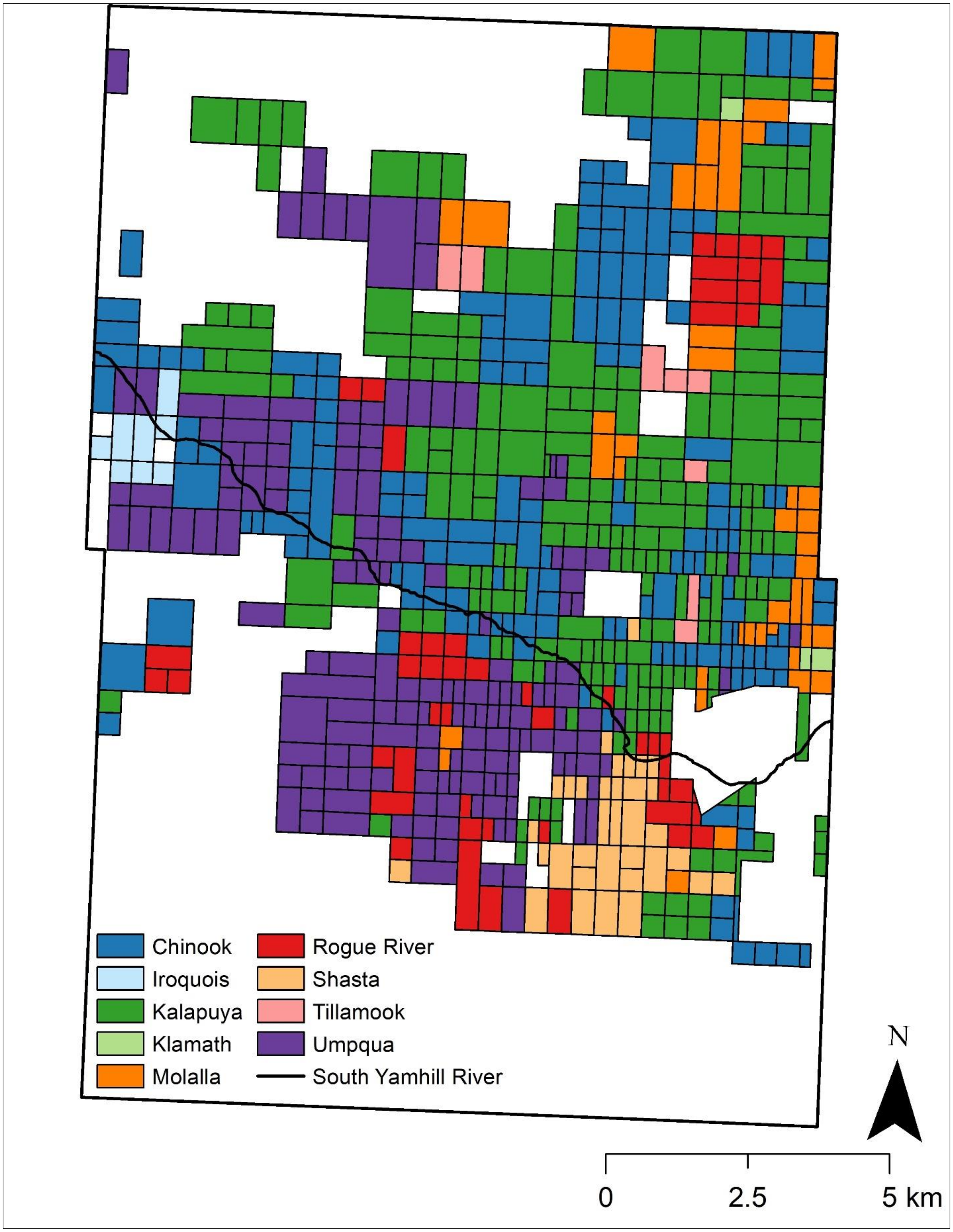

Figure 4.11 Grand Ronde allotments by regional interaction group, 1889.

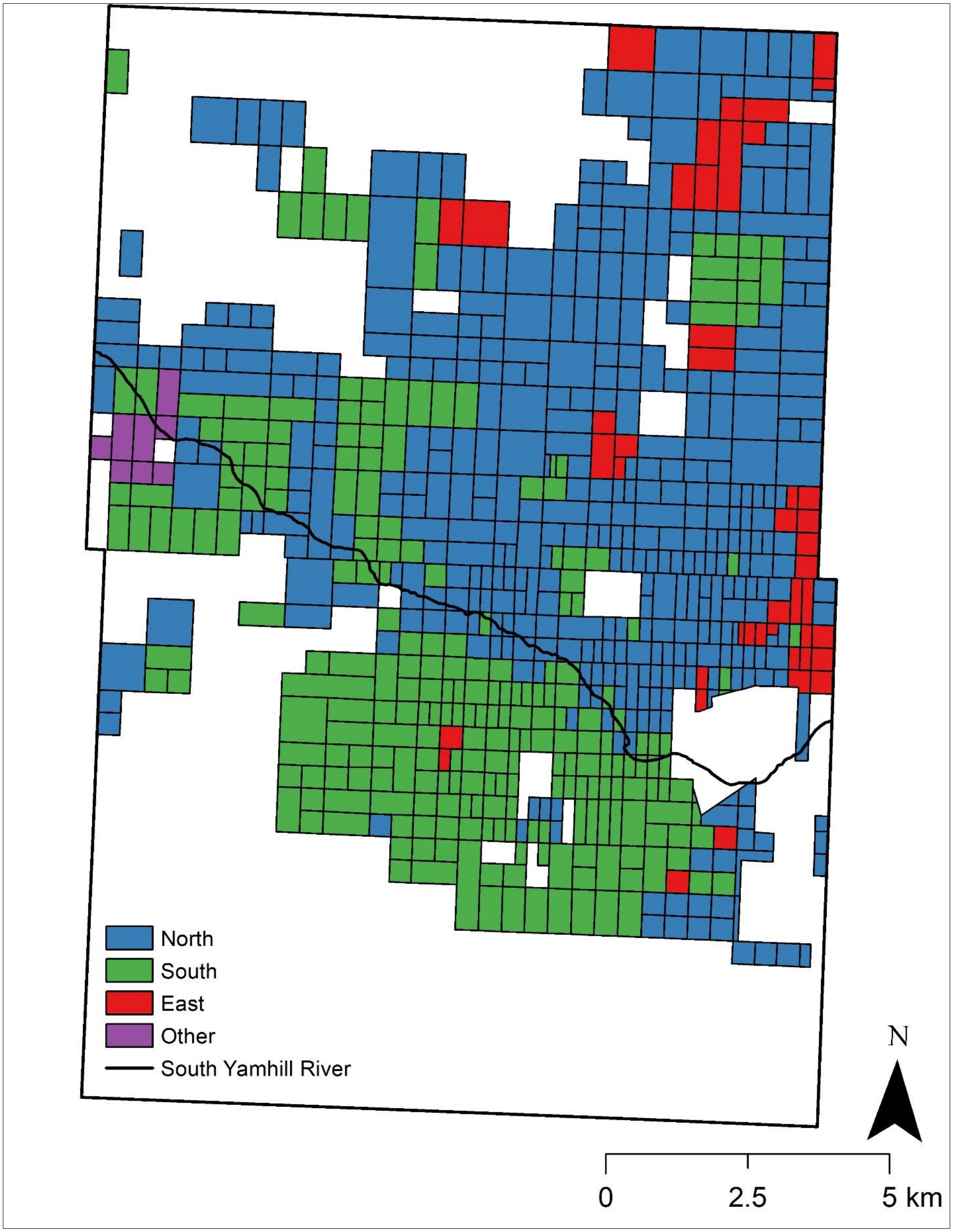

Figure 4.12 Grand Ronde allotments by ancestral homeland group, 1889.

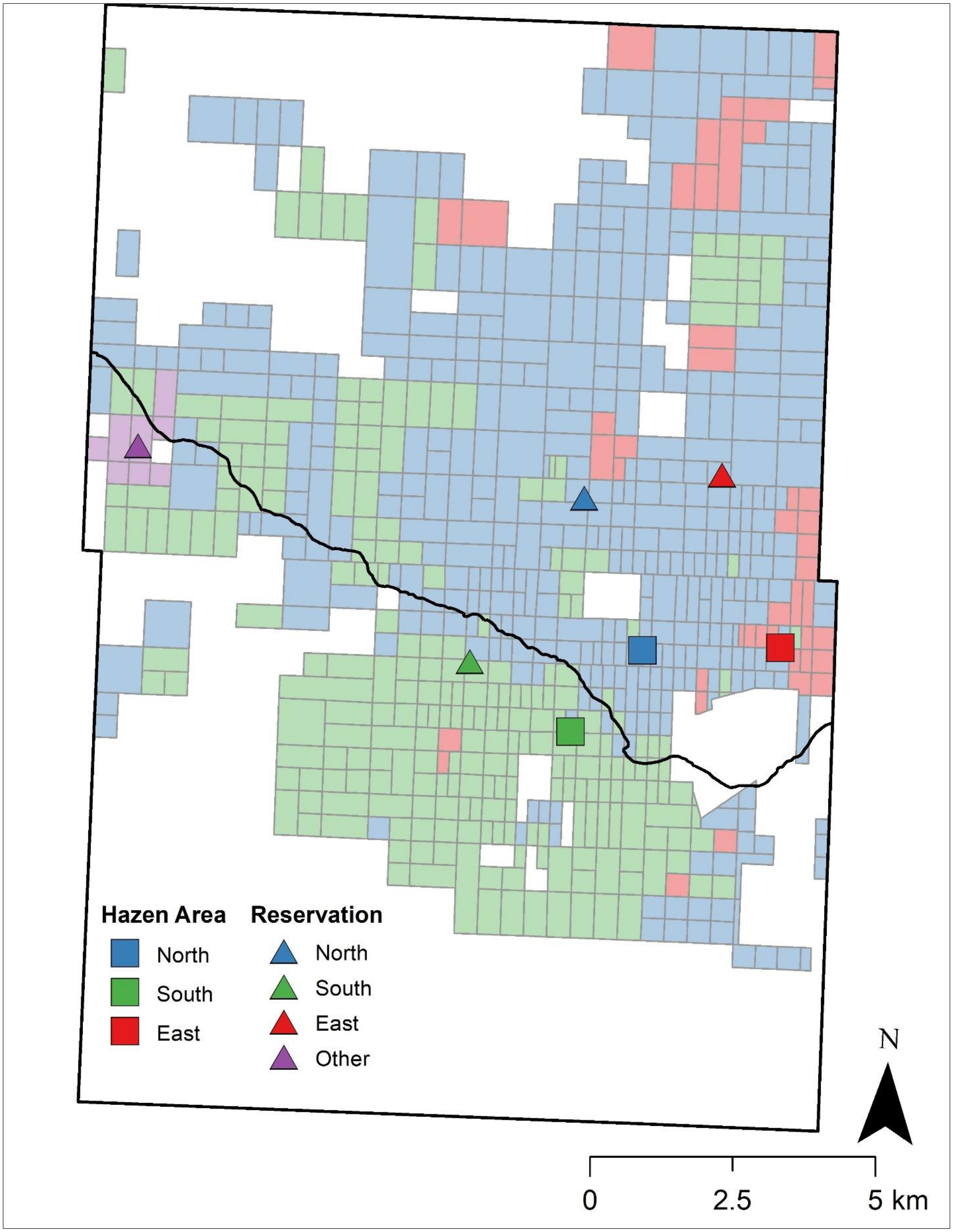

Figure 4.13 Spatial mean centers of Grand Ronde allotment parcels reservation-wide and in the Hazen Map area.

Allotment's Aftermath, 1889-1954

The second question I considered during analysis was the impact of allotment on tribal land tenure long-term. Allotment was a turning point in reservation history. It marked the end of the early reservation period, in which the community lived in relative isolation from settlers to the east, and one defined by increasing settler presence within (and ownership of) the original reservation. The fragmentation of reservation land and dispossession of tribal members ushered in by allotment culminated in the tribe's termination in the 1950s. In my analysis, I sought to track the pace of dispossession across and time and space and investigate how a 61,000-acre reservation was reduced to a scattering of isolated individual land holdings.

The Grand Ronde community initially succeeded in bending allotment to their interests. They could not have foreseen the long-term impact the policy would have on land tenure. A combination of factors—opening of surplus lands, competency determinations, and forced fee patenting—conspired to transfer reservation land to settlers (Hoxie 1984:174-187; Prucha 1984:879-883).

It began in 1901, when Inspector McLaughlin arrived in Grand Ronde to negotiate the government's purchase of the reservation's surplus lands. McLaughlin noted that the land held great timber, agricultural, and grazing potential. Tribal members pushed for $2 per acre but were negotiated down to $1.10 per acre for roughly 26,000 acres, or 40% of the reservation (Jones 1901).

The passage of the Burke Act in 1906 opened up the door for awarding allottees fee patents before the expiration of their property's trust status. That allottees could not will, lease, or sell their parcels before this act exemplifies the federal government's paternalistic view of Native communities. At the same time, trust status was one of the primary factors keeping land in the hands of Native owners. At Grand Ronde, the first decades of the twentieth century saw vast sales of allotment parcels, either by allottees with fee patents or reservation agents. Grand Ronde's dire economic conditions left many unable to take advantage of their land's economic value, if it had any to begin with. After receiving fee patents to their allotments, which then accumulated property taxes, selling was often the only viable option. As Agent Chalcraft (2) observed in 1915, "All of the trust land…to which patent in fee has been granted has passed into the hands of white people." A similar statement could be made for fee lands in subsequent decades.

Tribal members were well-aware that fee land came with additional—and often unmanageable—responsibilities. But the power to award fee patents rested with agents. In fact, some allottees had fee patents forced upon them, despite their protests. In 1919, federal agents established a "competency commission," the purpose of which was to assess the intelligence, level of education, appearance, and land improvements of Grand Ronde allottees and offer recommendations for awarding fee patents (Smith et al. 1919). With few exceptions, they found allottees to be "fully competent." This recommendation was made against the wishes of the heirs of Louise Menard and John Hutchins, who stated that their parcels held little economic value and that they sought to avoid taxation. It is likely these parcels held cultural and/or familial value as well, though these sources of meaning fell outside competency criteria. The commission ultimately dismissed their requests. By 1924, both parties had received fee patents. Their parcels likely passed to settler owners soon after.

The commissioners also took advantage of the Congressional sophistry noted by Hoxie to recommend the sale of land owned by "incompetents." Many of these individuals were minors who had inherited allotments. Others were deemed incompetent, though the commissioners did not provide explanations. "It would be better for the heirs" they initially reasoned "for the government to sell these allotments…and hold the shares…in trust to be expended for their support as needed" (Smith et al. 1919:656). An alternative reason for selling the land, however, emerges a few pages later. The commissioners noted these same parcels should be sold "*on account of timber* or age of the heirs" (Smith et al. 1919, emphasis added).

Fraud and corruption were endemic in the management of timber lands in the west during the late nineteenth and early twentieth centuries (Gates 1968:463-494). Siletz was particularly hard hit (Morgan 1959:1-2; Puter 1972). Given the timber potential at Grand Ronde noted by federal agents during the sale of the tribe's "surplus" lands, similar pressures may have been at work in forced fee patenting and sales. In any case, the combination of federal paternalism, poverty, and developmental pressures placed Grand Ronde allottees—whether "competent" or not—on a path toward landlessness. Individual trust land on the reservation declined rapidly during the first half of the twentieth century. By 1954, only 510 acres, less than 1% of the original reservation, remained held in trust by tribal members (Figures 4.14-4.17)[2].

In the 1950s, federal officials marshalled the lack of individual trust lands at Grand Ronde as justification for the tribe's termination. Termination built on the assimilationist legacies of allotment and boarding schools by severing the government-to-government relationship between the United States and Native nations, thereby ending federal responsibilities to tribes (Wilkinson 2005; Wilkinson and Biggs 1977). Termination was the subject of extensive discussion within the Grand Ronde community (see Lewis 2009 for a full review). Akin to allotment six decades earlier, federal officials and tribal members held diverging conceptions about what termination entailed. At Grand Ronde (and Siletz), tribal members sought to lift the burden of federal oversight over individual affairs and repeal discriminatory state laws regarding the purchase of alcohol and interracial marriage. But few if any would have approved the government's plan: ending federal recognition, selling all tribal and trust lands, and dissolving reservation communities.

[2] Figures 4.14-4.17 show changes only in individually-owned trust properties. Tribal land owned in trust, most of which was purchased following the passage of the Indian Reorganization Act in 1934, is excluded.

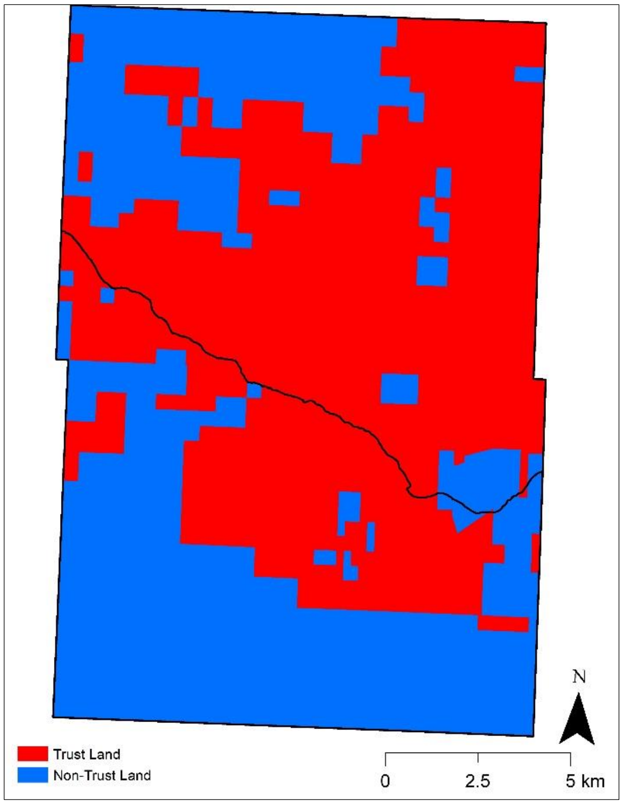

Figure 4.14 Individual trust land (33,363 acres) at Grand Ronde, 1889.

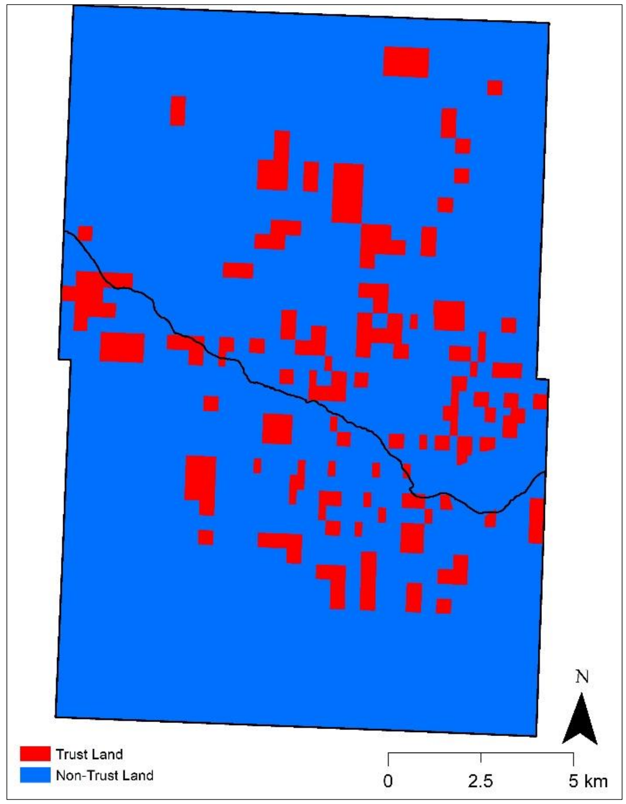

Figure 4.15 Individual trust land (6,609 acres) at Grand Ronde, 1915.

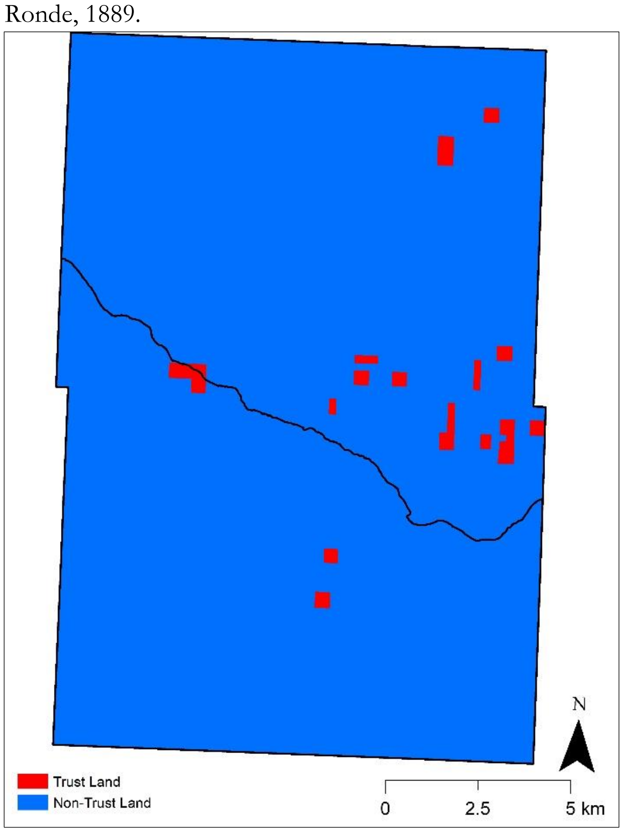

Figure 4.16 Individual trust land (829 acres) at Grand Ronde, 1940.

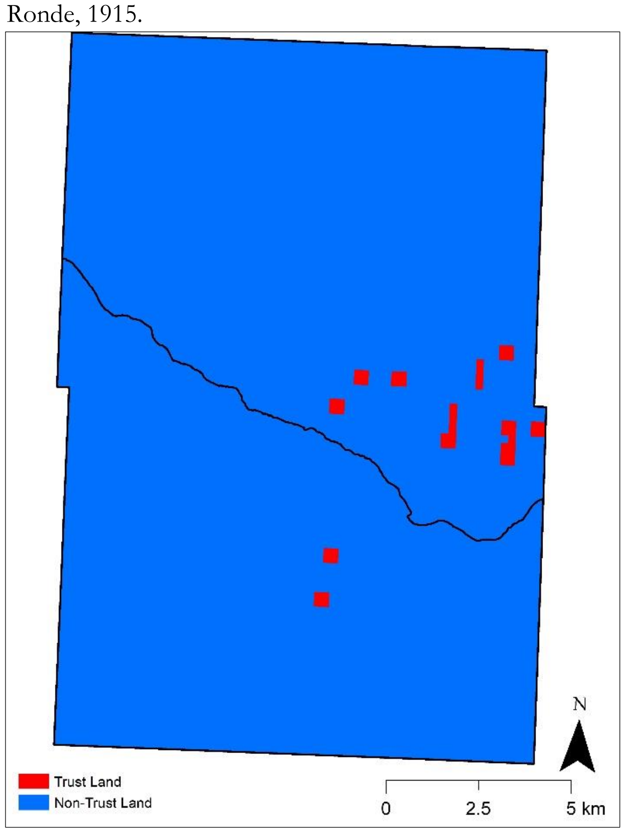

Figure 4.17 Individual trust land (514 acres) at Grand Ronde, 1954.

That Grand Ronde and Siletz fully approved or understood the final language of termination legislation is contested by Lewis (2009) and Wilkinson (2010:286-292), respectively.

Away from the reservation, Congress reviewed Grand Ronde's suitability for termination, as indicated by their degree of assimilation with the surrounding settler population (Subcommittees on Interior and Insular Affairs 1954). Area Director Pryse noted that those at Grand Ronde "attest a degree of acculturation which provides little, if any, evidence to distinguish or identify [them as] Indians" (142). He explained that "you often cannot tell an Indian home from another [non-Indian]" (186), that tribal members "have practically all of the mannerisms of the average white person" (150), and when it came to the small number of remaining trust properties, "without exception, the owners…are anxious that their lands be placed on the market now" (150). Pryse went so far as to claim that "Indians of western Oregon indicate that they are being discriminated against due to the fact that their property held in trust by the Federal Government is immune from real property taxation" (150). Of course, Pryse's discussion of tribal allotments overlooked the means by which tribal members had received fee patents and the circumstances propelling the sale of their lands (see Beck 2009:15 for a similar discussion among Native communities in southwestern Oregon). Wilkinson (2010:297) describes Pryse's testimony as "subjective, glib, and wildly overstated."

The committee also ignored how remaining tribal land, though small in acres, contained important meeting spaces that bound the community together. Without these details to inconvenience Pryse's presentation, committee members agreed that termination would have few negative impacts on the community. Scant attention was paid to the tribe's consent, and no tribal members testified. Later that year, the Western Oregon Indian Termination Act formally ended federal recognition for Grand Ronde. In subsequent years, the BIA disposed of 597 acres of tribal land and awarded fee patents to remaining allottees. By the time the process concluded, the tribe retained only its 2.5-acre cemetery.

The Dawes Act left an indelible mark at Grand Ronde. It facilitated the near-total transfer of reservation land to settlers, which in turn encouraged federal officials to pursue, and ultimately implement, deeply damaging termination policy. A century of federal discourse about the Grand Ronde community's cultural "progress," much of it bearing a questionable relationship with the reservation's on-the-ground realities, snowballed into an ostensible readiness for federal termination. The voices of community members rarely penetrated these discussions, lest they contest the narratives developed by reservation agents. As I note above, the colonial archive does not simply contain situated representations of Native peoples. It reinforces state perceptions of Native peoples and facilitates particular actions toward them. Termination is a fitting and destructive example.

In the years following termination, tribal members lost access to health services and employment opportunities through the BIA, deepening existing poverty and forcing many to leave Grand Ronde for Portland, Salem, and beyond. The federal government's relocation program, established following the passage of the Indian Relocation Act of 1956, encouraged migration, especially to urban areas, with the (often flimsy) promise of vocational training and employment opportunities (Lewis 2009; Merrill and Hajda 2007; Wilkinson 2010:305-307). This period was one of great difficult for the community. It was also one of profound resilience. Tribal members continued to live at Grand Ronde, often as lessees on their families' original allotments, or visit from their homes further afield. They harvested long-important plant and animal foods, spoke Chinuk Wawa, and maintained links with families from Siletz and other reservations. They worked in the logging industry, picked hops and berries on local farms, and sold fish and baskets. They persisted, not without hardship or change, but they persisted nonetheless.

In the decades following termination, Native nations across the country reasserted their sovereignty and called attention to the federal government's repeated failures to honor treaty rights.

This activism altered the political climate and set the stage for Grand Ronde's pursuit of restoration. The restoration of Siletz in 1977 added further inspiration. From a maintenance shed on the tribe's 2.5-acre cemetery, tribal leaders began to organize. Over several difficult years, they lobbied state politicians, local communities, and Oregon tribes for support. Before the House Interior and Insular Affairs Committee in 1983, community leaders powerfully interrupted colonial discourse about their community and made their opinions heard. Vice Chair of the Grand Ronde Tribal Council Kathryn Harrison spoke in support of Grand Ronde's restoration. She began her remarks in Chinuk Wawa, before transitioning to English: "I bring you greetings from my People: descendants of a People who began our passage through Oregon's unwritten history 127 years ago. How fortunate we are that they persisted so we, who came after them, could be here" (Olson 2005:115). After outlining termination's impact on the community, she concluded: "our people have endured much, but they have endured. We're today having walked through twenty-nine years of termination. But like our ancestors, we have continued to hold tightly to those strands of our heritage, forever mindful of the coming generations" (Olson 2005:118). The testimony provided by Harrison and others propelled the Grand Ronde Restoration Act to passage. The tribe was restored in November. Five years later, 9,811 acres of the original reservation, much of valuable timber land, was returned to the tribe.

CONCLUSION

The Grand Ronde Land Tenure Project revealed new information about the competing spatial agendas that unfolded on the reservation during the nineteenth and twentieth centuries. The reservation landscape did not exclusively reflect the assimilationist aspirations of federal officials, nor was it a space in which Native communities lived free of government interference. Rather, it was an arena of cultural contestation within which Native lifeways engaged with and at times undermined federal policies.

These insights contribute to the work of the HPO and related departments. Most immediately, project datasets and GIS layers will aid cultural protection. Newly digitized maps will allow historic preservation staff to locate homes, activity areas, and properties of past tribal members as well as places of cultural and/or spiritual importance. Doing so will prove critical during consultations with tribal departments and developers to ensure cultural resources are protected ahead of economic development on and off the reservation.

The project also has relevance to tribal initiatives beyond the HPO. For the tribe's Natural Resources Department, situating settlement patterns within the context of reservation seasonal rounds may provide insight into food gathering post-removal. The tribe's Lands Department is interested in the location and sale of allotment parcels, as this information may help prioritize future acquisition decisions. The purchase of original reservation land and its conversion from fee to trust status—a current priority within the tribe—enhances Grand Ronde's ability to spearhead economic development, protect threatened cultural resources and habitats, and combat land checkerboarding, which complicates all phases of tribal governance (Ruppell 2008).

Lastly, project data have archaeological implications. Field Methods in Indigenous Archaeology drew on historical maps and allotment information to select reservation properties likely to contain material deposits dating to the nineteenth and early twentieth centuries (Panich et al. 2018). Archaeological investigation at these properties offered an opportunity to compare landscape-scale insights about settlement patterns with household-scale belongings. Archaeological fieldwork and results are the subject of the following three chapters.

CHAPTER 5: FMIA'S RESEARCH QUESTIONS

The Grand Ronde Land Tenure Project revealed community responses to allotment and other government policies. It identified stories of survivance within the colonial archive despite authors' ideological filters that reduced Native identities and practices to problems in need of solving. This filter obscured community actions, but it did not render them unrecoverable. By reading archival knowledge with an eye toward Native presence, enacted spatially via settlement organization and relationship building, settler colonial narratives continually espoused by reservation agents gave way to a complex history of land use and ownership at Grand Ronde.

Ending my analysis there, however, would exclude other aspects of Native lifeways from consideration, including those that operated beyond the ken of reservation agents and/or were intentionally or unintentionally omitted from the archive. Following Stoler (2002:91), I had to be mindful of the "conditions of possibility that shaped what could be written…what stories could be told, and what could not be said." Agents' writings focused on public activities—construction, schooling, and agriculture—that outwardly "improved" the reservation's cultural condition. Even so, public activities emerged as sites of contestation. Although federal officials envisioned the reservation system as an all-encompassing assimilationist project, the extent of federal control on-the-ground proved inconsistent across time and space. That the Grand Ronde community held a modicum of freedom to organize reservation settlements and dictate the implementation of allotment highlights this discrepancy between the policy rhetoric and implementation.

Cultural practices enacted in non-public spaces, such as the interiors of homes and culturally important places on and off the reservation, likely offer additional examples of this discrepancy. Cultural adaptation and creation in these spaces unfolded with less direct interference (though the structure of settler colonialism indirectly limited individuals' options). But given the selective and fragmentary nature of the colonial archive, little is known about these non-public, smaller scale survivance strategies. Archaeology presented an alternative approach to accessing this information. As I note in Chapter 2, tacking between evidentiary sources facilitates the identification and exploitation of disjunctures between archival and material data, thereby enabling the creation of historical accounts that would be impossible if sources were considered in isolation (Lightfoot 2006; Wylie 1989). The material record provides an entry point into the everyday decisions made by the Grand Ronde community to weave cultural adaptation in the face of competing economic, material, and cultural pressures. The types of belongings acquired, used, modified, and discarded, their spatial distribution, and their associations with structural features, landscapes, and non-material activities are integral to stories of Grand Ronde survivance—stories that to this point have been missing in accounts of tribal history.

In this chapter, I outline the three research questions guiding FMIA's archaeological research. The first targets existing gaps in Grand Ronde's archaeological record. The second and third research questions concern specific activities at each property—namely, household organization and food practices—and include a series of predictions about how reservation groups balanced cultural tradition and reservation realities. These questions reflect the project's dual goals: craft new accounts of reservation history and create datasets and research experiences of value to the Grand Ronde community.

I evaluated these questions in the context of FMIA's summer field school. Over four field seasons, I worked with HPO staff and FMIA students to conduct archaeological investigation at two tribally-owned properties within the boundaries of the original reservation: the I.P. property and the Rhoades property (Figure 5.1). Fieldwork focused on identifying and documenting material traces of Grand Ronde households. My interest in households was fourfold. First, the GRLTP supplied information on the location of reservation settlements, which I assumed contained temporary and semi-permanent residential structures. Compared to food gathering areas, places of spiritual practice, and other cultural spaces, households are more likely to leave durable material signatures, making them easier to locate and connect with specific activities. Second, households functioned as private spaces, at least when agents were not conducting inspections or censuses (e.g. Lamson 1891:369; McClane 1887:184, 1888:203), in which daily practice likely fostered cultural familiarity, belonging, and continuation. Comparing these practices with those unfolding across the broader landscape would offer a multi-scalar understanding of Grand Ronde survivance. Third, Grand Ronde families likely lived in or near particular households for extended periods of time. As suggested by the GRLTP, settlement and economic patterns among reservation groups gravitated toward their respective Hazen Map encampments during the second half of the nineteenth century. Material deposits at these locations would allow me to track lifeways through time, especially in response to temporally distinct policies such as allotment.

Lastly, archaeological research at households presented an opportunity to implement FMIA's low-impact research methodology. Testing this approach, and refining it as needed, contributes to the tribe's development of a historic preservation plan, leads to a more robust understanding of reservation cultural resources, and assists HPO staff in the protection of tribal heritage off-reservation. The latter point is especially critical given the archaeocentric nature of project mitigation within the historic preservation industry (see Chapter 3). During consultation with government agencies and private firms, HPO staff advocate for site avoidance, geophysical survey, and other culturally-informed, minimally invasive mitigation strategies. As an example of low-impact archaeological investigation, FMIA's fieldwork demonstrates the value of these proposals and encourages the tribe's partners to adopt similar practices.

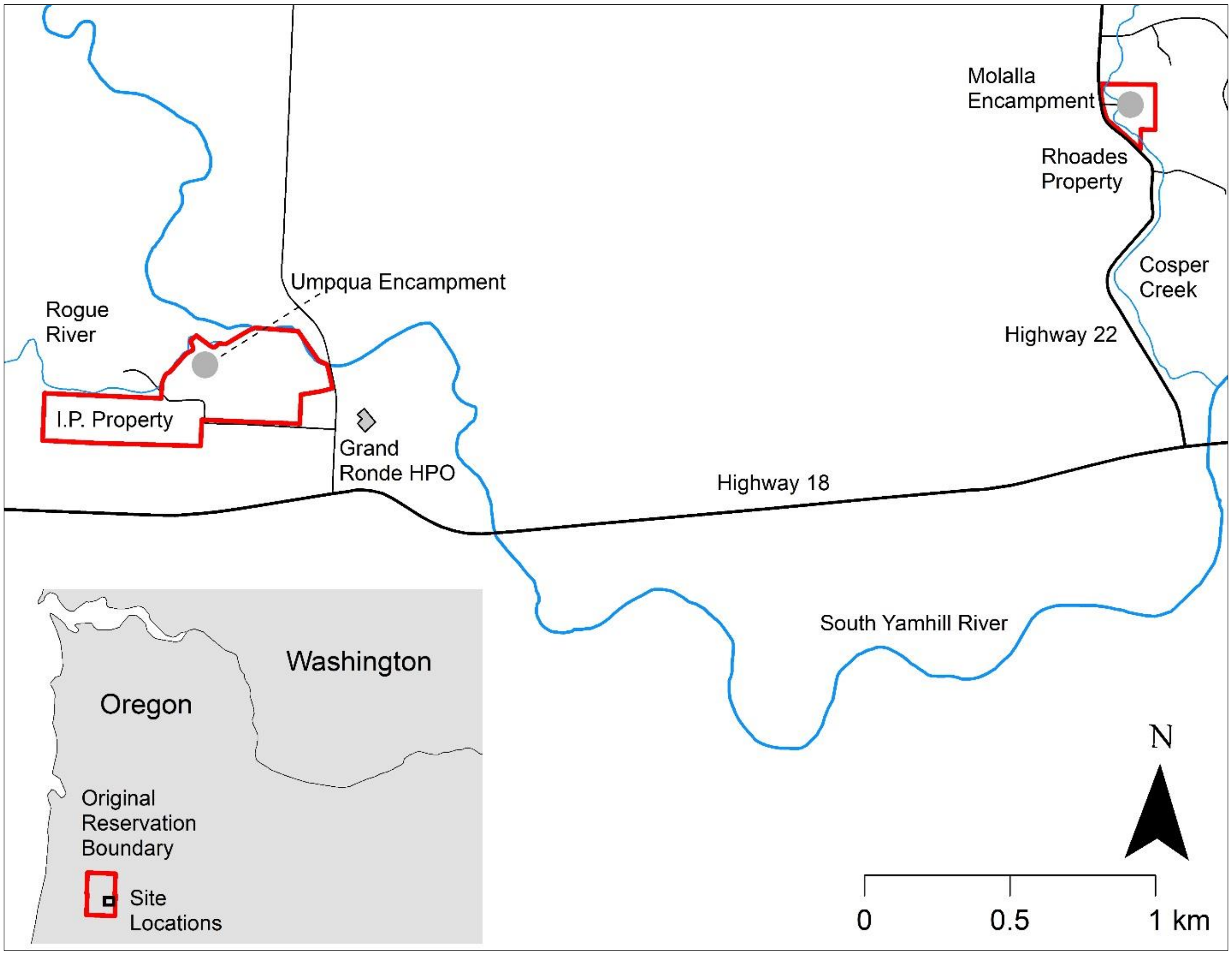

Figure 5.1 Boundaries of the I.P. and Rhoades properties and the locations of the Umpqua and Molalla Encampments in Grand Ronde, Oregon.

RESEARCH QUESTION #1: WHAT OBJECTS CHARACTERIZE THE GRAND RONDE ARCHAEOLOGICAL RECORD?

FMIA's first research question focuses on basic documentation of reservation materiality. The reservation's sizable documentary and ethnographic corpus (Barth 1959; Gatschet et al. 1945; Jacobs 1945a, 1945b; Leavelle 1998; Lewis 2009; Lewis et al. 2013; Mackey 1974; Olson 2011; Olson 2005; Teverbaugh 2000; Zenk 1984; Zenk and Schrock 2017) offers insight into Grand Ronde politics, economic activities, and cultural practices from the 1850s into the present. If it lacks two classes of information, however, it is spatial data (see Chapter 4) and material remains. What kinds of structures, tools, foods, and other items did the Grand Ronde community acquire, build, use, modify, and discard in their daily lives? How did material assemblages change across time and space? To what extent are these assemblages similar to and distinct from those of contemporary settlers, either in the nature of material deposits or their contextual associations?

Partial answers to these questions have been provided by compliance-related archaeological research ahead of land development on tribal lands. Compliance fieldwork has been conducted by outside consulting firms (e.g. Becker et al. 2008; Cheatham 1988b; Ross 1996; Roulette et al. 2002; Wilson 1997, 1998) and, since the establishment of the HPO in 2011, historic preservation staff. These projects complement the reservation's non-material historical record but are not without limitations. The primary goal of these studies is to document cultural resources within an area of potential effect rather than answer outstanding questions about reservation history. Accordingly, fieldwork adheres to an accelerated timeline, usually a few days to a couple weeks, and often lacks multi-stage field investigation. One to two strategies, most commonly monitoring and shovel probes, usually comprise field methodologies. As a result, these studies capture only a small sample of reservation materiality.

Another issue with accelerated timelines is the lack of opportunities for collaboration and incorporating non-published community knowledge into research design. This is less true now that the HPO oversees on-reservation fieldwork, as HPO staff regularly consult with tribal members about the importance of specific properties and understand the importance of culturally-informed project implementation. Yet pre-HPO reports raise questions about whether increased collaboration and/or community knowledge would have altered project results or interpretations. HPO staff sought to address both issues—small samples of reservation materiality and lack of collaboration in reservation fieldwork—with FMIA's investigations.

FMIA also served as a case study for HPO's discussions with their consulting partners. As I discuss in Chapter 3, HPO staff commonly encounter persistent settler colonial narratives, artifact classifications ("Native American" versus "Euro-American"), and temporal categories ("historic" versus "prehistoric) that leave little room for Native presence post-contact and (re)use of mass-produced goods. The ubiquity of these terms subtly but meaningfully encourages agency personnel and private consultants to consider tribal heritage only in "prehistoric" periods or on properties without evidence of "historic" use. That Native peoples "vanished" from the wider Oregon landscape following the establishment of reservations is often assumed (see Lewis 2014).

Documentation of Native lifeways at the I.P. and Rhoades properties is important because it demonstrates that relative proportions of "Native American" and "Euro-American" artifacts—and, moreover, the presence of artifacts in the first place—do not necessarily correlate with Native activities and/or connections to place. For HPO staff, consulting best practices revolve around interpersonal relationships, dialog, and a willingness to consider Native presence in post-1856 Oregon histories. FMIA sought to join the Grand Ronde Depot as examples with which the HPO pushes for tribal inclusion in project discussions regardless of a property's temporal significance, artifact assemblage, or ostensible cultural association.

Arriving at a more complete understanding of reservation materiality also has disciplinary implications. In Chapter 2, I argue that archaeologies of colonialism, despite repeated calls to expand temporal assessments of Native history beyond periods of "contact," continue to lack robust examinations of nineteenth and twentieth century Native experiences. This is especially true in the Pacific Northwest, where anthropological and historical research on recent Native history (e.g. Beckham 2006; Berg 2007; Fisher 2015; Harmon 1998; Raibmon 2005; Suttles and Lang 2013; Wilkinson 2010) has outpaced archaeological research (though see Tveskov 2007, 2017). This temporal skew leaves unanswered fundamental questions about reservation's material conditions and the diverse strategies Native peoples employed to refuse, resist, and selectively participate in settler colonial policies. Archaeological research at the Umpqua and Molalla Encampments begins to fill this gap. By exploring the material record of nineteenth and early twentieth century life at Grand Ronde, this work provides a baseline for and will hopefully stimulate other reservation-focused studies, in the Pacific Northwest and beyond.

RESEARCH QUESTION #2: DID HOUSEHOLD INTERIORS FOSTER RESIDENCE?

In Chapter 4, I read the location and composition of Grand Ronde settlements as landscape-scale refusals of assimilationist policies. Where agents and legislators pushed for private property ownership and sedentism as a gateway to a host of desirable lifeways, the Grand Ronde community adapted pre-reservation practices to their new circumstances. They lived on the reservation during the winter months, arranged their homes in clusters, and secured allotments near extended family members and historical neighbors. They enacted spatial self-determination, demonstrating that whatever the outward appearance of their homes, the underlying relationships dictating their use, associations, and meanings drew inspiration from histories predating US settler colonialism. Following Silliman (2014), reservation settlement patterns were acts of residence whereby those at Grand Ronde created spaces cultural familiarity.

With fieldwork, I explored whether the interiors of reservation homes also encouraged residence. The Grand Ronde archival record contains little information about household interiors. The writings of government agents skew toward highly visible activities, during which the Grand Ronde community would have been acutely aware that they were being watched. The value of archaeological research in household settings lies in its ability to access to the reservation's "hidden transcript" (Scott 1990) that was composed by, told to, and known only to the Grand Ronde community.

Specifically, I investigated whether the organization of household interiors adopted pre-reservation spatial elements. Following documentary sources (Berreman 1934; Sinnott 1877:170;

Sinnot 1875:346), I expected household's basic trappings, exterior appearance, and construction materials to resemble those of contemporary settler cabins in the region, as documented historically and archaeologically (Boag 1992:56-57; Clark 1927:388-390; Manion 2006; Minor et al. 1981). I predicted material deposits would be dominated by ceramic vessels (primarily refined white earthenware and semi-vitrified white earthenware), glass (flat, vessel, and lamp), sawn wood and iron nails (wire and cut), and other mass-produced furnishings from the nineteenth and early twentieth centuries. I also expected to find few objects rooted in pre-reservation traditions such as lithic artifacts, wood and bone implements, baskets, and cedar bark clothing or cordage.

Mass-produced items likely served functional as well as strategic purposes within Grand Ronde homes. For reservation families, continued manufacture and use of pre-reservation material culture may have been impractical due to challenging economic conditions and/or lack of resources. It also may have been dangerous. Agents repeatedly threatened and even jailed practitioners of pre-reservation religious or medicinal customs and punished schoolchildren who spoke Chinuk Wawa (Berreman 1934:38, 96; McClane 1886:211). In this context of agent surveillance and intimidation, incorporation of settler objects into Grand Ronde homes may have been the community's only option. Furthermore, these objects may have presented an image of "progress" to agents, thereby facilitating families' participation in other meaningful activities. In Chapter 4, I note that agents closely monitored community displays of assimilation such as dress and economic activity. They paired these observations with inspections of Grand Ronde homes, which appear to have occurred annually as part of the reservation census (Lamson 1891:369; McClane 1887:184, 1888:203). Using settler furnishings may have been a relatively easy way for the community to curry favor with agents, who would then be more likely to allow off-reservation travel for food gathering, work, or other activities. In interactions defined by asymmetrical power relations "It is frequently in the interest of both parties to tacitly conspire in misrepresentation" (Scott 1990:2). Exaggeration and self-promotion inflected agents' writings as they sought to demonstrate their efficacy in implementing federal policy. Grand Ronde expressions of settler materiality may have served a similar purpose, giving the impression that the community had invested in the reservation's "civilizing" mission and thus minimizing the need for constant supervision. Settler household goods may have been a form of strategic (and practical) acquiescence that made other lifeways possible.

Perhaps less obvious to agents was the organization of household interiors. The Grand Ronde archival record provides little information about the interiors of Grand Ronde homes (though see Zenk 2017:15) and whether the adoption of settler material culture coincided with changes in the underlying spatial relationships that ordered daily life within Grand Ronde dwellings. These relationships, more than the objects they located and defined, may have been loci of cultural adaptation and creativity (Cipolla et al. 2007; Lightfoot and Gonzalez 2018a; Lightfoot et al. 1998).

During the late Holocene and early colonial period in western Oregon, spatial organization within Native households communicated and reified axes of similarity and difference. These messages were made manifest via house size and orientation, internal division, the relative location of individual family units, and the placement of hearths and storage facilities. The extent to which these practices structured household interiors varied by community and architectural styles (i.e. plank houses in northwestern Oregon, pit houses in southwestern Oregon), but in all homes space played a role in framing the parameters of cultural life (Ames and Sobel 2013; Ames et al. 2008; Ames et al. 1992; Atwood and Gray 1995; Berreman 1944; Coupland et al. 2009; Drucker 1934; Erlandson et al. 1997; Gray 1987; Hajda 1984; Losey 2005; Pettigrew and Lebow 1987; Ray 1938; Tveskov 2000; Wilson 1979).

Many of these practices would not have been amenable to the reservation's political and architectural context, as agents and circumstance compelled the Grand Ronde community to build settler-style log or timber frame cabins. Hearth rings/boxes and sub-floor storage pits/trenches represent two possible exceptions. In pre-reservation households, hearth number depended on the size of the dwelling, though rows of hearths in larger plank houses—with each serving as the social focal point for individual family units—were not uncommon. Hearths took the form of shallow clay-lined depressions, others as surface features. They have been identified archaeologically from concentrations of ash, charcoal, fire-cracked rock, and calcined bone and shell. Sub-floor pits and trenches were integral to the seasonal round, serving as storage areas for food acquired and dried during the summer and, following consumption, refuse areas. They have been identified from circular, repeatedly excavated depressions composed of organic- and artifact-rich sediment. Given their relative ease of construction, ubiquity across pre-reservation Oregon architectural styles, and cultural significance, I expected to find evidence of hearths and/or sub-floor areas in reservation homes. These features would have remodeled otherwise settler cabins in the image of pre-reservation dwellings.

Failure to document these features during fieldwork would suggest household interiors resembled those of settler homes. In terms of fostering cultural familiarity, settlement location and composition (see Chapter 4) may have been more culturally salient—and practical—than interior household organization. Just as the adoption of settler goods may have been a response to economic need and agent coercion, the Grand Ronde community may have decided against adding hearths and/or sub-floor features to their homes.

This is not to say, however, that household interiors did not foster residence—only that they do not contain archaeologically visible forms of residence. Families may have cultivated belonging and familiarity via practices with faint archaeological signatures such as song, language, dance, storytelling, and foodways. Furthermore, some or all of these activities may have taken place in non-household structures. For example, the Grand Ronde community built dance and sweat houses on the reservation (McLane 1886:210-211) and used them into the twentieth century (Berreman

1934:12, 24, 30, 37-38, 40). Similar practices occurred at Siletz (Buford 1898:260; Rector 1862:277). Beyond the spiritual and cultural importance of these structures, they provided space for social gatherings. William Simmons recalled that the "regular warm house, festival dance, [was] held in big sweat house, with fire in [the] center. All get inside and dance. Then play games, cook food, and eat, and then dance some more for a whole week" (Berreman 1934:55). One interpretation, then, of household interiors as indistinguishable from those of settlers is that the Grand Ronde built environment was bifurcated into distinct arenas of negotiation, with households functioning as expedient displays of assimilation and sweat and dance houses as stages of cultural production.

RESEARCH QUESTION #3: WHAT FOODS COMPRISED GRAND RONDE DIETS?

Lastly, fieldwork examined reservation foodways. Numerous historical sources comment on local resource availability and food acquisition and consumption practices within the Grand Ronde community (Gatschet et al. 1945; Jacobs 1945a, 1945b; Leavelle 1998; Mackey 2004; Zenk 2017:120-134). The most detailed references come from the diary of Corporal Royal Bensell, who was stationed at Fort Yamhill between 1862 and 1864. During his time at Grand Ronde, Bensell described several hunting, fishing, and foraging trips. He and his fellow soldiers acquired white-tailed deer (*mawich* in Chinuk Wawa[3]; *Odocoileus virginianus*), salmon (*samən*; *Oncorhynchus* spp.), shellfish, small mammals and birds, and several species of berries and nuts (Barth 1959; see Eichelberger 2010, 2019 for in-depth discussions of soldiers' diets). In their annual reports, agents confirmed the presence of game, including elk (*mulak*; *Cervus canadensis*), berries, and fish at Grand Ronde and along the coast (Condon 1861:170; Lafollett 1869:168-169; Sinnott 1877:170), though they disagreed about whether taxa were abundant or in short supply (Browne 1858:26; Miller 1857:367). This discrepancy likely reflects different priorities—that is, highlighting the well-being of the Grand Ronde

[3] Chinuk Wawa translations from Chinuk Wawa Dictionary Project 2012.

community versus calling attention to food shortages as part of requests for additional funds.

These sources make clear, however, that the Grand Ronde community harvested traditional plant and animal foods. Traditional foods comprised important parts of reservation diets, both because of their cultural importance and as a supplement to persistent crop shortfalls and meager government rations (Lewis 2009:246-247). Consumption of traditional foods may have declined through time, especially post-allotment (see Berreman 1934:15), but it is unlikely they disappeared from community diets. Nor was food acquisition limited to the immediate reservation landscape. Community members engaged in hunting, fishing, and gathering along the coast and at more distant locations, though they often required a pass to do so. Lewis et al. (2013) note that Grand Ronde families visited the Columbia River, and Willamette Falls in particular, to fish and harvest lamprey eel (*Entosphenus tridentatus*) (see also Beckham 2018). Importantly, they also discuss the falls' prominence in tribal stories that describe the ordering of the world and proper behavior within it. These "stories and landscape together weave a tapestry of self and group identification that enables people to have a sense of belonging and home" (Lewis et al. 2013:314). As Grand Ronde's recent efforts to reestablish First Salmon Ceremony and a ceremonial fishery demonstrate, the tapestry linking Grand Ronde and Willamette Falls not only extends millennia into the past; it is being continually woven by current and future generations.

Similar tapestries of emplaced meaning, history, and identity exist throughout the tribe's ancestral homelands. Journeys to Mt. Hebo, Mary's Peak, and other off-reservation places were not simply about acquiring food, though that was important. Visits to storied landscapes were (as they continue to be) salient markers of Grand Ronde transmotion: acts of spatial and temporal self-determination though which the community cultivated relationships with human and nonhuman neighbors, recounted stories about place, practice, and history, and passed knowledge to the next generation.

I thus expected archaeological deposits associated with Grand Ronde households to contain a range of traditional foods, with those available locally comprising a greater proportion of reservation diets than those found further afield. In addition to deer, elk, salmon, and shellfish, I expected deposits to include macrobotanical remains of acorns (*ḳ'anawi*; *Quercus* sp.) and hazelnuts (*taqwəla*; *Corylus* sp.), seeds of tarweed (*limulo-saplil*; *Madia* sp.) and berries (*ulali*; e.g. *Rubus* spp.), and potentially charred camas bulbs (*laḳamas*; *Camassia* sp.). The dietary and cultural significance of these plants is preserved in community knowledge as well as ethnographic and ethnohistorical accounts (Berreman 1934:93-94; Darby 2005; Gahr 2013; Jacobs 1945a:20-21, 1959b:490; Tveskov 2007), and all have been recovered from western Oregon archaeological sites dated to the late Holocene or colonial periods (Cheatham 1988a; Davis and Miksicek 1987; Lepofsky 2004; Minor and Pickett 1982; Prouty 1991; Prouty et al. 2004).

Although agents tolerated the community's acquisition of traditional foods, their goal was to shift Grand Ronde diets to livestock and cultigens. They reported that the community raised cattle (*musmus*; *Bos taurus*), pigs (*ḳushu*; *Sus scrofa*), sheep (*limoto*; *Ovis aries*), horses (*ḳʰiyutən*; *Equus ferus caballus*), and chickens (*lepʰul*; *Gallus gallus domesticus*) and cultivated wheat (*saplel*; *Triticum* sp.), corn (*isaɬx*; *Zea mays*), barley (*lolsh*; *Hordeum vulgare*), oats (*lawen*; *Avena sativa*), and several species of vegetables. Whether these foods were plentiful is another question. During the reservation's early years, repeated agricultural failures frustrated agents, who cited the reservation's clay-rich soils, wet climate, and lack of equipment as the primary culprits. By 1877, Agent Sinnott (315) reported that agricultural production had improved, with only 10% of the community's sustenance coming from hunting, fishing, or gathering. The following year, he put this number at 5% (Sinnott 1878:307; see also Lafollett 1869:165). It is difficult to assess the veracity of these claims, especially since they run counter to ethnographic as well as community knowledge that agricultural output at Grand Ronde has always been limited (e.g. Berreman 1934:24-25). These competing claims aside, I expected archaeological deposits to also contain remains of introduced plants and animals, albeit in lower quantities relative to traditional foods.

I considered the alternative—that household deposits would contain little to no traditional food taxa—unlikely given the number of sources pointing to their continued harvest. However, as in the discussion about household interiors, economic hardship may have limited the community's ability to harvest traditional foods, especially at faraway locales. If so, the importance of traditional foods may have been less about subsistence and more about enduring connections to the places and practices of harvest.

With these three research questions, FMIA sought to complement existing accounts of Grand Ronde history and comment on the diverse ways the community remade the reservation into a place of belonging despite its many challenges. Research at the Umpqua and Molalla Encampments was not intended to produce a definitive account of reservation materiality, household interiors, or foodways. Rather, it sought to expand the body of knowledge available to HPO staff, with the hope that this information would contribute to the protection of tribal heritage and create opportunities for future tribal members and scholars. It was also designed to demonstrate the interpretive value of multi-evidentiary datasets in recovering stories of survivance unfolding at different scales, expressed via material and non-material practices, and routed through places near and far.

CHAPTER 6: ARCHAEOLOGICAL RESEARCH AT GRAND RONDE

Over four field seasons between 2015 and 2018, I worked alongside HPO staff, FMIA students, and graduate student volunteers to conduct site documentation, survey, and excavation at the Umpqua and the Molalla Encampments. Fieldwork adhered to a multi-phase, low-impact methodology, and both sites satisfied the HPO's four selection criteria (see Chapter 3). In this chapter, I discuss the implementation of this methodology, with an emphasis on the decision-making process, goals, research strategies, and results from each phase and season of fieldwork. I begin by outlining the environmental, archaeological, and cultural context of Grand Ronde and the Willamette Valley. Such context statements are common in archaeology reports within the historic preservation industry, yet Grand Ronde (and other Native communities) often take issue with these statements' use of outdated references, descriptions of Native lifeways as past tense and unchanging, and omission of Native history after the arrival of settlers. In providing this context, my goals are twofold: (1) review information about the types of sediments and materials likely to be encountered during fieldwork and (2) demonstrate that context statements can be written in ways that incorporate rather than elide Native presence.

FIELDWORK IN CONTEXT

Environmental Setting

The Umpqua and Molalla Encampments are located approximately 3.3 km apart near the unincorporated community of Grand Ronde, Oregon, and the east-central border of the original Grand Ronde Reservation (Figure 5.1). Grand Ronde owns both sites as part of the I.P. and Rhoades properties, respectively; these properties are held in trust, granting the tribe final authority over the documentation and treatment of cultural resources they contain. The Umpqua Encampment is located in the center of Section 12, Township 6 South, Range 8 West of the

Willamette Meridian; the Molalla Encampment is located in the northern half of Section 8, Township 6 South, Range 7 West of the Willamette Meridian.

This portion of the original reservation is situated in the eastern foothills of the Coast Range. The Coast Range spans 200 miles from the Columbia River in the north to the middle fork of the Coquille River in the south. It is one section of the Pacific Mountain System that stretches from southern Alaska to California. Formation of the Coast Range began approximately 60 million years ago when volcanic activity raised a chain of islands on the Farallon plate west of the Oregon shoreline. Subsequent uplift and tectonic activity accreted the volcanic chain to the North American plate. The range reached its current location about 25 million years ago (Orr and Orr 2012:212-229). Coast Range waterways terminate in the Pacific Ocean or Oregon's interior valleys. One of them, the South Yamhill River, runs through the town of Grand Ronde and near both properties. It begins at the confluence of Hanchet Creek and Kitten Creek just beyond the northwestern boundary of the original reservation, joins the North Yamhill River near McMinnville and flows into the Willamette River south of Dayton.

Given the rain shadow created by the Coast Range, Grand Ronde's climatic, physiographic, and vegetation makeup is more similar to the Willamette Valley to the east than the windward side of the mountains. The climate of the Willamette Valley is characterized by warm, dry summers with mean high temperatures of 80° Fahrenheit and cool, wet winters with mean high temperatures of 40° Fahrenheit. Annual precipitation varies with elevation. The valley floor receives on average 94 cm per year while Grand Ronde, which is located at 105 m above sea level, receives 155 cm per year. The bulk of precipitation falls between December and February, with little during the summer months (McCarthy et al. 1997; Taylor and Hannan 1999). The valley extends 200 km from the Columbia River in the north to the convergence of the Coast Range and the Cascade Mountains in the south, near the city of Cottage Grove. Streams flow into the valley's primary waterway, the

Willamette River, which joins the Columbia River northwest of Portland.

The valley is the remnant of an inland sea that formed as the Coast Range developed off-shore. The ocean retreated from the valley during the Miocene, between 23 and 5 million years ago, and was replaced by basalt lava flows from northeastern Oregon. Beginning around 15,000 years ago and lasting for two to three millennia, the valley was repeatedly inundated by massive floods spurred by failures of the ice dam at the western edge of Lake Missoula, which covered most of western Montana. Floodwaters rushed west across the Idaho panhandle and eastern Washington, then south along the Columbia River. The river narrowed near Kalama, Washington, causing floodwaters to back up into the Willamette Valley. At its maximum, this body of water, Lake Allison, extended over 100 miles to Eugene and reached a depth of 400 ft; it would have submerged all but the valley's highest points (Allen et al. 2009; Orr and Orr 2012:186-196). The Willamette Valley's agricultural fertility that attracted settlers in the nineteenth century originated with the hundreds of feet of sediment deposited by these floods.

Stories of massive flood events are preserved in Grand Ronde *ikanum* and may stem from first-person accounts. In 1928, John B. Hudson of Grand Ronde recounted in Santiam Kalapuya a flood story to anthropologist Melville Jacobs. "Panther, coyote, whale's daughter, the flood, obtaining the fire" (the title is Jacobs') describes the travels and creation events of coyote and panther. These led to (or perhaps were caused by) a great flood in the valley:

> Now the water (flood) came up (rose). And some of the people, the large birds carried them (up) on their backs. They took them to a big mountain (Pike's Peak or Mary's Peak, west of Corvallis). All those people went to that big mountain there. Now the water was coming up higher. All the country was filled with water…. Now all the people were running along, they climbed up the big mountain. Now it was on that one very loftiest mountain, then all those

people go (up) to there. [Jacobs 1945b:111]

During flood events, the summit of Mary's Peak would have offered stunning views of the inundated valley to the east. While few archaeological sites have been securely dated to the early Holocene, let alone the terminal Pleistocene (Aikens et al. 2011:289-295), Hudson's story points to older human presence in the region.

During the late Holocene, Willamette Valley vegetation mosaics consisted of oak woodlands and grasslands in the valley floor, conifer forests in the foothills, and riparian forests along waterways. Deciduous Oregon white oak (*k'anawi*; *Quercus garryana*) dominated the woodlands, though Douglas fir (*ant'wał*; *Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), and grand fir (*ant'wał*; *Abies grandis*) were also present. Major understory taxa included western sword fern (*Polystichum munitum*), Pacific serviceberry (*təmstiyu*; *Amelanchier alnifolia*), snowberry (*Symphoricarpos albus*), and Pacific poison oak (*Rhus diversiloba*). Grasslands were likely common in lowlands, though the spread of introduced taxa make late Holocene community estimates challenging. In the northern reaches of the valley, high water tables and seasonal flooding supported marshy environments, which provided suitable habitat for camas (*lakamas*; *Caweightia quamash*), wapato (*shawash-waptʰu*; *Sagittaria latifolia*), wild onion (*lisayu*; *Allium* spp.), and other important plant foods (Boyd 1999b; Darby 2005). In valley uplands, Oregon white oak gave way to conifer forests dominated by Douglas fir and, to a lesser extent, grand fir. Vine maple (*k'aw-stik*; *Acer circinatum*), salal (*salal*; *Gaultheria shallon*), and Columbia brome (*Bromus vulgaris*) comprised the understory. Vegetation communities in riparian areas and other poorly drained environments stood out from this broader oak-conifer dynamic. Black cottonwood (*Populus trichocarpa*) dominated many of these areas. Willows (*ina-stik*; *Salix* spp.), Oregon ash (*isik-stik*; *Fraxinus latifolia*), and sedges (*lalim-tipsu*; *Carex* spp.) were also common (Franklin and Dyrness 1988:110-129).

For at least three millennia, Native communities have used frequent, low-intensity fires to preserve habitats and enhance food abundance in the valley (Walsh et al. 2010). Documentary sources reference Native peoples' use of fire for deer hunting, gathering of tarweed, charring and collecting insects, improving acorn harvests, preserving prairies, and preparing land for berry growth. Burning likely took place during the summer months alongside other food gathering and processing activities (Boyd 1999) and was largely responsible for the "Edenic" landscape celebrated by Oregon's early settlers (Aikens et al. 2011:284-285).

Valley vegetation changed dramatically with the influx of settlers, domesticates, and pathogens. Channelization and flood control drained wetland habitats (Benner and Sedell 1997). The cessation of regular burning as a result of Native population declines and settler prohibition led to widespread disappearance of oak savannahs and grasslands. In valley uplands, encroaching Douglas firs converted these habitats into closed forests, and deciduous shrubs replaced grassy understories. Settler livestock, agricultural crops, and invasive species accelerated these changes, especially along the valley floor. These trends have continued into the present, largely preventing the reestablishment of preexisting vegetation regimes (Chappell et al. 2001:56). Today, the Willamette Valley is home to approximately 70% of Oregon's population—including its three largest cities of Portland, Salem, and Eugene—and over 1.5 million acres of orchards, vineyards, and croplands (Schreiner and Devlin 2018).

Grand Ronde has recently partnered with state agencies to protect remaining oak savannahs and local species endangered by human activity, decades of fire suppression, and the spread of invasive taxa. These discussions are products of an emerging consensus among land managers that controlled burns can slow the progression of Douglas fir forests, minimize fuel buildup that contributes to large-scale conflagrations, and improve habitat for key species. The tribe's Natural Resources Department has taken a lead role in these efforts. In addition to fighting forest fires around the country, NRD staff work with state agencies to reintroduce low intensity fires to Oregon landscapes. NRD also maintains a tribal nursery, from which cuttings and seeds of culturally important food, medicinal, and basketry plants have been replanted throughout the tribe's ancestral homelands. When selecting areas for fire restoration and plants for the nursery, NRD staff consult tribal elders and community knowledge to ensure their efforts follow from and contribute to cultural practice. They approach the protection of local habitats as inextricable from the lifeways and knowledge connected to and embedded in them (Ojua and Moore 2018).

Archaeological Setting

The archaeological history of the Willamette Valley begins in the terminal Pleistocene. Several caches of Clovis points, which consistently date to approximately 12,000 years ago, have been found in the valley, albeit from unprovenienced contexts (Connolly 1994; Ozbun and Stueber 2001). Early Holocene sites consist of small-scale lithic scatters, denser assemblages of projectile points and other formal tools, FCR, charcoal lenses, and remains of charred plant foods (Aikens et al. 2011:289-290). The Hannavan Creek Site west of Eugene is typical of the period. Excavation identified hearths, rock ovens, and charred camas bulbs. Radiocarbon dates from the site range from 8,500 to 7,650 years ago, highlighting the time-depth of camas processing in the region (Cheatham 1988a). Another example comes from Cascadia Cave on the South Santiam River. The site contains spectacular rock art panels, and excavation collected more than 100 Cascade projectile points, edge ground cobbles, grinding stones, scrapers, hazelnuts, and mammal and bird bones. Radiocarbon dates from the cave range from 8,650 to 5,600 years ago (Newman 1966).

Similar material patterns have been dated to the middle Holocene. Excavations along Mill Creek near Salem have identified 10 sites, with the bulk of cultural features dated to 5,500 and 3,000 years ago. Middle Holocene deposits from these sites include rock ovens and abundant charred camas bulbs, with smaller numbers of charred hazelnuts and acorns. Flaked and ground stone tools, including side-notched atlatl points, were also present. (Aikens et al. 2011:295-297). These deposits point to broad resource harvesting patterns, with an emphasis on wetland habitats hospitable to camas. Rock ovens, and cultural connections to wetland habitats generally, are also evident at sites recorded along the upper Long Tom River (O'Neill et al. 2004), the Flanagan site west of Eugene (Toepel 1985), and the Lingo site (Cordell 1975).

Many middle Holocene sites exhibit long-term, repeated occupation extending into the late Holocene. However, while middle Holocene deposits generally appear to have functioned as temporary food processing stations, those dated to the late Holocene evince clear behavioral changes, including increased sedentism, population increases, shifts from atlatl to bow and arrow technology, and landscape management in the form of prescribed burns. At the Hurd site near Coburg in the eastern valley, excavators identified a semi-subterranean house situated on a terrace overlooking the McKenzie River. From this location, the house would have been protected from river flooding. This signals foresight and investment among its inhabitants, likely reflecting a shift toward semi-permanent occupation. The house's diverse artifact assemblage supports this interpretation. Excavators documented interior hearths, post-holes, hundreds of arrow points, earth ovens, and charred plant remains. Radiocarbon dates from hearth and oven features suggest two periods of occupation: the first at 2,800 years ago, the second at 1,100 years ago (White 1975). Aikens et al. (2011:302) argue that the absence of support timbers at this house indicates residents relied on pole frame and grass thatch construction techniques. This approach contrasts with the larger, rectangular plank and bark-shingled houses built by communities along the Columbia River and further north.

Another example of late Holocene sedentism and population growth is provided by the hundreds of anthropogenic mounds distributed along valley waterways. At least 125 mounds have been identified along the Calapooia River near Albany. One of them, the Calapooia Midden site, spans 150 m. Its inhabitants used the site seasonally at first, before transitioning to permanent occupation around 1,200 years ago. The site contains spatially distinct camas roasting, faunal processing, and waste disposal activity areas and a diverse assemblage of tools and fauna indicative of near-continuous occupation and dietary breadth (Roulette et al. 1996). It probably functioned as a residential center for a group of related families, possibly with use rights to foods in the immediate vicinity. The other mounds along the river may represent distinct, contemporaneous villages or sets of habitation areas to which families shifted occupation through time (Aikens et al. 2011:310).

Long-term connection is further indicated by the presence of midden burials. Excavators identified several late Holocene burials, some of which contained funerary belongings, and all of which were located in a separate internment area.

Burials, and associated artistic and ceremonial objects, are not uncommon at mound sites (Laughlin 1941; Stepp 1994), and they have attracted looters since at least the early twentieth century. For HPO staff, protection of archaeological sites—and especially burials of tribal ancestors—is a top priority, and they are pursuing increased protection measures for valley mound sites. This work is complicated by the fact that the total number of mound sites is unknown. Mounds are relatively inconspicuous, rising only a few meters above the ground, and are difficult to identify during survey, especially when covered in vegetation. Ideally, state archaeologists and HPO staff would undertake systematic survey of mounds and their state of preservation. However, since known mounds are distributed across dozens of privately-owned parcels, this project is currently unfeasible. Instead, HPO staff have supported efforts to identify mounds using GIS analysis of LiDAR imagery (Cody 2019). This work has identified hundreds of potential mounds throughout the valley. Though ground truthing is necessary to verify results, this analysis nevertheless gives HPO staff a baseline with which to protect mounds ahead of future land development on specific properties.

Native communities occupied mounds and other late Holocene sites into the colonial period. The spread of foreign epidemics and later the influx of settlers led to drastic demographic and economic changes from the late eighteenth through the mid-nineteenth centuries. The archaeological history of this period highlights the cultural, political, and economic complexities that arise within colonial encounters. Multi-ethnic fur trapper homesteads at French Prairie (Chapman 1993), the diverse village at the Hudson Bay Company's Fort Vancouver (Wilson 2015, 2018), the displacement of Native activities by settler industry at Willamette Falls (Minor 2018), and Rogue River War battlefields (Tveskov 2017) and military posts (Adams and Garnett 1991; Tveskov and Cohen 2014) exemplify the intertwined, dispossessive, and violent histories of early colonial Oregon. Research on post-1850 Oregon more prominently features settler experiences and activities. Archaeologists have investigated settler farmsteads (Manion 2006), mining camps (Connolly et al. 2006), pioneer cemeteries (Connolly et al. 2010) and settlements (Atherton 1975), and urban centers (Rose et al. 2007; Roulette et al. 2004). Native communities seldom appear in this work.

Cultural Setting

The Willamette Valley is the ancestral homeland of Kalapuyan speakers. During the nineteenth century, and for several centuries prior, these communities spoke upwards of a dozen dialects, which scholars have placed into three related but mutually unintelligible languages: northern Kalapuyan (Tualatin-Yamhill), central Kalapuyan (Santiam), and southern Kalapuyan (Yonalla). Of the Kalapuyan "bands" noted by early explorers and traders, the Yamhill River Valley, which includes Grand Ronde, was home to the northern Kalapuya Yamhill band (Zenk 1990). The territory of the Yamhill extended from the fork of the South Yamhill River to Rickreall Creek, from the Willamette River to the peak of the Coast Range (Beckham 1977:44; Berreman 1937:21).

The documentary record contains few direct observations of nineteenth century Yamhill communities in particular and Kalapuyan speakers in general (though see Beckham 1977:208-210). Kalapuyan population size at the end of the late Holocene is difficult to estimate given the impact of foreign epidemics but at minimum included 10,000 people (Boyd 1999:324-325). Interviews of Kalapuyan descendants at Grand Ronde about pre-reservation practices (Frachtenberg 1916; Gatschet et al. 1945; Jacobs 1945a, 1945b; Mackey 2004; Zenk 1976, 1984, 1994), combined with archaeological evidence, offers a sketch of valley lifeways during the late Holocene and early colonial period. Kalapuyan subsistence focused on extensive processing of plant foods, primarily camas but also wapato, tarweed seeds, hazelnuts, berries, and acorns. Deer, elk, small mammals and birds, grasshoppers (harvested after prescribed fires), and lamprey were also important foods. Willamette Falls may have presented an unsurmountable barrier to late season salmon species, but valley tributaries likely included spring chinook salmon. Kalapuyan communities harvested salmon via dip nets and nighttime spearing and also used lines and basket traps to harvest other taxa such as trout. In terms of settlement patterns, Kalapuyan communities moved seasonally, taking up residence in semi-permanent villages during the winter and traveling between temporary food gathering and processing camps during the summer months. Summer also offered opportunities for meeting and trading with other communities, especially at locales such as Willamette Falls. Few details about winter home construction styles exist, though northern groups may have built plank houses similar to their Chinookan neighbors. Each winter village group, which settlers later interpreted as discrete "bands," was politically autonomous and featured diverse families as a result of exogamous, virilocal marriage patterns. Winter village groups maintained use and access rights to particular local food harvesting areas.

Interactions between settlers and Kalapuyans began in 1812 with the Pacific Fur Company's exploration of the Willamette Valley. Contact increased in subsequent decades with the arrival of traders, missionaries, and settlers. By the 1840s, settlers depended on Kalapuyan groups for labor, river navigation, and husbandry (Bergmann 2008). Kalapuyan leaders met with Anson Dart during Oregon's first round of treaty negotiations in 1851. Dart negotiated a series of treaties with individual bands, including one with the Yamhill and Luckiamute Kalapuya. Because these treaties established local reservations throughout the valley, they were rejected by Congress. Northern and central Kalapuyan groups signed Joel Palmer's Kalapuya Treaty of 1855. The following year, Palmer negotiated the Treaty with the Umpqua and Kalapuya with southern valley groups. These documents ceded title to the Willamette Valley and stipulated removal of its communities to Grand Ronde.

ARCHAEOLOGICAL INVESTIGATION AT THE UMPQUA ENCAMPMENT

Property History

The Umpqua Encampment is situated at the confluence of the South Yamhill and Rogue Rivers on the 55-acre I.P. property, approximately 0.5 km west of the HPO (Figure 5.1). According to the Hazen Map, nearly 300 Umpqua peoples lived in five encampments along these two waterways. The map does not provide population estimates for each encampment nor does it specify whether this ethnonym refers to interior Umpqua Valley Athabaskan speakers or Cow Creek (a tributary of the South Umpqua River) Takelman speakers. The former is more likely, as reservation administrators generally distinguished Cow Creek from Umpqua (i.e. Umpqua Valley) communities or placed them under the Rogue River designation (Zenk 1984:85-89).

The Umpqua Encampment (M on Figure 6.1) sits on a densely forested terrace that spans the course of the Rogue River. The terrace sits at 103 m above sea level, approximately 5 m above the river and 3 m above the riparian zone to the east. During the late Holocene, Northwest Coast Native communities built villages along bodies of water, near plant and animal foods, and in defensible positions (Ames and Maschner 1999:152-153). Upon arriving in Grand Ronde, Umpqua groups may have gravitated toward the terrace for similar reasons. In 1889, tribal member John Warren selected an 80-acre parcel encompassing the terrace as part of his 200-acre allotment. Allotment records list Warren's tribal affiliation as Umpqua. Warren (Figure 6.2) was born in 1859 and throughout his life served as the clerk and treasurer for the Grand Ronde Indian Court, as a

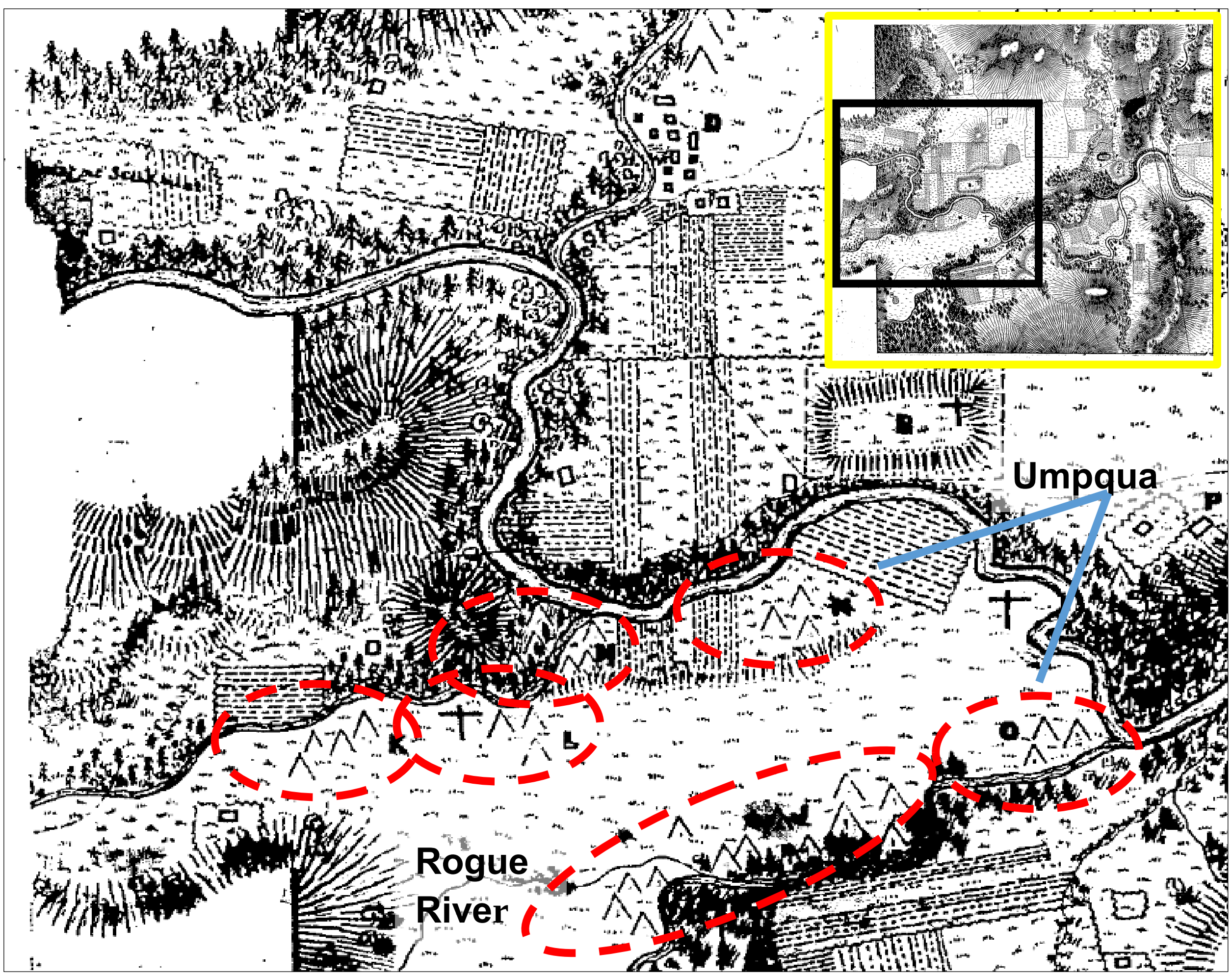

Figure 6.1 Detail of the Hazen Map showing Umpqua and Rogue River encampments.

representative in the Grand Ronde Indian Legislature, and on the Grand Ronde Police Force (Olson 2011:477-478). Warren sold the property to settler Henry Heine in 1909. The tribe purchased the terrace as part of the I.P. property in 1990 for community development and conservation. Today, the tribe maintains a community garden along the property's southern boundary fronting North Street.

Figure 6.2 John Warren and Cecilia Leno (Olson 2011:478).

2015 Field Season

Fieldwork at the Umpqua Encampment began in the summer of 2015. The goal of this first field season was to complete preliminary site documentation and identify extant archaeological deposits. In late July, I visited the property with the HPO's Briece Edwards to develop a plan for fieldwork. Given the terrace's dense groundcover, we decided against intensive surface collection, ground penetrating radar, and other field strategies employed at the Grand Ronde Agency Schoolhouse (Gonzalez et al. 2018) and the Molalla Encampment (see below). Instead, we developed a three-part approach consisting of (1) aerial photography, (2) auger survey, and (3) metal detection. Over a two-week period in late July, I worked with FMIA students to implement this field plan.

Aerial Photography

First, I set out to document the boundaries of the terrace. HPO staff maintained aerial and satellite photographs of the property, but the low resolution of these images lent only a general picture of the terrace's extent. Using a DJI Phantom 3 Professional drone, which is equipped with a 12 mega-pixel camera mounted on a gimbal that can be rotated mid-flight, I photographed the terrace from approximately 110 m above the ground. From these photos, I was able to delineate the terrace boundaries from changes in slope and vegetation composition. A mosaic of these photographs, created in Agisoft PhotoScan, is shown in Figure 6.4 (Alex Drake, the tribe's GIS coordinator and official drone pilot, later created a more complete image mosaic of the property; see Figure 6.5). With these images in hand, HPO staff and I set FMIA's survey area to encompass approximately 1,000 m^2 along the terrace's northern boundary.

Figure 6.3 Sharrah McKenzie and Karl Bloomberg conducting auger survey at the Umpqua Encampment.

Auger Survey

With the survey area established, I then set a baseline for auger survey. The baseline extended 80 m along the northern boundary of the terrace at a bearing of 282°. Each transect began on this baseline and proceeded at a bearing of 192° upslope toward the center of the terrace. The placement of the baseline along the terrace edge ensured sub-surface investigation would span multiple depositional contexts, thereby providing insight into changes in artifact type and/or density across the site. Transects were spaced 20 m apart; bores were placed every 20 m along the transect. In artifact-bearing bores, four additional bores were completed, all spaced 10 m around the original bore. Judgmentally selected augers were also placed in areas containing metal anomalies, as indicated by metal detection survey (see below). In all, 48 auger bores—42 systematic, six judgmental—were completed within a 7,650 m^2 area (Figure 6.6).

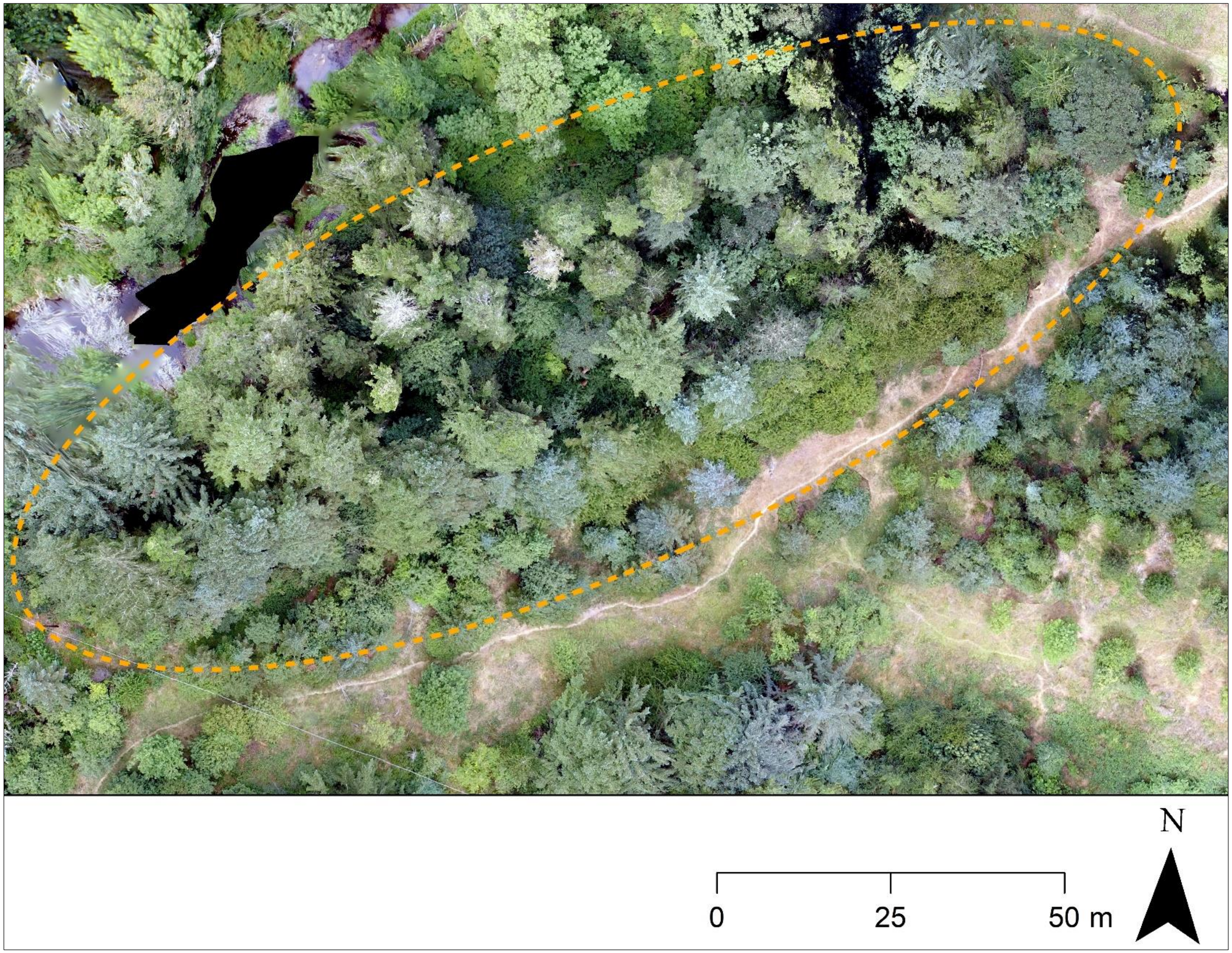

Figure 6.4 Image mosaic of the Umpqua Encampment terrace.

Figure 6.5 Image mosaic of the Umpqua Encampment terrace. Drone imagery courtesy of Alex Drake.

Two 4-inch bucket augers were used to investigate sub-surface deposits. Bores terminated at 1 m below surface or when sub-surface impediments (usually large rocks or tree roots) prevented further investigation. Bores were divided into distinct analytical units, each containing a 20-cm column of sediment. Each sediment column was identified for artifacts at least 5 cm in longest dimension before being collecting for subsequent wet screening through 1/16-in mesh. Sediment color, texture, and composition were recorded for each sediment column. The 48 auger bores yielded 238 analytical units. At the end of the field season, the latitude and longitude of each bore was recorded using a Trimble Pro 6H GNSS Receiver linked to a Panasonic FZ-G1 Toughpad running Trimble's TerraSync software.

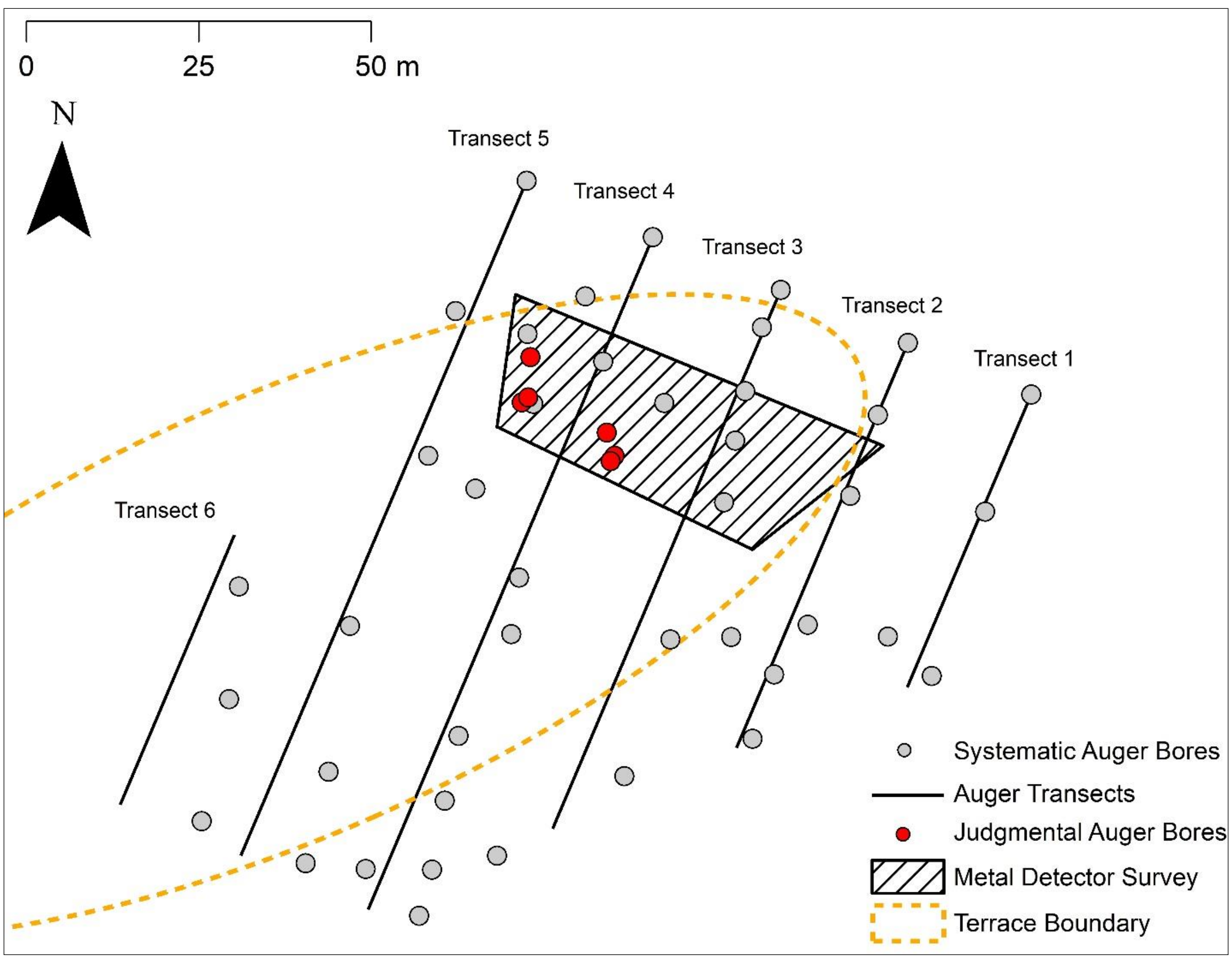

Figure 6.6 Auger and metal detection survey at the Umpqua Encampment.

Metal Detection

Lastly, I used a White's MXT All Pro metal detector owned by the HPO to document near-surface metal artifacts in the interior of the landform. Metal detection focused on the center of the terrace, a location HPO staff and I suspected would have been shielded from post-depositional impacts and thus would be more likely to contain extant archaeological deposits. Metal detection began at Auger Transect 5, 20 m from the baseline, and proceeded at a bearing of 282° (i.e. perpendicular to auger transects) to Auger Transect 3, 20 m from the baseline. Metal detection transects were spaced 1 m apart. Survey terminated near Auger Transect 4, 30 m from the baseline. The latitude and longitude of the metal detection survey boundary was recorded using the Trimble GNSS receiver. The survey area encompassed 990 m^2 (Figure 6.6). Clusters of near-surface metal anomalies were noted with pin flags; sub-surface deposits at these locations were later explored with judgmentally placed auger bores. Surface finds were photographed *in situ* and collected.

2015 Results

The stratigraphic profiles of auger bores varied by location; in general, bores were composed of medium to dark brown silt-dominated sediment in upper levels and dark yellowish brown clay-dominated sediment in lower levels. This sediment composition matches existing soil surveys of Grand Ronde (Knezevich 1982:62-63). Field teams collected four artifacts from the surface: three tin can fragments and a porcelain vessel sherd. Following the field season, auger sediments were wet screened through 1/16-in mesh to document micro-artifacts. Wet screening was conducted at the University of Washington's Pacific Northwest Archaeology Laboratory, the Burke Museum of Natural History and Culture, and FMIA's camp at the Uyxat Powwow Grounds. Auger sediment yielded moderate quantities of cultural material. Recovered artifacts included ferrous metal fragments, glass, five glass beads, and cryptocrystalline silicate (CCS) flakes and flake shatter (Table

6.1). The assemblage exhibits significant fragmentation, with no complete or near complete lithic tools or glass vessels identified. By weight, artifacts concentrated in the center and northern extent of the terrace, primarily in the metal detector survey area (Figure 6.7). Objects most often appeared within 20 cm of the ground surface (Table 6.1). While glass beads and lithic material point to early reservation occupation, overall the assemblage offers relatively little information with which to comment on reservation habitation, either associated with the Umpqua Encampment, Warren's allotment, or later periods.

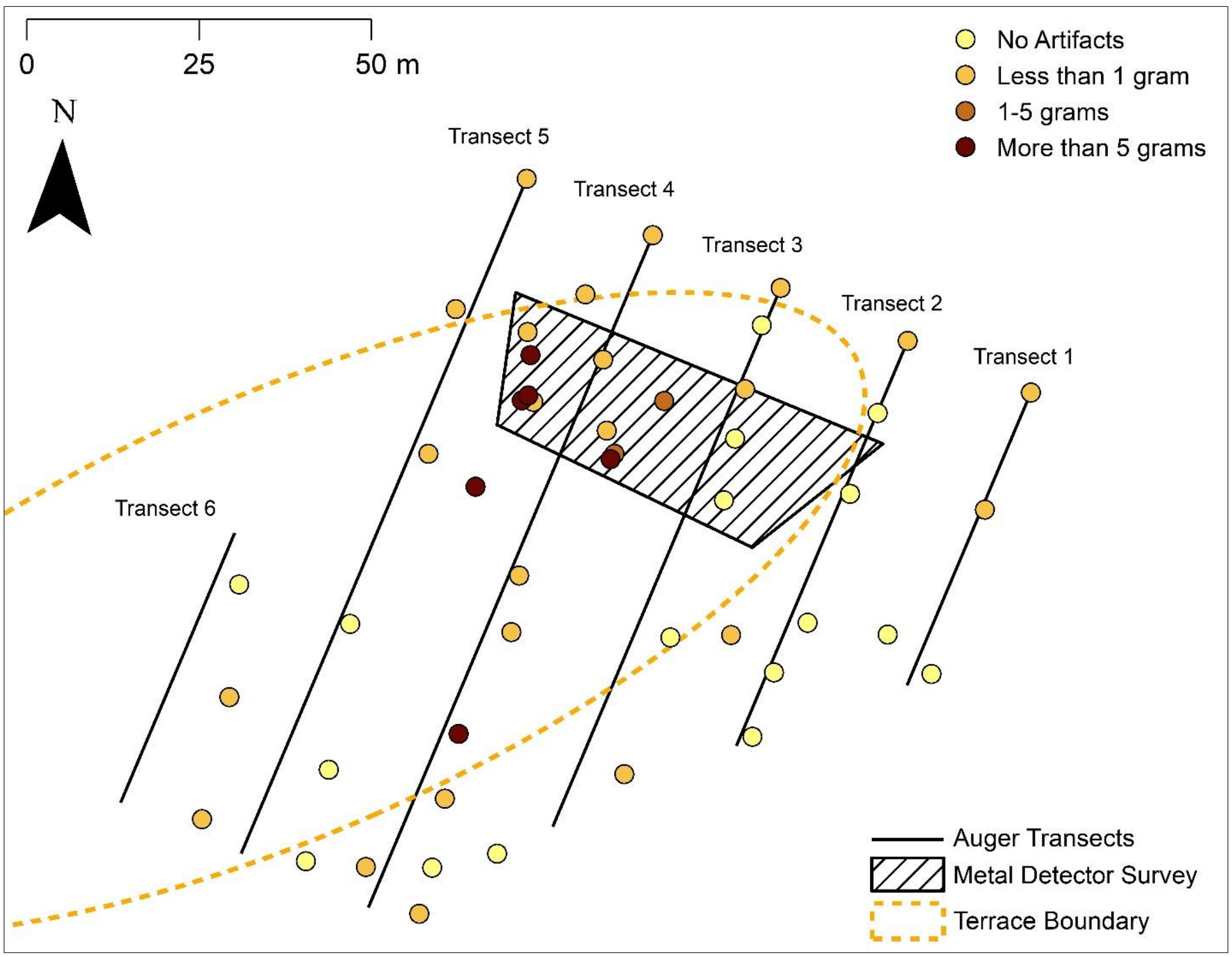

Figure 6.7 Artifact weight (grams) in completed auger bores.

Depth (cm bs)	Glass		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
0-20	22	25.38	0	0	260	28.72	0	0	2	0.13	0	5.03	**284**	**59.26**
20-40	0	0	0	0	54	5.54	1	0.02	5	66.95	0	2.03	**60**	**74.54**
40-60	0	0	0	0	15	2.59	0	0	1	0.04	0.01	1.99	**16**	**4.63**
60-80	2	0.11	0	0	4	0.22	0	0	2	0.19	0	0.15	**8**	**0.67**
80-100	0	0	0	0	0	0	0	0	0	0	0	0.41	**0**	**0.41**
Total	**24**	**25.49**	**0**	**0**	**333**	**37.07**	**1**	**0.02**	**10**	**67.31**	**0.01**	**9.61**	**368**	**139.51**

Table 6.1 Count and weight (grams) of artifacts from the Umpqua Encampment by level.

2015 Conclusions

The paucity of artifacts at the Umpqua Encampment can be explained in at least five ways. First, settlement activity occurred away from the terrace. When developing a plan for fieldwork, I assumed early reservation residents viewed the terrace, and its proximity to two waterways and moderate flood protection, as an attractive settlement area. Instead, it may have been more economically and/or culturally practical to establish settlements further from the water and, according to the Hazen Map, closer to other Umpqua and Rogue River encampments. Though Agent Miller (1857:361) reported tensions between these groups shortly after the reservation's founding, the challenges presented by life at Grand Ronde may have soon prompted collaboration. Reservation residents later noted that cultural and linguistic differences existed between families living on either side of the South Yamhill River (Zenk 1984). Families with Rogue River and Umpqua ancestry (such as Warren) held the majority of allotments south of the river in 1889; these inter-family relationships likely have their roots in the initial founding of the reservation (see Chapter 4).

Second, the shallowness of nineteenth and early twentieth century deposits left the site vulnerable to human activity. Though no large-scale construction projects have occurred on the property, small-scale logging and/or farming may have disturbed and/or removed evidence of the

Umpqua Encampment and subsequent habitation.

Third, only a few families lived at the Umpqua Encampment. Hazen's map does not list the population of each encampment, just that approximately 300 people were distributed between all five. If only a small percentage of the Umpqua community lived on or near the I.P. property terrace, minimal material deposits would be expected.

Fourth, the five Umpqua Encampments, instead of representing separate settlements, as I assumed, constitute different activity areas. Hazen added a series of hatched lines, likely representing agricultural fields, immediately east of the I.P. property. In later decades, agents described cooperative agricultural practices in which groups of extended families worked fields "under the same fence" (Lafollett 1869:166). Perhaps Umpqua communities, or several groups living south of the South Yamhill River, used the fields surrounding the terrace for growing wheat, hay, or other crops rather than for habitation.

Fifth, families lived at the Umpqua Encampment for a brief period. Documentary sources do not comment on the permanence of early reservation encampments. And though cartographic evidence suggests later reservation settlements gravitated toward groups' respective encampment locations, the property's long-term value may have gone beyond habitation. In addition to agricultural activities, the terrace may have provided access to wild plant and animal foods and/or hosted other cultural functions.

These interpretations are not mutually exclusive. For example, the Umpqua Encampment may have been briefly occupied during the mid-nineteenth century and used primarily for agricultural purposes during the allotment period. Nor do these interpretations encompass all the ways the Grand Ronde community may have used and resided on the property through time. What the 2015 field season revealed is that archaeology has a limited role to play in telling the history of the Umpqua Encampment, at least along the Rogue River terrace.

ARCHAEOLOGICAL INVESTIGATION AT THE MOLALLA ENCAMPMENT

Following the 2015 field season, HPO staff and I remained interested in documenting archaeological deposits from the reservation's early decades, allotment period, and early twentieth century. Given the lack of archaeological material at the Umpqua Encampment, we discussed alternative properties that satisfied the four site selection criteria presented in Chapter 3. HPO staff suggested focusing on the Molalla Encampment during the 2016 field season.

Property History

The Molalla Encampment sits at 105 m above sea level on a seven-acre property near the reservation's original eastern boundary. The site is located approximately 0.5 km west of Fort Yamhill and 3 km northeast of the HPO. The Molalla Encampment (S on Figure 6.8) noted by Hazen contained 200 people living along Cosper Creek. (Seven decades later, Victoria Howard told Melville Jacobs [1959b:660] that families lived in "sail houses" along "Casper Creek" following removal. Though it is unclear whether Howard was referring to encampments near Fort Yamhill or those further north, her statement supports Hazen's depiction of early settlements.) The Molalla Encampment extended from the creek's confluence with an unnamed waterway to its intersection with Old Fort Road. This waterway has since been diverted to follow an access road north of the property. Old Fort Road remains and today connects Fort Yamhill State Heritage Area with Highway 22. The Hazen Map shows a Klamath Encampment (K on Figure 6.8) across Cosper Creek to the south and one of the Kalapuya Encampments (Q on Figure 6.8) to the southwest. The presence of Klamath families at Grand Ronde is notable since they did not sign Palmer's 1850s treaties. It is possible they were caught up during the forced removals that soon followed. However, that they lived near the Molalla Encampment is unsurprising, as Klamath groups historically maintained close connections with Molalla and other groups in southwestern and south-central

Oregon. In any event, Klamath groups quickly disappeared from the reservation's archival record. Reservation censuses in subsequent decades make no mention of Klamath individuals. Most of the 140 people living at the Klamath Encampment likely left the reservation for their homelands and/or the Klamath Reservation in southern Oregon; other may have stayed and emphasized different familial ties to join other groups.

The Hazen Map is one of several nineteenth century cartographic representations of this area of the reservation. The 1858 Nesmith Map (Figure 6.9) shows Shasta and Cow Creek settlements to the west of Fort Yamhill while the Sketches of Agencies Map, drawn around 1858, depicts settlements and land use at Grand Ronde (Figure 6.10). The sketches map is torn and

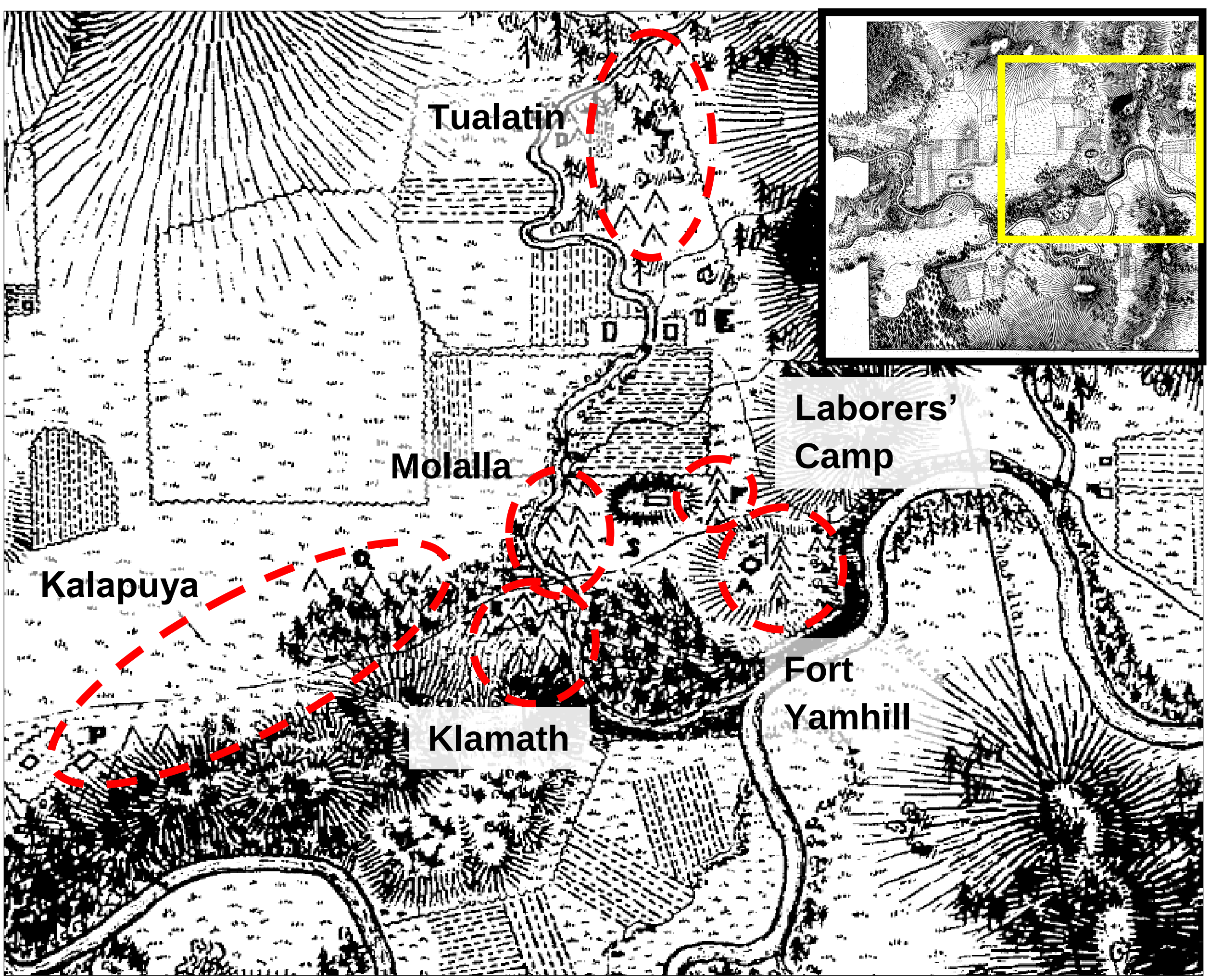

Figure 6.8 Detail of the Hazen Map showing Fort Yamhill and surrounding encampments.

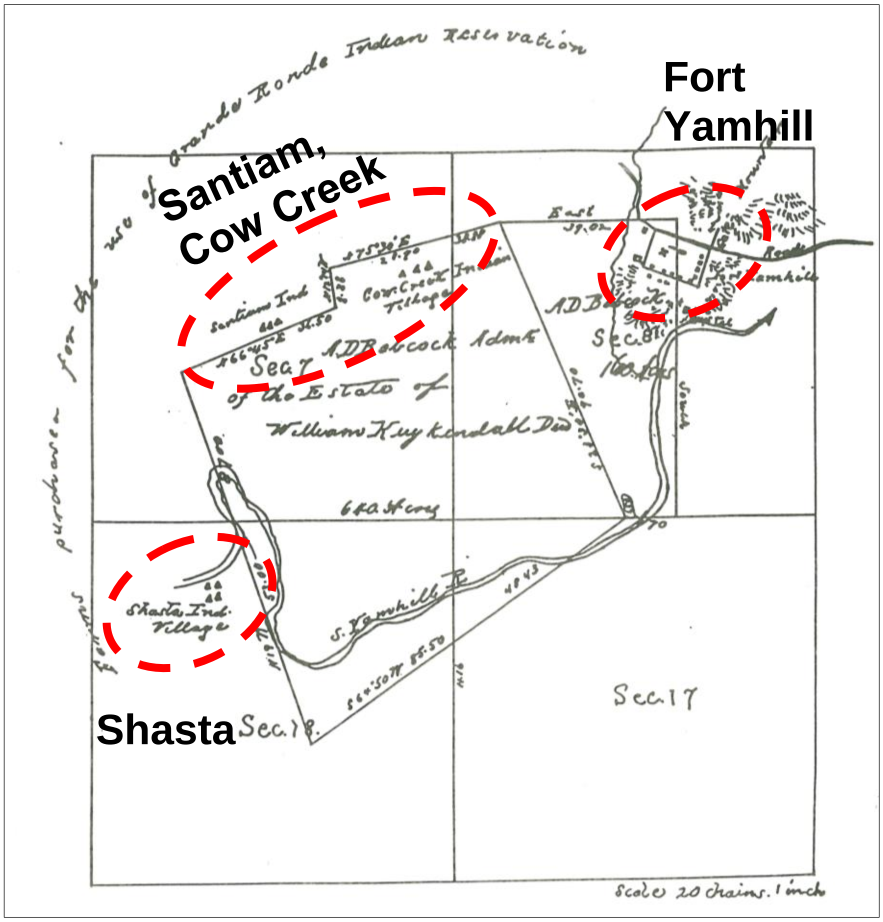

Figure 6.9 The Nesmith Map (1858) showing the Kuykendall and Babcock Donation Land Claims and the location of early reservation settlements (Gordon 1858).

impressionistic, even more so than Hazen's, making georeferencing and spatial interpretations difficult. It places a Cow Creek settlement west of the fort, though on the west side of Cosper Creek. Whether the structures visible west of the fort and on the east side of the creek are associated with the Cow Creek settlement is unknown. The property northwest of the fort, which encompasses the present-day powwow grounds is listed as farmland. A Clackamas, Tumwater, and Molalla settlement is depicted along the creek to the north.

An 1885 Government Land Office survey places a single building, labelled "Veitch's House," along the eastern bank of the creek (Figure 6.11). The location of the house is difficult to pinpoint. The course of Cosper Creek north of the Babock land claim appears well east of its present-day and allotment-era courses (e.g. allotment surveys made just two years later place the creek on the western edge of the Babcock property). Most likely the house was located on or immediately south of the Rhoades property. "Veitch" does not match the first or last names of any Grand Ronde allottee (or their family members) awarded property in this area in 1889 (Olson 2011).

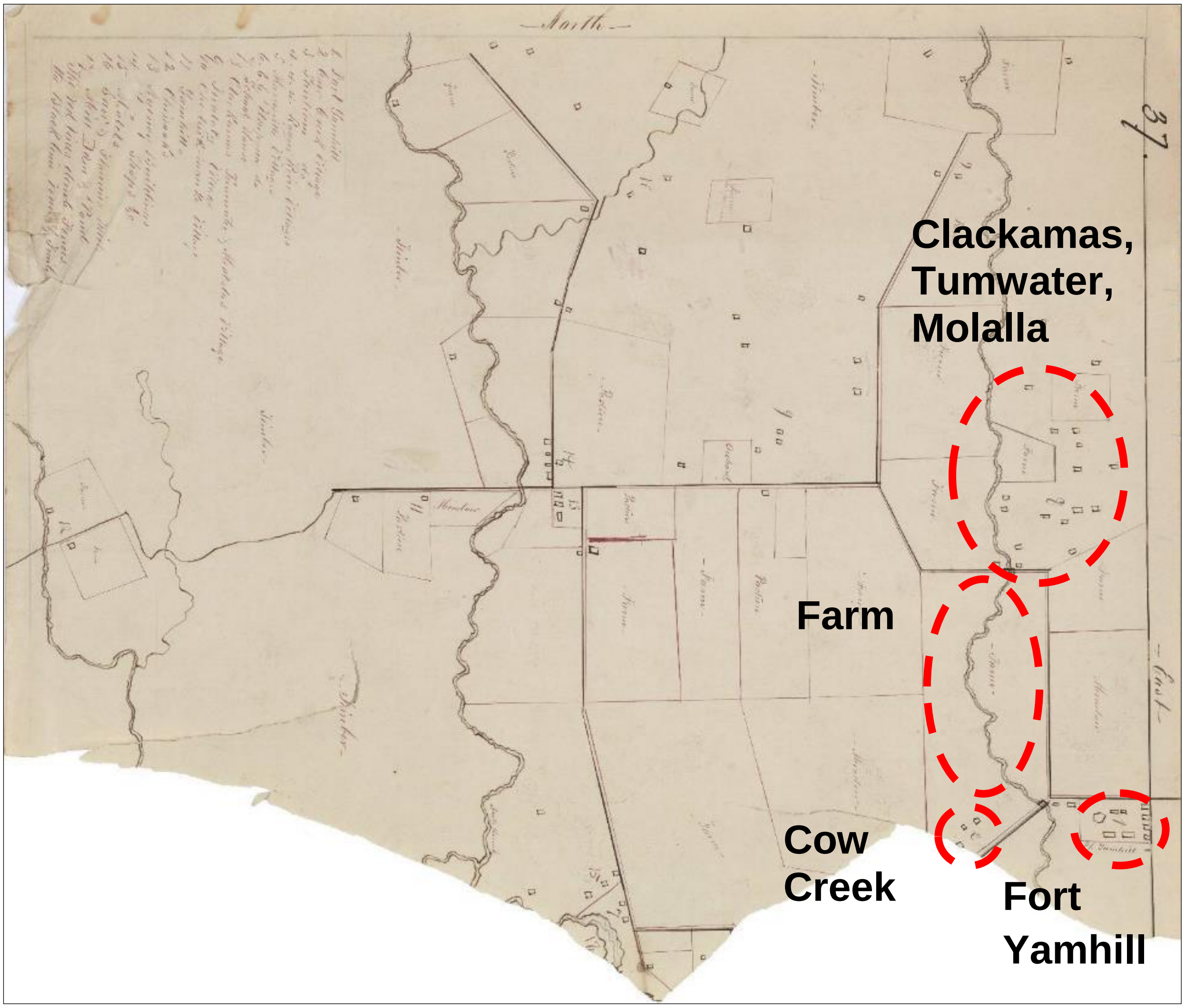

Figure 6.10 Sketches of Agencies Map (ca. 1858) showing Fort Yamhill and surrounding properties.

The house may have been owned by a government employee, a temporary laborer working on the Babcock property, or a Grand Ronde individual whose name failed to enter (or was entered incorrectly to) the archival record.

Beyond these cartographic images, little is known about the Rhoades property during the reservation's first three decades. I expected, however, that the property's proximity to Fort Yamhill, Valley Junction—the primary outlet to Willamette Valley settlements to the east (which persists as the intersection of Highways 18 and 22)—and much of the reservation's arable land made it an attractive location for semi-permanent settlement, agricultural production, and/or other cultural activities.

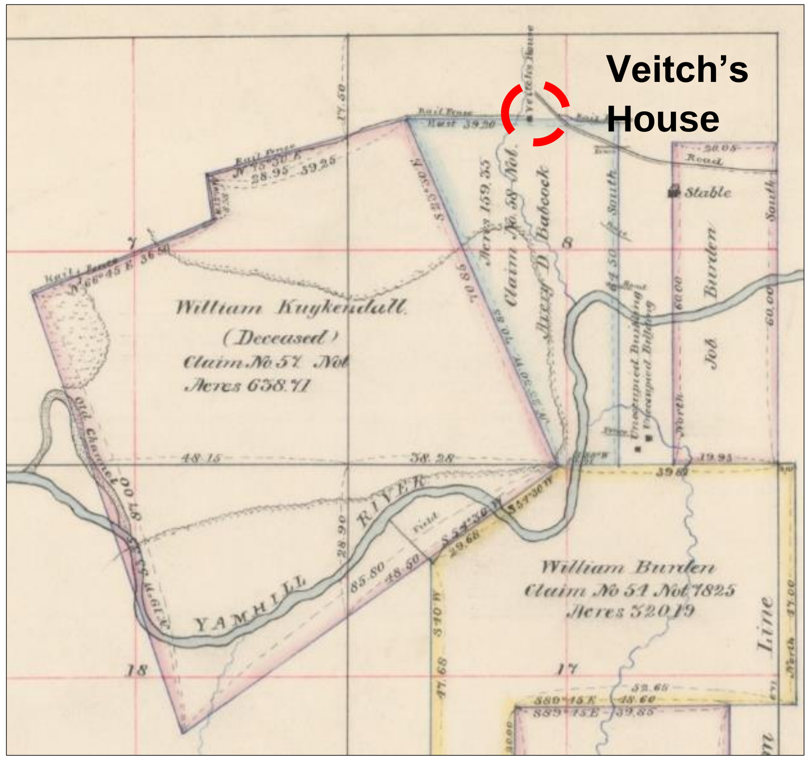

Figure 6.11 Government Land Office survey (1885) of the Kuykendall, Babock, and other Donation Land Claims along the reservation's eastern boundary.

The Rhoades property reappears in the archival record with the allotment of the reservation. In 1889, the property was part of a 33-acre parcel awarded to tribal member James Foster as part of his 153-acre allotment. Foster's diverse ancestry—Clackamas Chinook and Native Hawaiian—speaks to the complexities of cultural exchange that occurred in pre-reservation western Oregon, especially around Fort Vancouver (Wilson 2015, 2018). As with all Grand Ronde allottees, allotment records reduce Foster's ancestry to a single affiliation: Clackamas. In 1910, Foster sold the property to Joseph Teabo. Joseph did not live at Grand Ronde but served as an administrator (and was a former student) at Chemawa Indian School in Salem. Archival records do not comment on his interest in the land, though conversations between reservation residents and Oliver Applegate are suggestive. Applegate conducted interviews over a two-month period in 1905 to determine who was eligible to receive proceeds from the sale of reservation land deemed "surplus" following allotment. John Wacheno stated that Edward Teabo (Figure 6.12), Joseph's brother, received an informal allotment in 1872, but when Agent Collins arrived to implement the Dawes Act 17 years later, Edward was fishing along the Columbia River. Wacheno claimed Norris Apperson was supposed to notify Edward of Collins' arrival but failed to do so. As a

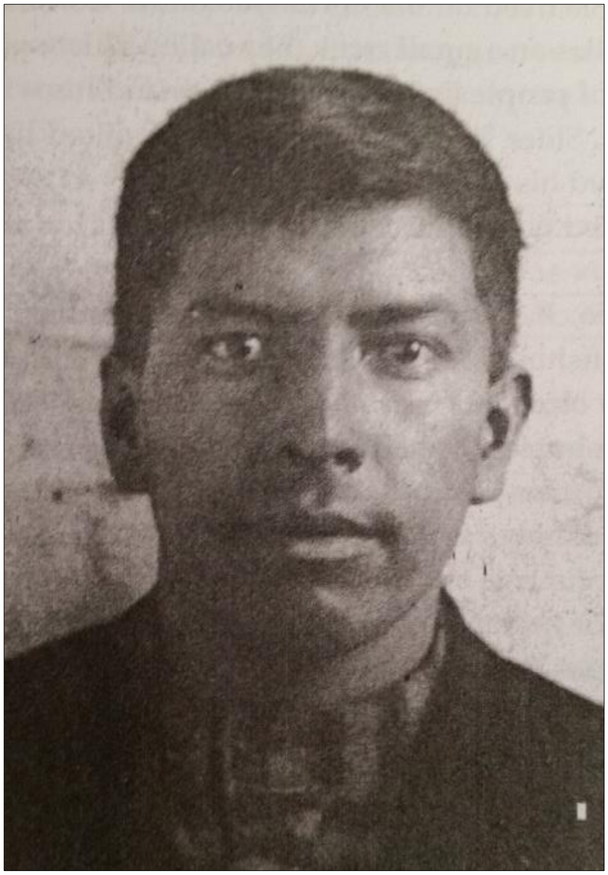
Figure 6.12 Edward Teabo (Olson 2011:443).

result, Edward did not receive an allotment (Applegate 1905:34-35). David Leno confirmed Wacheno's account, though he believed Edward had not received an allotment in 1872 (Applegate 1905:56-57). For his part, Edward added that after returning to Grand Ronde he and Foster inquired about additional allotments but were told that no more would be awarded (Applegate 1905:53-55).

The Teabo and Foster families appear to have been close. Dolly Teabo, Joseph's wife, served as the administer of Foster's estate after his death in 1914 (Olson 2011:141). Perhaps Foster sold his parcel along Cosper Creek to Joseph in 1910 as place for Edward to live, work, or visit during his time on the reservation. Alternatively, Joseph may have bought the property to use as a second residence, away from Salem and Chemawa. Whatever the case, this property exchange suggests that reservation groups' attempts to strengthen familial ties were not restricted to the initial allotment of the reservation (Chapter 4) but continued into the early twentieth century via transfers of title.

In 1923, Dolly, who had become the property's title holder following the death of her husband, sold it to settler farmer Walter Werth. Over the next several decades, the property passed through several settler owners. Although community members disappeared from the property's chain of title, this does not mean they were not present on the property, especially during the during the 1920s and 1930s. At Siletz, tribal members remained in community even after losing their allotments (Wilkinson 2010:227). A similar situation occurred at Grand Ronde, with families living in various unofficial capacities on land owned by settlers (Dennis Werth, personal communication). I did not encounter any evidence to suggest that tribal members lived on the Rhoades property post-1923. Yet since the Werth family, who owned hundreds of acres in Grand Ronde, did not live on the property, this possibility cannot be dismissed.

Aerial photographs offer additional information about the property's post-allotment history. The Rhoades property appears in aerial photographs taken in 1936, 1945, 1955, and 1970, though the spatial extent of each image—approximately 25 km^2—permits only general interpretations of property-specific activities. In 1936, the property appears devoid of trees except along the creek and was likely being used as cropland (Figure 6.14). Two structures and a possible bridge over the creek are visible in the photograph. The property's county property card notes that a house was built on the western side of the creek around 1920; it may be visible in the 1936 photograph. The two structures east of the creek likely represent additional homes or outbuildings. A linear feature, probably a driveway, links the property to Highway 22. By 1945, another structure, seemingly larger than the other two, had been constructed on the eastern side of the creek (Figure 6.13). The property appears mostly unchanged in 1955 (Figure 6.15) and 1970 (Figure 6.16), though in the latter the large structure visible in the 1945 photograph is less clear, possibly indicating demolition.

The tribe purchased the property in 2006 as part of ongoing land consolidation efforts within the boundaries of the original reservation. Since 2008, the property has been part of the Uyxat Powwow Grounds camp ground. The structures visible in aerial photographs are no longer present. The only structure currently on the property east of the creek is a metal maintenance shed measuring 12 m by 15 m. The construction of the shed predates the tribe's purchase of the property; today, it is used by Grand Ronde grounds crews as a storage facility.

Figure 6.14 Aerial photograph of the Rhoades property (1936). Photograph courtesy of University of Oregon Libraries.

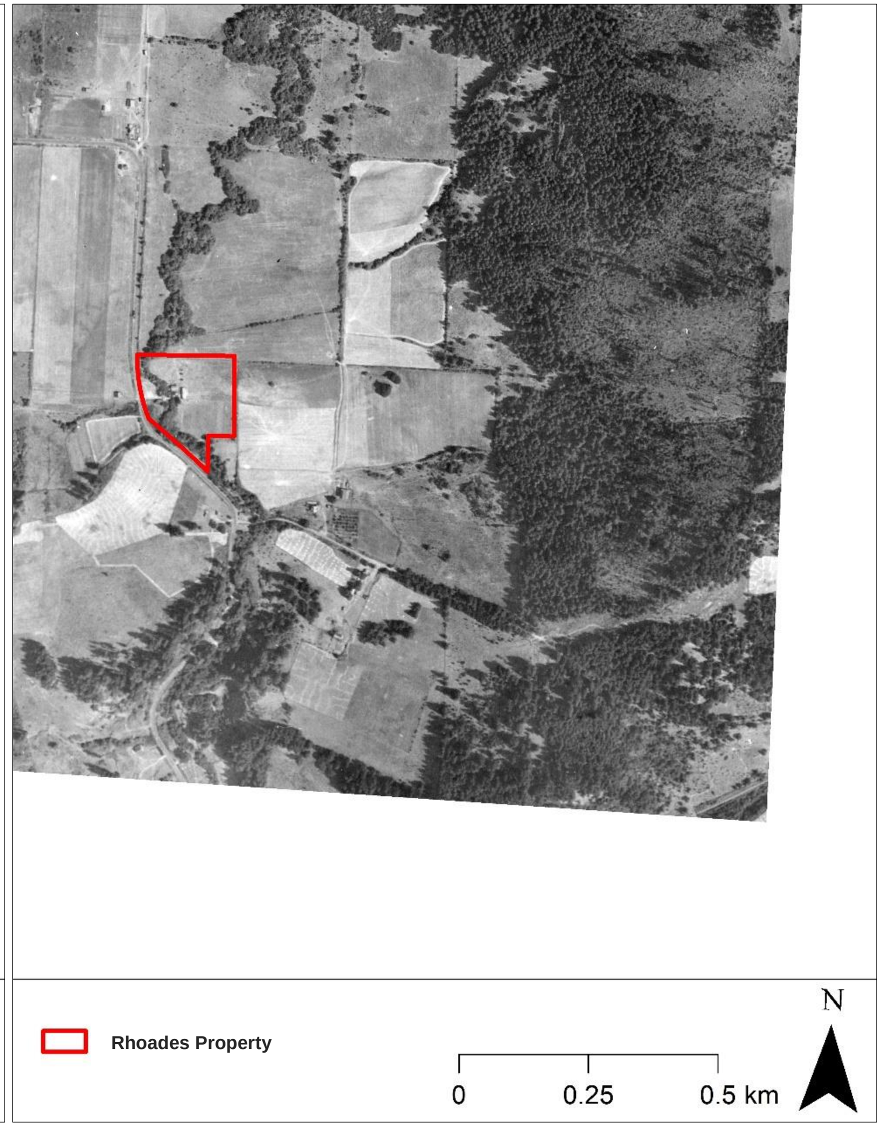

Figure 6.13 Aerial photograph of the Rhoades property (1945). Photograph courtesy of University of Oregon Libraries.

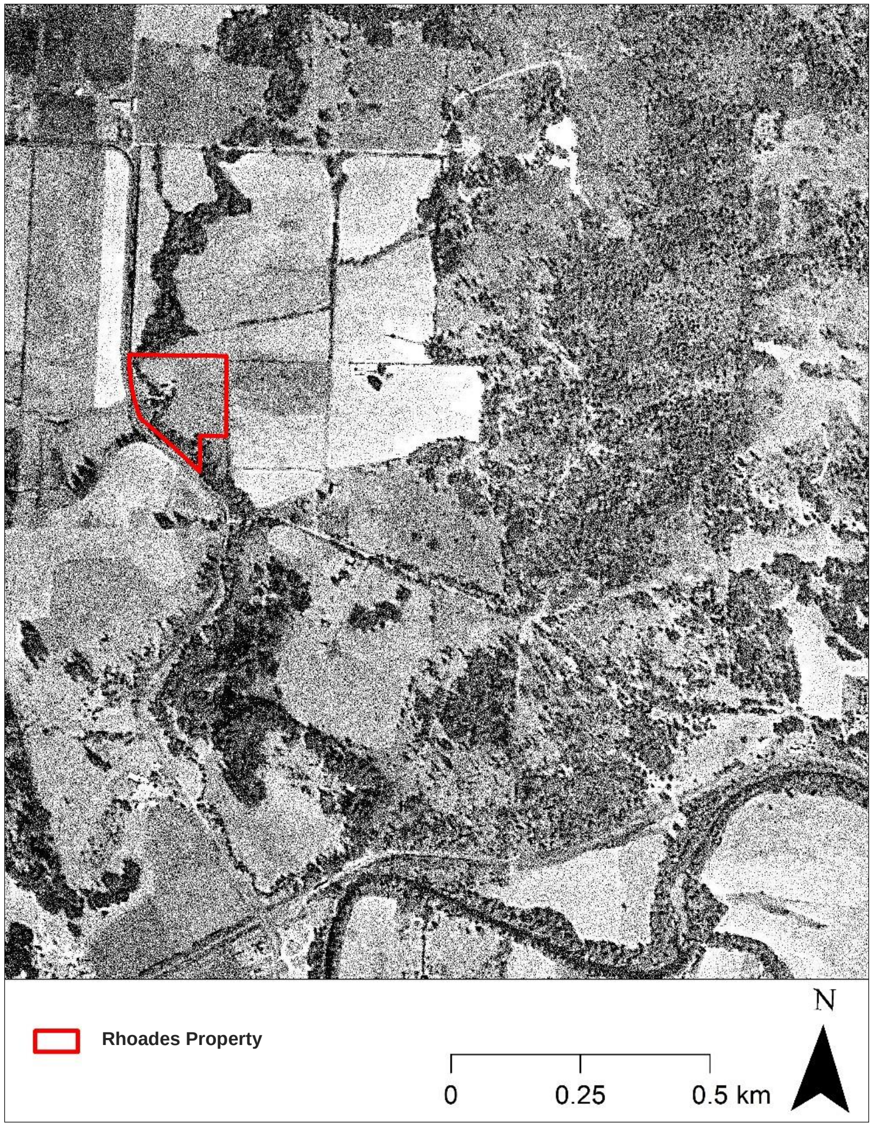

Figure 6.15 Aerial photograph of the Rhoades property (1955). Photograph courtesy of the Grand Ronde HPO.

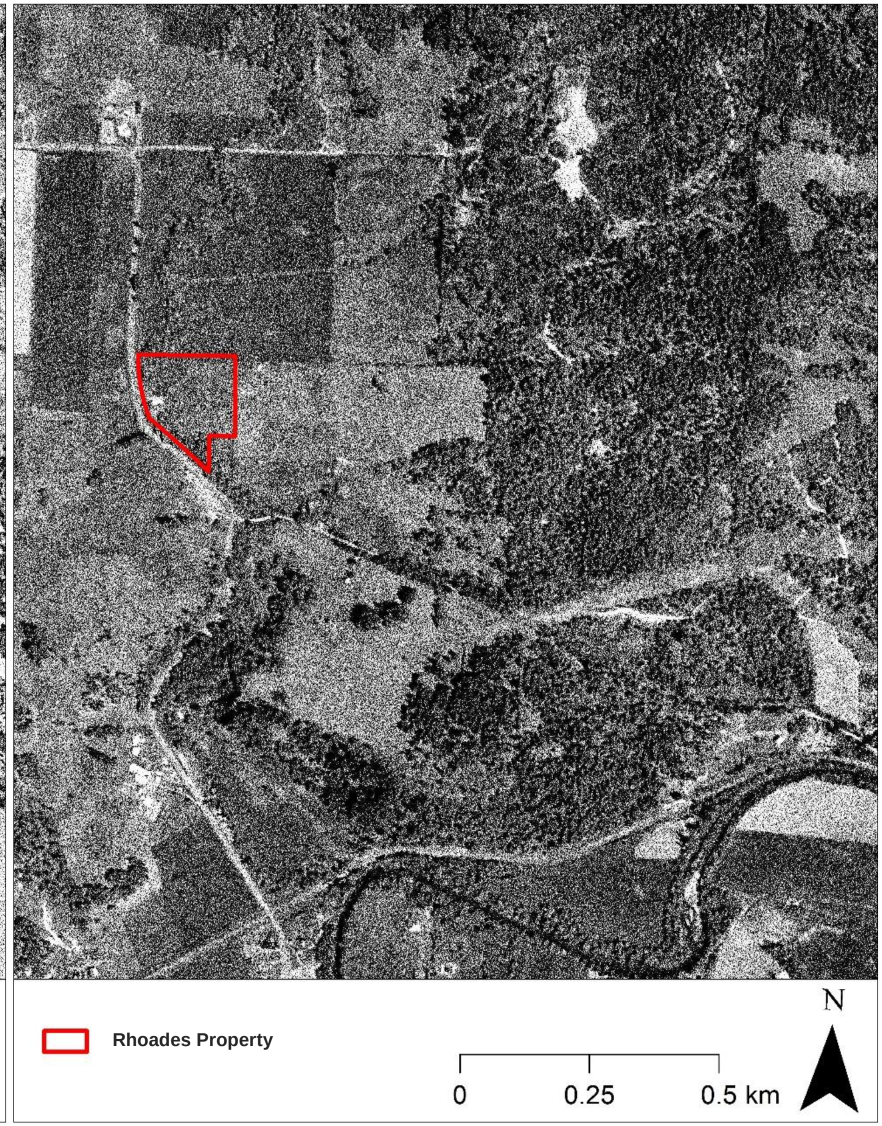

Figure 6.16 Aerial photograph of the Rhoades property (1970). Photograph courtesy of the Grand Ronde HPO.

Academic research and historic preservation surveys have identified material deposits at Fort Yamhill and in surrounding properties (Adams et al. 1991; Becker et al. 2008; Brauner and Diederich 2005; Eichelberger 2010; Roulette et al. 2002; Smith et al. 2003). Of these, surveys led by Becker and Roulette focused on properties immediately adjacent to the Rhoades property. In 2002, Applied Archaeological Research (AAR) surveyed a 225-acre area encompassing the Fort Yamhill landscape

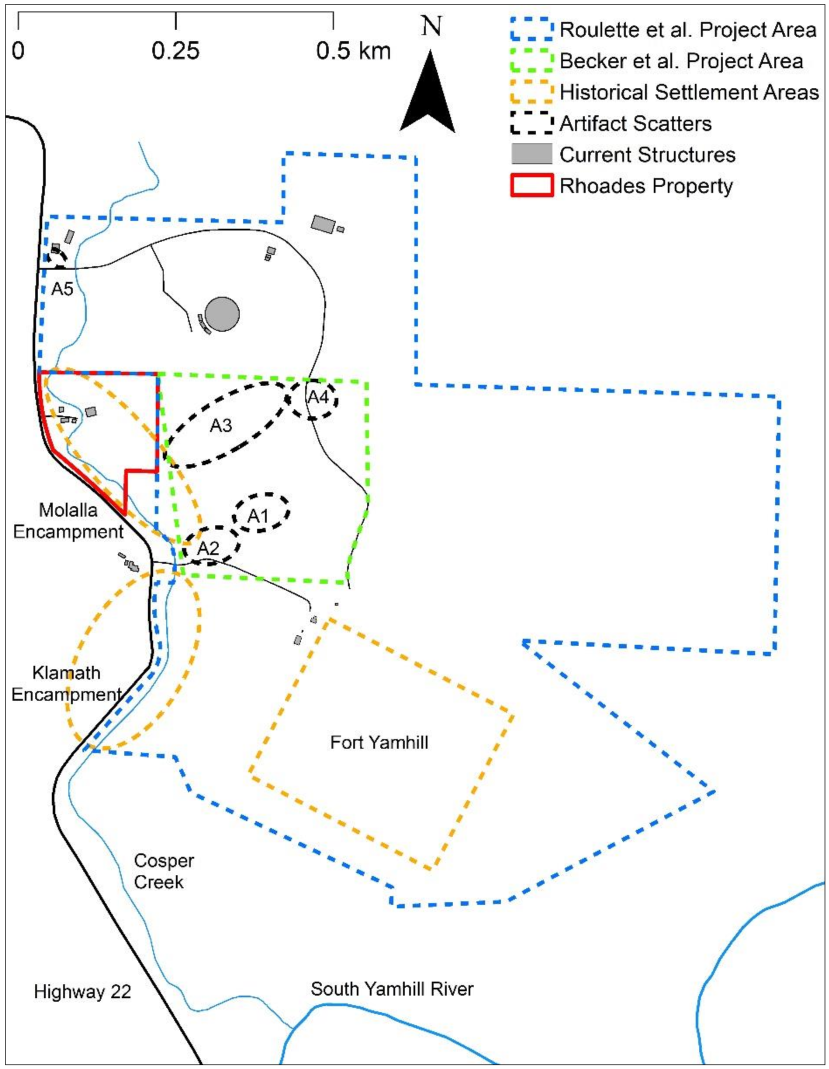

Figure 6.17 Archaeological survey areas around Fort Yamhill State Heritage Area.

(Roulette et al. 2002). Because the Molalla Encampment was then privately owned, the property was not included in the survey (Figure 6.17). The Oregon Parks and Recreation Department, in partnership with the tribe, was developing a master plan for the fort and requested a cultural resources assessment survey. AAR field teams conducted surface pedestrian survey and recorded the location of identified artifacts and, based on archival research, areas likely to contain material deposits. They noted eight spatially distinct artifact concentrations. Those most relevant to FMIA's investigations are a lithic scatter located at the northwestern corner of the powwow grounds (A5 on

Figure 6.17) and an early twentieth century complex east of the Rhoades property (coterminous with A1-A2 on Figure 6.17). The authors noted that if the Molalla Encampment extended east toward the fort, agricultural activity associated with this complex (e.g. plowing and construction of irrigation ditches) may have impacted material deposits. They also argued that the encampment was most likely located along the creek to the west and recommended that future archaeological survey focus on the Rhoades property (Roulette et al. 2002:48, 66).

In 2008, AAR returned to the Fort Yamhill area, this time to survey the 23-acre area between the Rhoades property and the fort (Figure 6.17) (Becker et al. 2008). (This tract is also owned by the tribe as part of the Fort Yamhill Park property.) Grand Ronde requested an archaeological investigation to document cultural resources ahead of future development. At the time, the tribe planned to build a museum and cultural center in the area. (The tribe later decided to remodel the vacated Willamina Middle School along Grand Ronde Road rather than pursue infill construction. The recently completed Chachalu Museum and Cultural Center houses the tribe's Culture Department, including the Historic Preservation Office.) AAR field teams conducted surface pedestrian survey and completed 124 shovel test probes. Probes extended at least 50 cm below surface and had a diameter of 50 cm. AAR recorded artifacts in 49 probes (40%). Artifacts concentrated in four spatially distinct areas (A1-A4 on Figure 6.17). Area 1 contained sparse lithic material, including four biface thinning flakes and a core. Area 2 contained additional lithics, some in association with nineteenth and twentieth century objects. Field teams identified a core, two scrapers, and three flake tools. The recovery of artifacts in these areas suggests early reservation (and/or pre-reservation) deposits may be intact despite the agricultural activity noted by Roulette et al. Area 3 extended across the south-facing slope of the ridge bisecting the powwow grounds. Probes in this area yielded 94 pieces of debitage and 22 stone tools. Area 4 spanned the access road linking the powwow grounds to the fort. It contained fragments of glass vessels, two cut nails, and a ceramic button. This area may be associated with the Fort Yamhill laborers camp noted by Hazen (F on Figure 6.8), though later activity is more likely (Becker et al. 2008:35). Most of the lithics were classified as sedimentary rocks, though obsidian pieces were also recovered. The authors submitted five obsidian artifacts for geochemical sourcing. All originated in the Willamette Valley: two from Inman Creek A, two from Inman Creek B, and one from Obsidian Cliffs (Becker et al. 2008:37). The authors were unable to classify lithic material from Areas 1-3 as definitely pre- or post-removal. If the latter, the small size and poor quality of the raw material points to expedient flake manufacture and reliance on material sources available on the reservation. In the face of food shortages and travel restrictions, involved lithic practices may have been impractical. Like Roulette et al., Becker et al. (2008:37) speculate that direct evidence of the Molalla Encampment existed outside the project area.

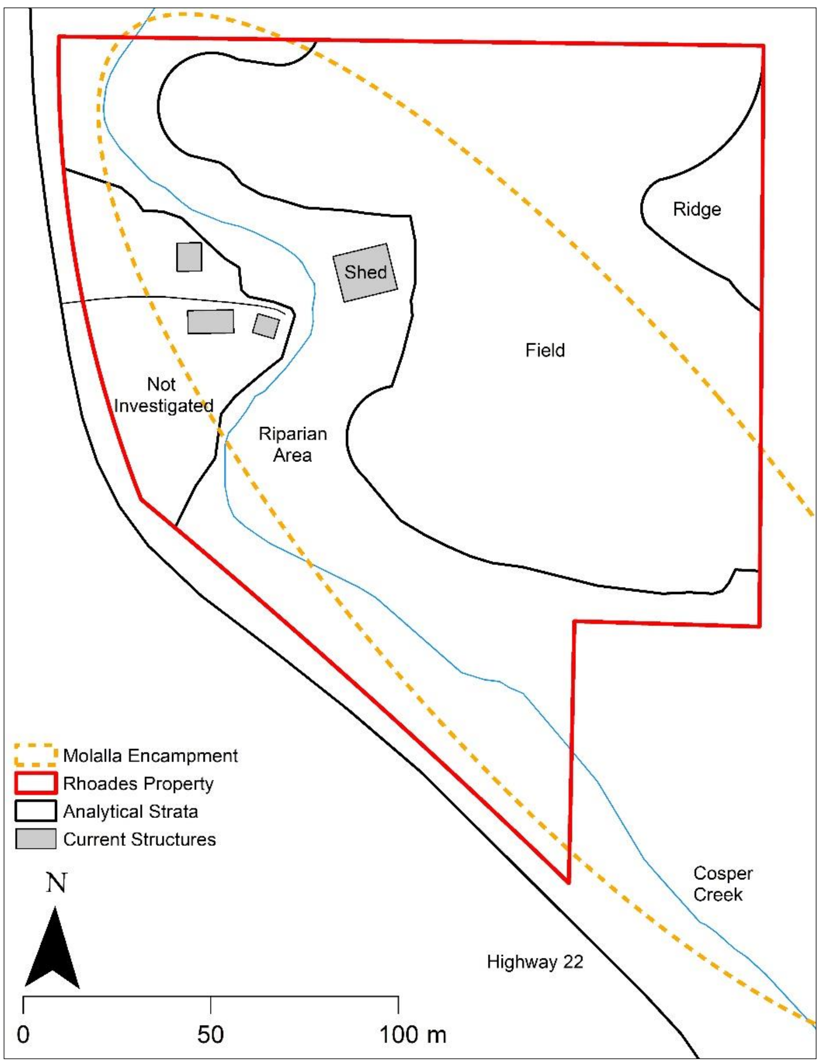

Figure 6.18 The four analytical strata established at the Rhoades property.

2016 Field Season

The goals for the 2016 field season were the same as those from the previous year: employ a range of low-impact survey methods to document extant archaeological deposits.

Where the dense vegetation on the Umpqua Encampment terrace had limited the scope of possible field strategies, the composition of the Molalla Encampment afforded more opportunities. HPO staff and I split the property into four analytical strata: (1) a 15,100 m^2 grassy field, (2) a 10,300 m^2 densely vegetated riparian zone along Cosper Creek, (3) a 950 m^2 toe of the ridge that projected into the property's northeastern corner, and (4) a 3,000 m^2 grassy strip fronting Highway 22, which was left uninvestigated (Figure 6.16). (The latter area contained the 1920s era home visible in aerial photographs. The house had been remodeled and repurposed several times in the intervening decades and was demolished by the tribe house in 2017 due to a lack of structural integrity. Because of the history of ground disturbance around the house, HPO staff did not believe it was a suitable location for archaeological investigation.) I worked with HPO staff to develop field strategies tailored to each stratum. During the 2016 field season, site investigation focused on the central field, utilizing a five-part approach consisting of (1) aerial photography, (2) ground penetrating radar (GPR) survey, (3) site mapping, (4) gradiometer survey, and (5) intensive surface collection.

Preliminary Reconnaissance

I made three trips to Grand Ronde over the course of the 2016 field season. During a brief visit in May, I worked alongside Briece Edwards to conduct preliminary reconnaissance at the site. I began by taking aerial photographs of the field, again using the Phantom DJI Phantom 3 drone. A mosaic of these images (Figure 6.20) demarcated the boundaries between the site's four analytical strata. These images also revealed circular discolorations in surface vegetation, especially in the center of the field, potentially indicative of sub-surface features. On the ground, these discolorations appeared as modest depressions or rises. These topographic anomalies, if the product of human activity, may represent middens, hearth rings, compacted sediment, and/or house pits. At the end of the field season, I obtained a complete mosaic of the powwow grounds, albeit at a slightly lower

Figure 6.20 Image mosaic of the Rhoades property field.

Figure 6.19 Image mosaic of the Rhoades property field. Drone imagery courtesy of Alex Drake.

resolution, courtesy of Alex Drake (Figure 6.19). Field vegetation appeared more uniform in color due to late summer desiccation.

After completing drone photography, Briece and I conducted GPR survey over a 50-m by 50-m area along the field's western border (Figure 6.21). This area contained many of the anomalies identified on the ground and in drone imagery. If these extended below the surface, radar waves emitted by the ground penetrating radar would detect their spatial and vertical extent. Briece and I used the HPO's GSSI SIR-3000 single channel GPR unit, which is equipped with a 400 mHz antenna and data logger. The antenna was set to emit a pulse of radio waves every 2 cm of lateral distance and measure to a depth of 1 m below the surface. The dialectic constant was set to 8. The amount of resistance encountered by radio waves depends on the composition and moisture content of underlying sediment. The dialectic constant calibrates the data logger to filter background noise associated with specific sediment types. A dialectic constant of 8 corresponds with clay-rich sediment, which,

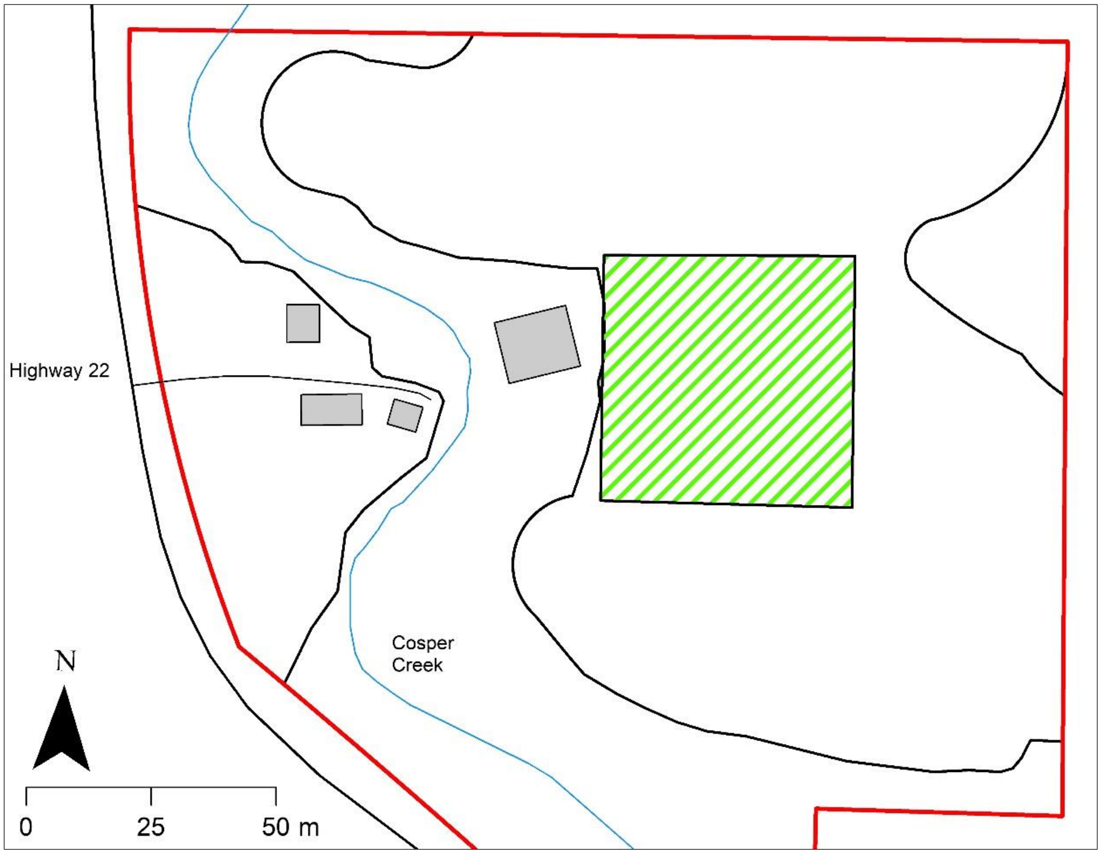

Figure 6.21 Extent of May 2016 GPR survey.

following Becker et al. (2008), I assumed would be common on the property. Using fiberglass tapes, Briece and I established the northern and southern boundaries of the survey area. We then ran the radar carriage along a series of alternating north-south transects spaced 50 cm apart. Narrow transect spacing was essential given the presumed shallowness of cultural material at the site (Conyers 2013; Goodman and Piro 2013:74-75). Radio waves propagate from the antenna as a three-dimensional cone, and since the angle of the waves relative to the antenna is relatively large, near-surface features may be missed during survey. However, since the area of unmeasured sediment is proportional to transect width, increasing transect density results in greater sub-surface coverage. Narrow transects also led to considerable wave overlap with depth. This ensured the data logger had access to multiple observations when reconstructing anomalies at a given location, thereby producing more accurate and higher-resolution outputs. Following data collection, HPO staff and I processed results in GSSI's RADAN software.

GPR survey revealed four sub-surface anomalies (SSA) within the survey area. These appeared most clearly about 60 cm below the surface (Figure 6.22). Three anomalies were circular in plan. SSA1 measured 10 m in diameter; SSA2 and SSA3 measured approximately 4 m in diameter. They were visible at the surface as mounds (SSA1) or depressions (SSA2 and SSA3) and in drone photography as patches of discolored vegetation. Their morphology was suggestive of midden and/or hearth deposits (all three) or remnants of small/temporary structures (SSA1). SSA4 was made up of a series of linear features that together measured 10 m wide and 25 m long. Briece and I interpreted it as a possible living surface, buried floor/wall features, and/or household or irrigation pipes.

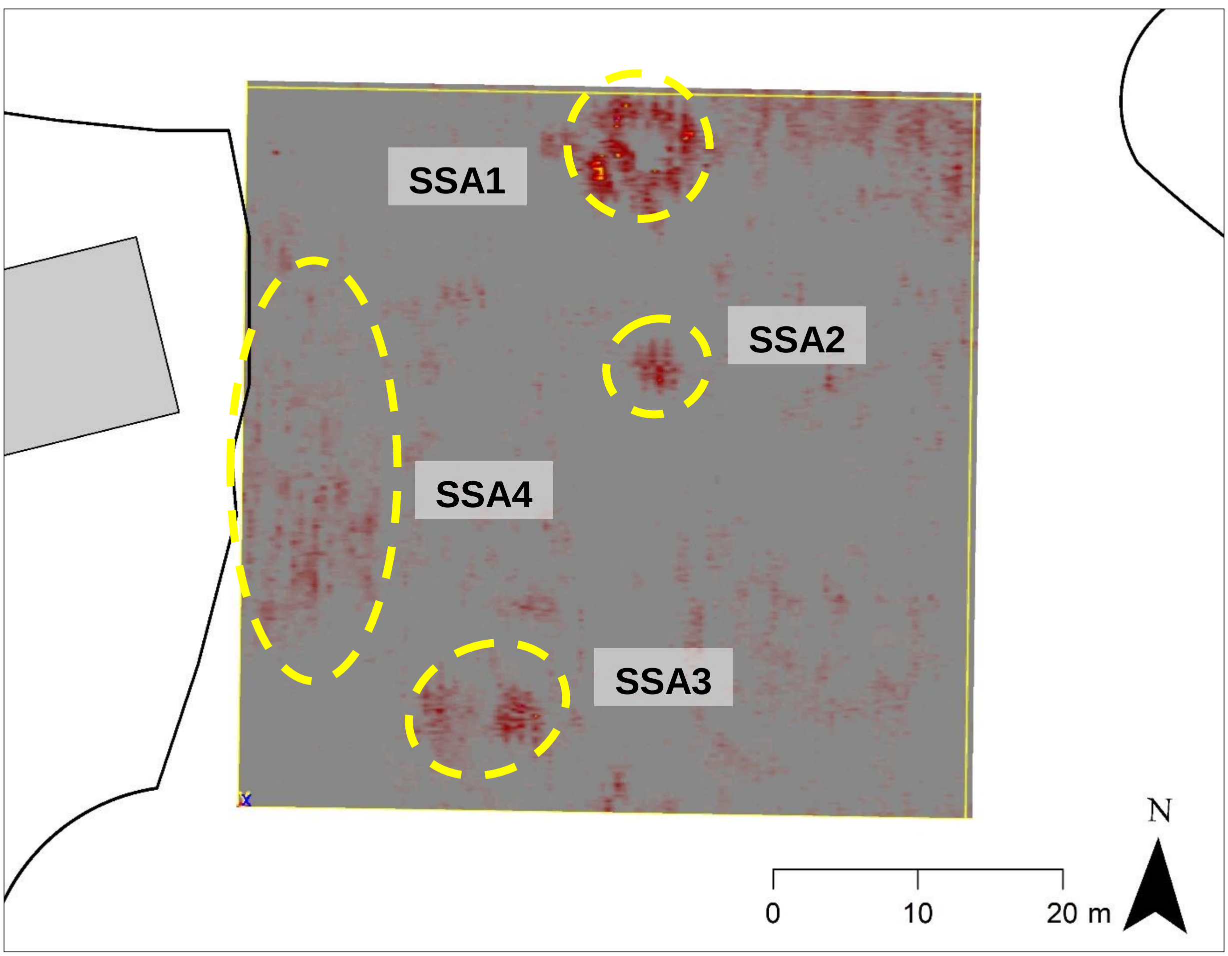

Figure 6.22 Amplitude map of GPR results from May 2016 at 60 cm below surface.

Initial Site Documentation

Summer fieldwork expanded on these results during a six-week field season. The field team consisted of FMIA students and graduate student volunteers (Yoli Ngandali and David Carlson, University of Washington; Eve Dewan, Brown University; and Gabriel Sanchez, UC Berkeley). Joyce LeCompte-Mastenbrook contributed to site survey while Briece Edwards and the entire Historic Preservation Office lent critical assistance throughout the summer. Fieldwork ran from late June to late July.

Fieldwork began by establishing a site grid across the field. This grid would allow field teams to record the spatial boundaries of geophysical survey and the corners of surface collection and excavation units. It would also enforce spatial consistency between activities within and between field seasons. Since the field ran roughly north-south, grid north was set as equivalent to true north. A large galvanized spike was used as a temporary site datum in the southwestern corner of the field. From this point, most of the property was visible to the north and east. The datum was assigned arbitrary coordinates of 1000 m north, 1000 m south, and 100 m in elevation. Its latitude and longitude were recorded using a Trimble Pro 6H GNSS Receiver linked to a Panasonic FZ-G1 Toughpad running ESRI's ArcPad software. The property is well-suited to the use of GNSS receivers, as the lack of tree cover ensured uninterrupted satellite access. The Trimble Pro 6H maintains sub-decimeter accuracy, and field teams mitigated against location inaccuracies via point averaging. All recorded GNSS points (in this and subsequent field seasons) represent the average location of at least 10 points. The location of the temporary site datum (and subsequent datums and back sights) represents the average of at least 200 points.

With the datum established, field teams used a series of fiberglass measuring tapes and a Sokkia CX-105 Total Station, linked to the Toughpad via MicroSurvey's FieldGenius software, to lay out the site grid. Wood stakes were placed at 20-m intervals along the grid's western boundary (up to

Figure 6.23 Oregon white oak on the Rhoades property.

120 m north), southern boundary (up to 80 m east), and then within the field. The Total Station was then used to map surface features. From the temporary datum, field teams recorded the boundaries of the property, noticeable shifts in vegetation, and semi-permanent features such as trees, fence lines, and existing buildings. The largest recorded feature on the property is an Oregon white oak (*Quercus garryana*) on the southern edge of the field (Figure 6.23). Based on later discussions with NRD, the tree is upwards of 300 years old; it has served as a "witness tree" for the entirety of Grand Ronde history.

Field teams also noted changes in elevation in order to build a topographic map of the field. Elevation information from grid corners (and later, corners of surface collection units) provided an initial dataset, to which I added judgmentally selected points situated at elevation maximums and minimums of visible rises and depressions (Schneider and Panich 2008). The x, y, and z coordinates were recorded for 347 points over a 1,500 m^2 area. Using ArcMap's Contour tool, I created a preliminary topographic map for the property's southwestern corner. I planned to expand this map during the following field season, but given the property's gentle slope, I decided to use LiDAR imagery available from the State of Oregon Department of Geology and Mineral Industries to create a property-wide digital elevation model (Figure 6.24).

At the end of the field season, I installed a permanent datum and semi-permanent back sight, which would allow me to reuse the site grid in subsequent field seasons. For the datum, a

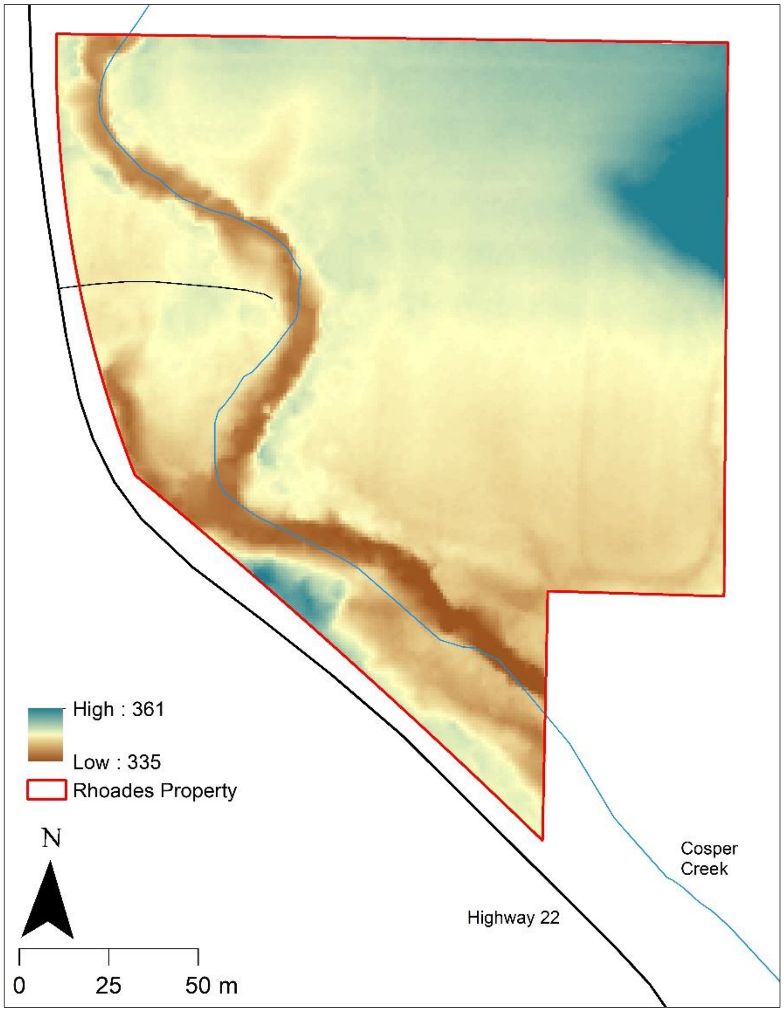

Figure 6.24 Digital elevation model (DEM) of the Molalla Encampment. Units are feet above sea level.

galvanized spike was inserted into a block of concrete in the southwestern corner of the property. For the back sight, an X was carved (with HPO permission) into the concrete base of a light pole in the northeastern corner of the property. The grid coordinates of each feature were recorded with the Total Station, as were their latitude and longitude coordinates with the Trimble Pro 6H.

Geophysical Survey

After establishing the 20-m by 20-m site grid, field teams conducted GPR and gradiometer survey across the field. The goal of this work was to expand the GPR dataset generated in May and, furthermore, develop a high-resolution understanding of sub-surface deposits. This information would support conversations with HPO staff about the appropriateness and expected of more invasive investigation such as excavation.

Field teams first completed GPR survey over a 10,700 m^2 area using the same equipment, settings, and procedure established in May. The property was divided into 12 survey blocks: four 40-m by 40-m areas and eight survey blocks of varying dimensions situated along the edges of the field (Figure 6.25). During analysis, problems arose in stitching together the grids to produce a site-wide

Figure 6.25 Extent of July 2016 GPR survey at Molalla Encampment.

view of sub-surface deposits. The grids exhibited varying levels of interference and anomaly visibility, likely stemming from changes in carriage operator during data collection; uneven ground along the field's edges; shifting environmental conditions, especially sediment moisture, throughout each day and across the field season; and issues with instrument hardware (e.g. during survey of the eastern field, GPR operators noticed that the connector between the antenna the data collector at times became loose, leading to additional interference in resultant data).

In light of these issues, HPO staff and I were able to create a cohesive rendering of sub-surface deposits in only the western and northwestern portions of the field (Figure 6.26). (I should note, however, that eastern survey blocks did not contain obvious sub-surface anomalies.) These results presented a different view of the field compared to the previous May. Some anomalies, such as SSA4, were clearly visible in both datasets. Others were not. SSA1, for example, was difficult to pick out from other, spatially distinct anomalies. SSA2 and SSA3 did not register at all. These discrepancies may be a product of moisture and material. Conyers (2004) has observed that in clay-rich soils, compacted or burned floors drain more slowly than the surrounding matrix. Wet to saturated soils, therefore, offer greater contrast in detecting sub-surface features. Grand Ronde received 1.17 in of precipitation in May 2016 and only 0.45 in in July 2016. Though Briece and I conducted preliminary GPR survey in dry conditions, differentially draining moisture below the surface may have aided us in detecting SSA1-3. By contrast, if SSA4 represented the remains of a past structure, wood, metal, and other construction elements would have been largely unaffected by changes in soil moisture. This would explain why it appeared in May and July GPR datasets. Finally, the field beyond the boundaries of the May survey area offered little evidence of sub-surface features or deposits. The lone exception, SSA5, almost certainly represented an irrigation pipe. Due to these differences in dataset resolution, HPO staff and I relied primarily on May 2016 results when discussing ground disturbance and placing surface collection and excavation units.

Figure 6.26 Amplitude map of July 2016 GPR results at 55 cm below surface.

In addition to ground penetrating radar survey, geophysical survey also made use of a Bartington Grad601 high-resolution fluxgate gradiometer owned by the Archaeological Research Facility at the University of California, Berkeley. Gradiometer survey identifies changes in the magnetic signatures of sub-surface deposits. Objects with magnetic properties distinct from the surrounding matrix such as iron, steel, stones, hearths, and burned floors, register as magnetic anomalies. This allows archaeologists to trace the boundaries of architectural features and activity areas (e.g. Gonzalez and Lightfoot 2001a; Turner et al. 2018).

Field teams began by completing gradiometer survey in ten 20-m by 20-m survey blocks encompassing in the western half of the field (Figure 6.27). Transects were spaced 50 cm apart and collected in a zig zag fashion, north and south across the survey block. During operation, the instrument's two cesium vapor sensors were kept 1.5 m apart, and eight readings were taken per meter. The dataset was imported into DW Consulting's Terrasurveyor software and examined for sub-surface magnetic anomalies. Unfortunately, the dataset contained extensive striping, in which the readings from one transect not align with those in adjacent transects. Striping probably occurred as a result of inconsistent handling of the instrument during data collection (the gradiometer is sensitive to changes in orientation with respect to the surface) and was likely exacerbated by field teams' zigzag approach. To combat these issues, gradiometer readings were recollected over eleven 20-m by 20-m survey blocks encompassing 4,400 m^2 (Figure 6.27). This time, transects were completed in parallel, from south to north. The shift in survey blocks was based on emerging results

Figure 6.27 Survey grids completed during the first and second round of gradiometer survey.

from GPR survey and aerial photography; namely, anomalies and potential anomalies concentrated in the western and southern portions of the field.

The shift to parallel transects and improvements in operator handling resulted in far less striping and higher resolution data overall (Figure 6.28). The number of drop-outs, or locations containing strong magnetic features such as electrical lines, was relatively small, though one was visible along the survey area's northern boundary. Magnetic anomalies concentrated along the field's western boundary, an area overlapping with that of SSA4. Several dipoles—spatially discrete areas with clear signals of opposing magnetic forces—were apparent and likely represented magnetic, metal artifacts. This interpretation was proven correct by subsequent surface collection (see below), which recovered moderate quantities of metal fragments along the field's western edge. Several

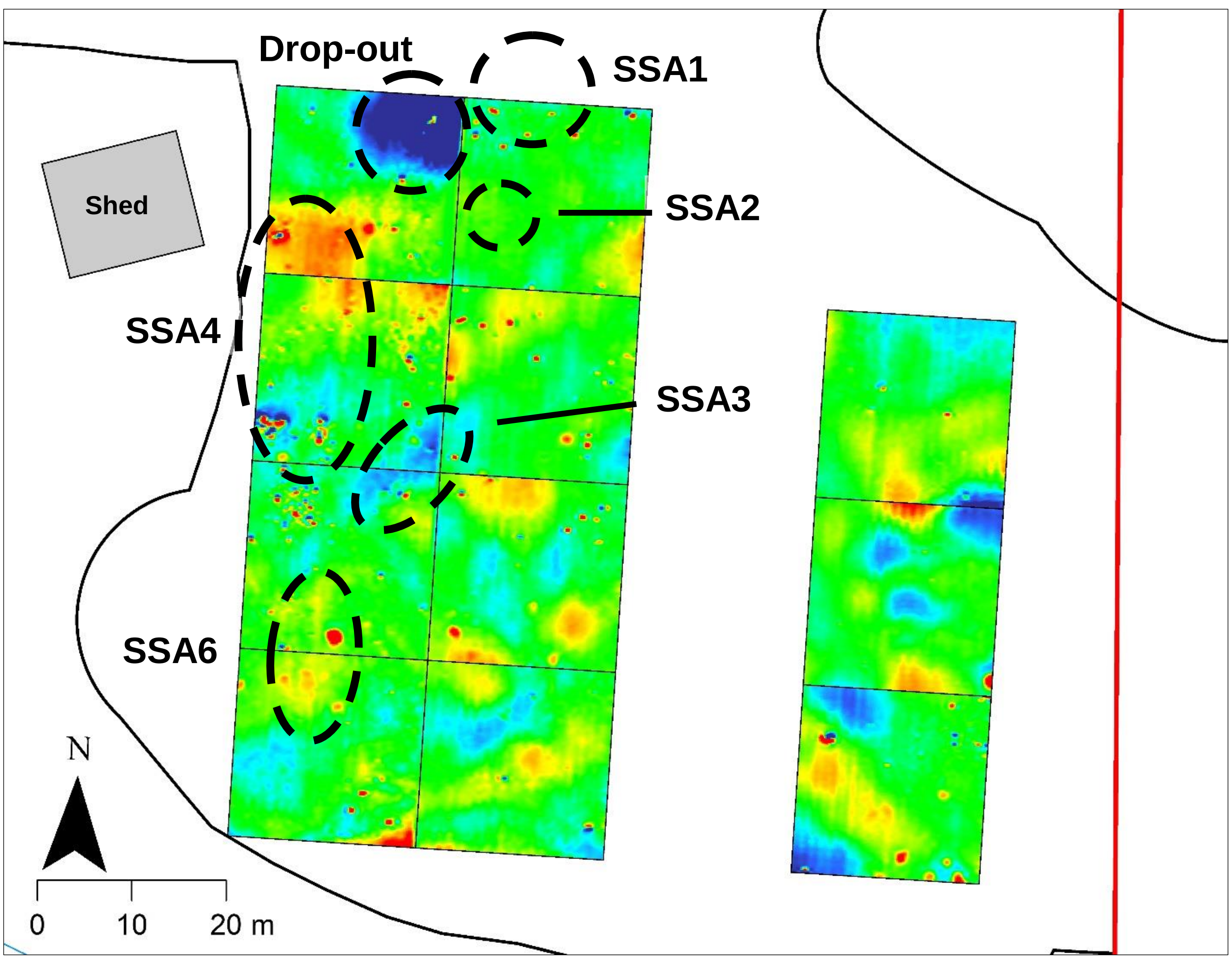

Figure 6.28 Gradiometer survey results, 2016

isolated anomalies were present in the southern extent of SSA1, and a moderately-sized area with no magnetic signal, potentially indicative of a cleared floor/living space, overlapped with SSA3. No anomalies appeared in the area containing SSA2. Lastly, SSA6 did not stand out during GPR survey but was notable for its size and location in the southwestern corner of the survey area.

Intensive Surface Collection

GPR and gradiometer survey highlighted the presence of sub-surface anomalies in the western half of the Rhoades property field. Though the nature of these anomalies remained indeterminate without sub-surface investigation, given their morphology and distribution HPO staff deemed further testing, beginning with intensive surface collection, to be an appropriate next step.

Following Redman (1987), FMIA focused on intensive surface collection for three reasons. First, compared to other preliminary survey methods such as surface pedestrian survey, intensive surface collection provides a more detailed account of near-surface deposits. This was especially true at the Rhoades property, where the field's dense groundcover (and thus low visibility) rendered surface pedestrian survey impractical. Second, intensive surface collection presents a time- and labor-efficient approach to preliminary site investigation. Surface collection units can be completed more quickly than test excavation units and nearly as quickly (though with fewer impacts) than shovel probes, thereby allowing field teams to sample a greater percentage of the site in less time.

Third, intensive surface collection provides insight into the nature and distribution of deposits dated to the reservation's first decades and the allotment period. Previous archaeological research at and around Fort Yamhill identified reservation-era cultural material within 1 m (and most often within 50 cm) of the ground surface and in a good state of preservation. At first glance, intensive surface collection would grant only minimal access to these deposits, as it extends survey to the base of the root mat, about 5 to 10 cm below the surface. Furthermore, the relationship between deposits located near the surface and at depth is complicated by post-depositional processes. The presence of nineteenth century material within 10 cm of the surface probably reflects secondary deposition as a result of plowing or bioturbation (e.g. root penetration and rodent activity). As such, intensive surface collection alone could not comment on material deposits located at depth. These issues are lessened, however, when intensive surface collection results are considered alongside geophysical survey and aerial photography. The convergence of multiple lines of evidence—for example, near-surface artifacts and sub-surface anomalies at a given location—provides stronger evidence of deposits located at depth than either method in isolation. This multi-strategy approach produces a more robust understanding of sub-surface deposits and, crucially, facilitates targeted, spatially precise excavations. FMIA limits the impact of sub-surface testing by focusing on particular site loci. Intensive surface collection is necessary for determining whether, and if so where, excavation should occur.

The decision to conduct intensive surface collection also went beyond archaeological considerations. As I discuss in Chapter 3, intensive surface collection employs a "catch and release" approach in order to minimize the physical and spiritual impacts of fieldwork on the reservation landscape and the Grand Ronde community.

Intensive surface collection followed a systematic, stratified random sampling strategy. I divided the western half of the field into six 20-m by 20-m survey areas. Surface collection started in Survey Areas 2-4, which are situated along the field's western boundary and overlap with visible changes in surface topography and the series of linear sub-surface anomalies identified during GPR survey (SSA4). Each survey area was segmented into sixteen 5-m by 5-m survey blocks and one 1-m by 1-m surface collection unit was selected within each block. The 16 surface collection units per survey grid represented a 4% sample of the survey area (Figure 6.29).

Field teams completed 48 surface collection units during the 2016 field season. Thirty-eight surface collection units (79%) contained artifacts, including a fragment of obsidian flake shatter, construction and finishing wire nails, fragments of metal implements, bullet casings, vessel and flat glass, ceramics, cordage, sawn wood and other construction materials, and recent refuse associated with powwow camping (Table 6.2). Recovery of charcoal, melted glass, and other heat-altered materials point to historical fire use, possibly as a means of refuse disposal. By count and weight, historical artifacts (i.e. glass, ceramic, metal, and mammal remains not obviously related to recent powwow camping) exhibited a bimodal distribution, concentrating along the eastern and western edges of the central survey area (Figure 6.30-6.31). By weight, charcoal and sawn wood exhibited a similar distribution, though the densest concentration was located along the western edge of the central survey area (Figure 6.32). The obsidian flake shatter was the only recovered lithic artifact (Figure 6.33). The distribution of artifacts from

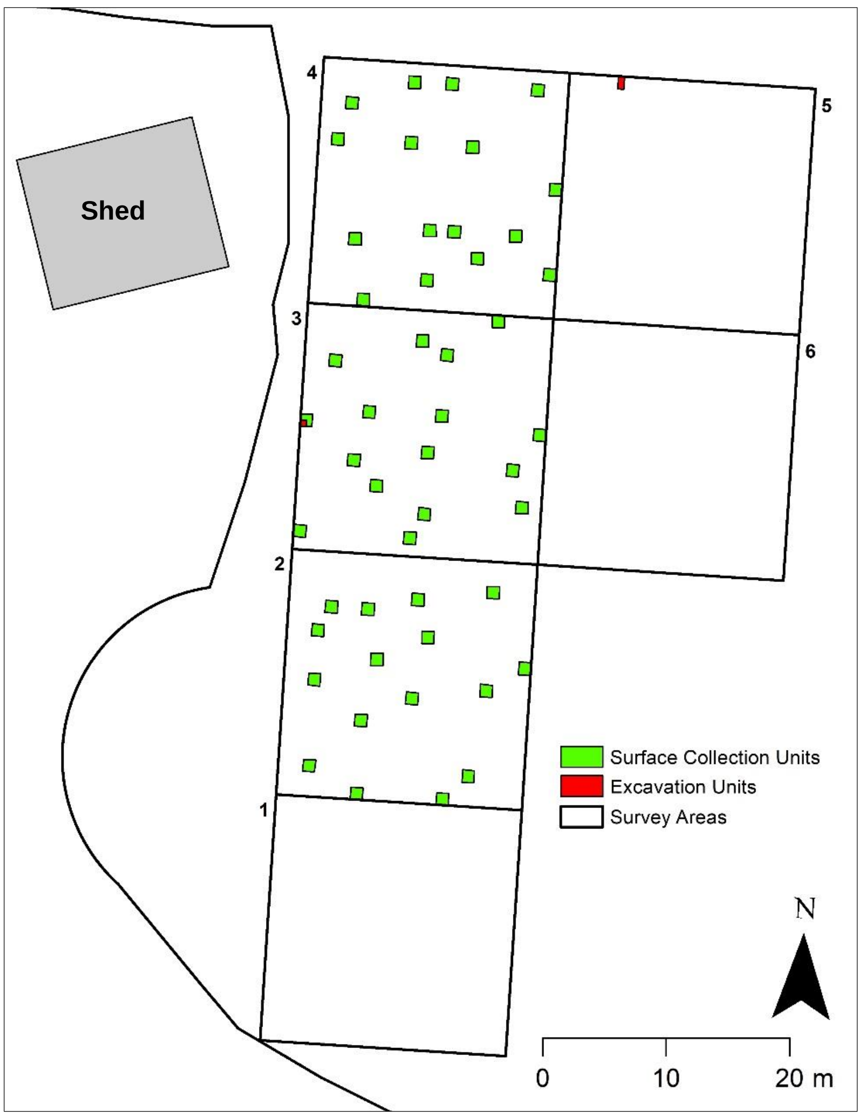

Figure 6.29 Surface collection and test excavation units completed during the 2016 field season.

2016 surface collection units corresponded with the locations of SSA2, SSA3, and SSA4.

Test Excavation

During the late summer and early fall, FMIA laboratory teams cleaned and cataloged surface collection artifacts (see Chapter 7 for a discussion of laboratory procedures). As the extent of recovered material came into focus, I initiated conversations with HPO staff about conducting sub-surface investigation. Given the presence of surface collection artifact concentrations and sub-surface anomalies, HPO staff agreed the site warranted further investigation. They proposed completing two test excavation units in the western half of the field following FMIA's presentation at the Grand Ronde History & Culture Summit in October (Gonzalez and Kretzler 2016). The goals of this initial round of excavation were to (1) better understand site stratigraphy, (2) expand the sample of artifacts recovered from the property, and (3) ground truth surface collection and geophysical survey results. In October, I worked with FMIA students and Jessica Curteman and Chris Bailey of the HPO to complete two test excavation units. Both units were placed in areas with sub-surface geophysical anomalies and high concentrations of surface collection finds.

Excavation followed a horizontal excavation strategy. Horizontal excavations, composed of spatially broad and vertically shallow units, have proven effective for documenting contextual relationships between artifacts, features, and activity areas at nineteenth and twentieth century sites (e.g. Lightfoot et al. 1998). Compared to systematic test pits or excavation trenches, this approach allowed me to conduct excavation in a spatially precise manner while maximizing the information gained from sub-surface disturbance.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal
	NISP	Mass	NISP	Mass	NISP	Mass	NISP	Mass	NISP	Mass	Mass	Mass
Surface	50	14.29	2	10.03	193	314.67	0	0	1	0.04	112.01	10.04

Table 6.2 Count and weight (grams) of artifacts recovered from 2016 surface collection units

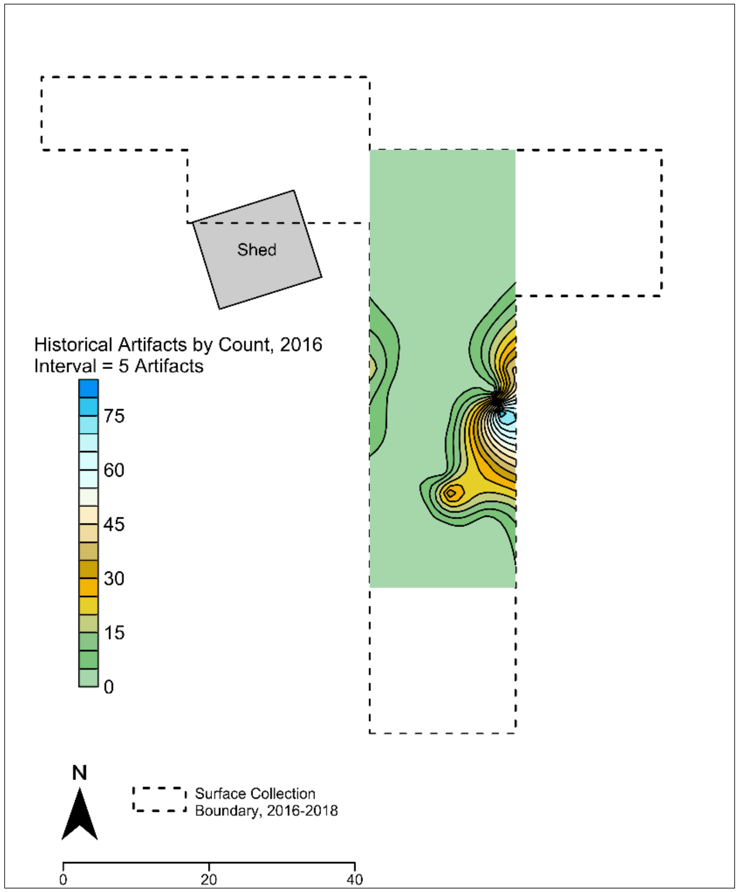

Figure 6.30 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2016 surface collection units by count.

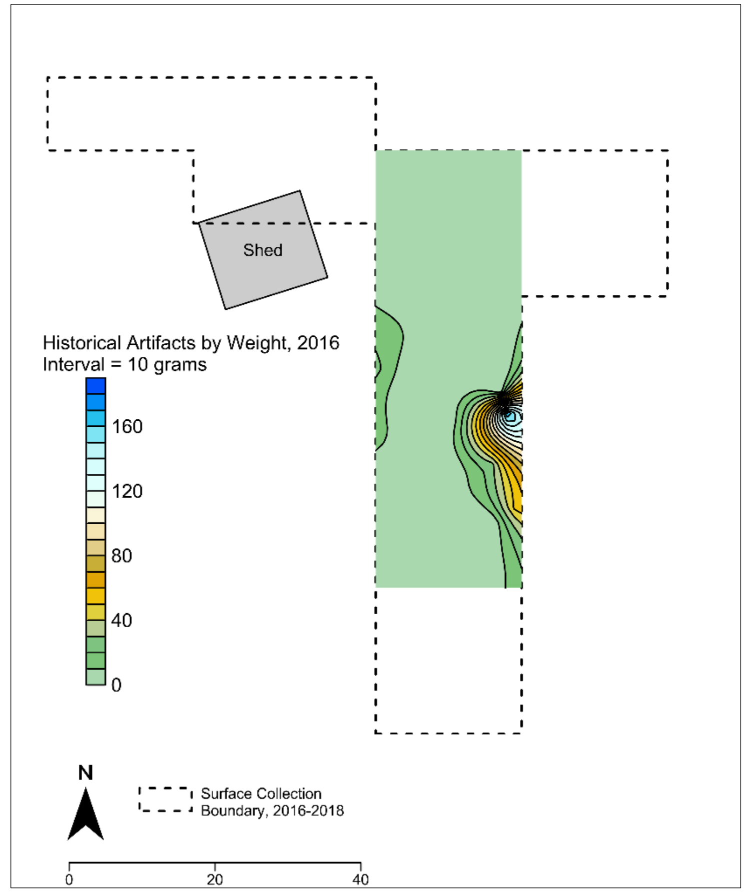

Figure 6.31 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2016 surface collection units by weight.

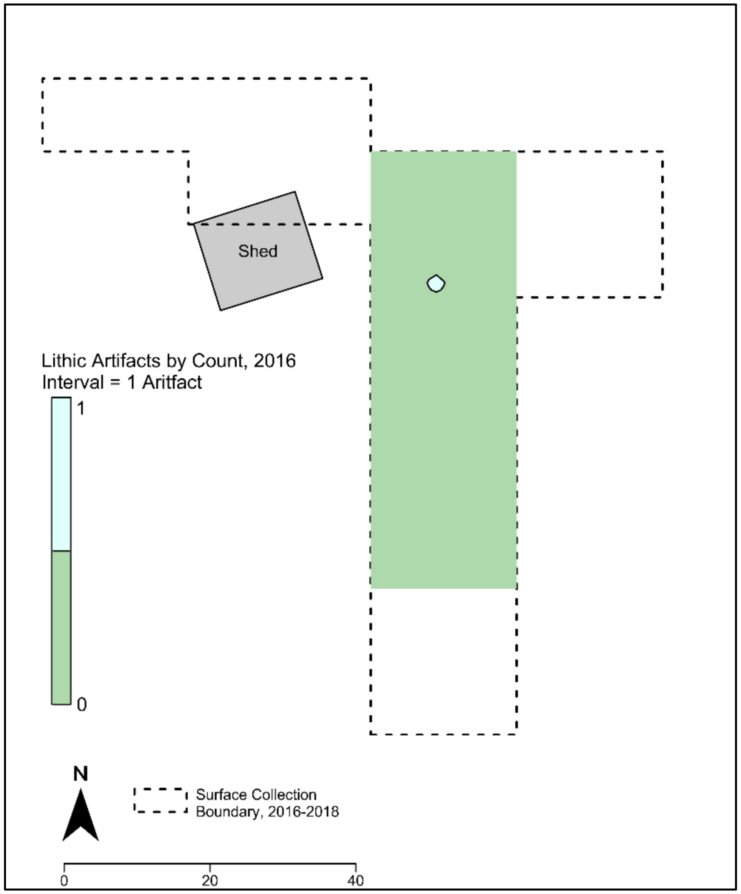

Figure 6.33 Distribution of lithic artifacts from 2016 surface collection units by count.

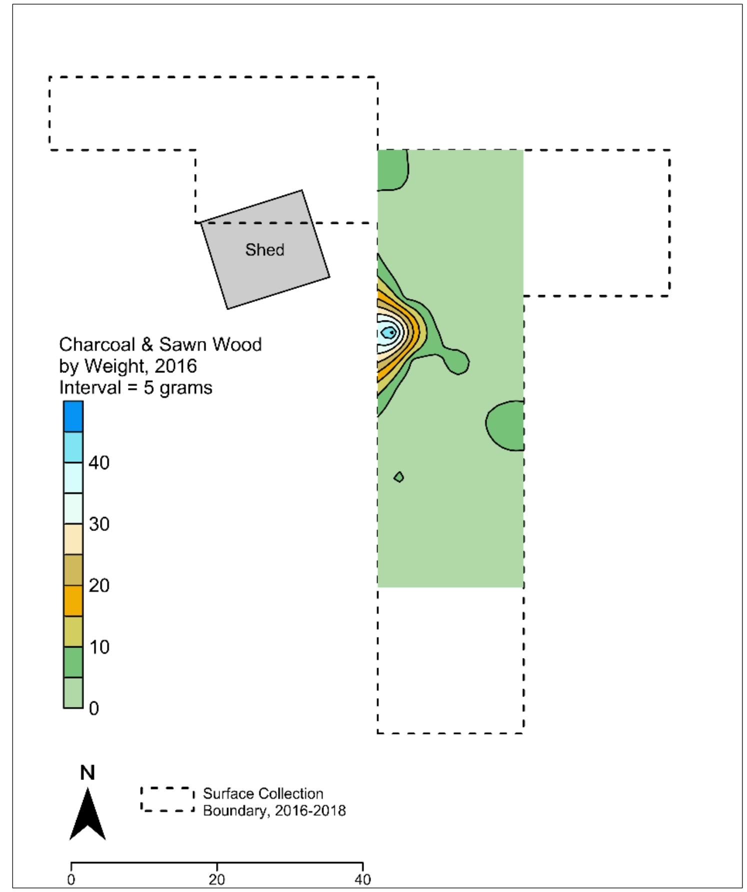

Figure 6.32 Distribution of charcoal and sawn wood from 2016 surface collection units by weight.

Excavation relied on a combination of stratigraphic and arbitrary levels. In the absence of clearly defined cultural or natural deposits, 10-cm arbitrary levels were completed. Based on test excavations in the Fort Yamhill Park property (Becker et al. 2008), I expected to encounter minimally stratified, clay-rich sediments with moderate bioturbation. With two exceptions (see below), units contained only arbitrary levels. A Sokkia Total Station and Trimble GNSS Receivers were used to map the location of excavation unit corners and record starting and ending unit elevations. Unit names included location (Field [FD] or Auger Area [AA]) and a two-digit number as well as the grid coordinates of their southwestern corner. Field teams noted sediment inclusions, moisture, composition, and Munsell color (wet and dry) for each level, created plan maps depicting the floor of each level, and drew profile drawings of at least one sidewall following excavation. Unit floors were photographed beginning with level 2. Beginning in 2017, field teams extensively photographed unit sidewalls and, following fieldwork, imported these photos into Agisoft Photoscan to create 3D renderings. For 2016 test units, only level plan maps were completed. (Stratigraphic profiles and unit photographs can be found in Appendices A-B.)

Excavated sediment was screened through 1/8-in mesh. During the 2018 field season, field teams shifted to 1/8-in mesh wet screening in levels 3-6 after observing increased quantities of small artifacts, especially lithic material. Units terminated at 40 to 70 cm below surface. During the 2017 and 2018 field seasons, field teams collected 10-liter scatter flotation samples from each level (excluding level 1). Following fieldwork, I worked with archaeobotanist Joyce Lecompte-Mastenbrook to float collected sediment. Flotation followed standard procedures (Pearsall 2015:46-62): samples were screened through 1-mm mesh to capture heavy fraction and 1-μm mesh to capture light fraction. Joyce then examined each sample light fraction for macrobotanical material.

FD Unit 01 (1050 N 1000 E)

This 50-cm by 50-cm excavation unit was placed in the southwestern corner of surface collection unit 1050 N 1000 E, along the field's western edge. The 1050 N 1000 E surface collection unit contained the second most artifacts by count (n=56) and third most by weight (59.04 g) of all 2016 surface collection units. The artifact assemblage included sawn wood, screws and wire nails, flat glass, and bailing twine. The location of this surface collection unit also corresponded with the series of linear sub-surface anomalies noted during geophysical survey (SSA4 on Figure 6.22). Excavation proceeded to 40 cm below surface. Due to wet field conditions only general assessments of unit stratigraphy and sediment composition were possible Elevated sediment moisture levels obscured differences in sediment color and texture and stymied screening efforts, leading to decreased artifact recovery. With those caveats, the unit transitioned at about 10 cm below surface from silty clay loam to silty loam. Medium brown (10 YR 5/2) sediment was present throughout. Aside from surface collection backfill in level 1, little evidence of bioturbation was observed. Artifacts concentrated in levels 1 and 2. The assemblage included melted glass, sawn wood, charcoal, and metal fragments (Tables 6.3-6.4).

FD Unit 02 (1079 N 1024 E)

This 50-cm by 1-m unit was placed in the center of the field 7 m east of surface collection unit 1078 N 1017 E and overlying the circular sub-surface anomaly identified during geophysical survey (SSA1 on Figure 6.22). This anomaly correlated with a slight rise visible at the surface. Field teams oriented the unit perpendicular to the rise such that excavation would cut across the border of the ostensible anomaly. Though this unit was located outside the intensive surface collection area, the size and clarity of the anomaly signal at this location was such that HPO staff felt comfortable moving to excavation to explore sub-surface deposits. Excavation at FD Unit 02 was also affected by wet field conditions. The unit was excavated to a depth of 40 cm below surface. The unit contained grayish brown (10 YR 5/2) silt loam, with no major changes in sediment color or composition and no evidence of major disturbances. At about 30 cm below surface, excavation in the southern half of the unit encountered the field's water table. As such, only half of the unit was excavated to 40 cm below surface. Few artifacts were identified and only in levels 1. The assemblage included sawn wood, hard plastic, and possible FCR (Tables 6.3-6.4).

Unit	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
FD 01	1	4.77	0	0	1	0.17	0	0	0	0	1.07	0.14	**2**	**6.15**
FD 02	0	0	0	0	0	0	0	0	1	15.39	0.6	0	**1**	**15.99**
Total	**1**	**4.77**	**0**	**0**	**1**	**0.17**	**0**	**0**	**1**	**15.39**	**1.67**	**0.14**	**3**	**22.14**

Table 6.3 Count and weight (grams) of 2016 artifacts by level.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
0-10	1	4.77	0	0	0	0	0	0	1	15.39	0.81	0.14	**2**	**21.11**
10-20	0	0	0	0	1	0.17	0	0	0	0	0.63	0	**1**	**0.80**
20-30	0	0	0	0	0	0	0	0	0	0	0.05	0	**0**	**0.05**
30-40	0	0	0	0	0	0	0	0	0	0	0.18	0	**0**	**0.18**
Total	**1**	**4.77**	**0**	**0**	**1**	**0.17**	**0**	**0**	**1**	**15.39**	**1.67**	**0.14**	**3**	**22.14**

Table 6.4 Count and weight (grams) of 2016 artifacts by excavation unit.

2016 Conclusions

The goal of the 2016 field season was to conduct preliminary survey and documentation at the Molalla Encampment. Over three visits to the site, field teams established a site grid and completed GPR and gradiometer survey, intensive surface collection, and test excavation. Geophysical survey identified four sub-surface anomalies, potentially indicating the presence of midden deposits, hearths, and/or living surfaces. Anomalies concentrated in the western half of the field, as did historical artifacts, charcoal, and sawn wood. That multiple lines of evidence converged at this location raised the possibility that material deposits and/or features were located at greater depth.

Test excavation assessed this possibility. Units supplied information about site stratigraphy—for example, the silt- and clay-rich sediments encountered by field teams are consistent with archaeological research in the Fort Yamhill Park property (Becker et al. 2008) and county soil surveys (Knezevich 1982:121)—but otherwise failed to build on the results of previous investigation. Field teams worked in less than ideal field conditions, but it is unlikely substantial numbers of artifacts or *in situ* features were overlooked. Furthermore, though test units terminated at 40 cm below surface, geophysical anomalies became apparent approximately 25 cm below surface, while surface collection artifacts were recovered within 10 cm of the surface. If these anomalies corresponded with material deposits, excavation should have encountered them.

Recovered artifacts postdate the creation of the reservation; most likely postdate the turn of the twentieth century. Flat glass, sawn wood, and metal fragments points to the presence of structures (or at least construction activity). Overall, however, the paucity of artifacts was surprising and prompted additional discussions with HPO staff about alternative interpretations of geophysical anomalies. It is possible the linear anomalies near FD Unit 01 (SSA4) represent exterior household or irrigation pipes that have never been associated with material deposits. SSA1, the circular anomaly near FD Unit 02, may be the result of sediment compaction from a historical living surface, with associated artifacts removed by subsequent agricultural activity. An alternative interpretation, applying to both units, is that the limited spatial extent of test excavation was such that field teams missed otherwise intact features.

2017 Field Season

FMIA returned to the Molalla Encampment in the summer of 2017. HPO staff and I set two goals for this field season. First, we sought to resolve the discrepancy between geophysical results and intensive surface collection, which revealed sub-surface anomalies and artifacts, and excavation, which yielded little cultural material. We proposed completing additional surface collection and three full excavation units, each situated in an area with a documented geophysical anomaly. Second, we sought to expand the scope of site survey area to include the Cosper Creek riparian zone and the ridge toe in the property's northeastern corner.

We were interested in the riparian zone for three reasons. First, activities associated with the Molalla Encampment and/or later settlements may have occurred along the creek rather than in the field. Close inspection of the Hazen Map supports this possibility. According to Hazen, the Molalla Encampment extended from the field to the eastern bank of Cosper Creek. He included symbols likely representing riparian vegetation along the creek's path but restricted these symbols to the creek's western bank and eastern bank north and south of the Molalla Encampment. This suggests either Molalla groups removed vegetation from the creek's edge or that the field had been cleared upon their arrival. That he placed other encampments, including those situated along waterways, in areas with riparian vegetation (e.g. Kalapuya and Klamath Encampments, Q and K on Figure 6.8), implies his map symbology corresponds with vegetation makeup rather than artistic license.

Second, even if settlement activities were more evenly distributed across the western half of the property, the absence of material deposits in the field raises the possibility that post-depositional processes exacted a greater impact than I originally surmised. Since the Cosper Creek riparian zone has remained mostly intact since at least 1936 (as seen on aerial photographs), material deposits in this area may have been shielded from post-depositional disturbances.

Third, the riparian zone structures visible in aerial photographs merited on-the-ground investigation. These structures may have been constructed during the allotment period or, at the very least, may spatially correspond with earlier households or activity areas.

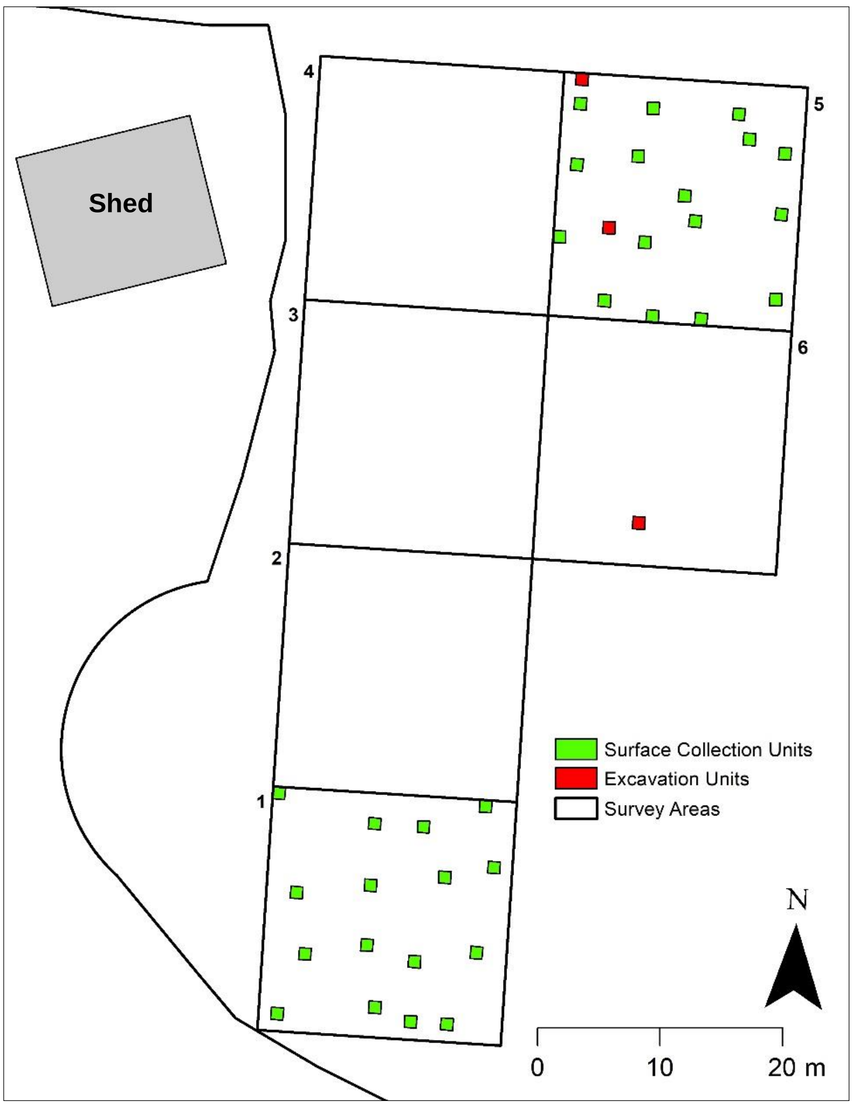

Figure 6.34 Surface collection and field excavation units completed during the 2017 field season.

The 2017 field team consisted of FMIA students, FMIA returnees (Daisy Jaime, Katy Leonard-Doll, and Cody Peak), and graduate student volunteers (Hollis Miller, University of Washington; Yoli Ngandali; and Eve Dewan). The support and insight of HPO staff, especially Briece Edwards, Jessica Curteman, and Chris Bailey, again proved critical.

Intensive Surface Collection

After reestablishing the site grid, field teams conducted additional intensive surface collection in the field, this time in Survey Areas 1 and 5, both 20-m by 20-m areas established in 2016. Each survey area was again segmented into sixteen 5-m by 5-m survey blocks; one randomly selected 1-m by 1-m unit was selected within each block (Figure 6.34).

Of the 32 surface collection units completed, 19 (59%) contained artifacts, a marked decrease compared to 2016. The artifact assemblage also exhibited a greater proportion of recent refuse, including objects clearly associated with powwow camping such as tent stakes. Recovered historical materials—flat glass, wire nails, sawn wood, and charcoal—are similar to those in Survey Areas 2-4 (Table 6.5). Given the small size of the assemblage, the horizontal distribution of artifacts (Figure 6.35-6.38) offered little insight into material deposits. When combined with 2016 results (Figures 6.39-6.42), however, the bimodal distribution of artifacts along the survey area's boundaries came into focus. A third, smaller concentration of lithic and historical artifacts also emerged in the northeastern corner of the 2016-2017 surface collection area, near the location of SSA1.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal
	n	g	n	g	n	g	n	g	n	g	g	g
Surface	13	3.19	0	0	48	137.83	0	0	1	0.01	4.45	0.32

Table 6.5 Count and weight (grams) of artifacts recovered from 2017 surface collection units (includes surface finds).

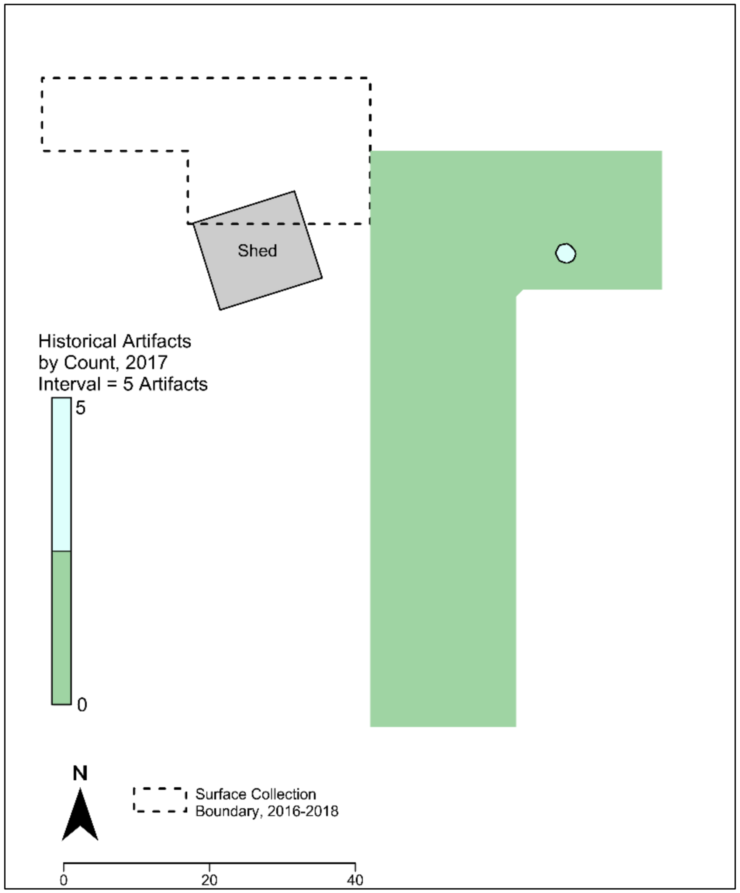

Figure 6.35 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2017 surface collection units by count (does not include surface finds).

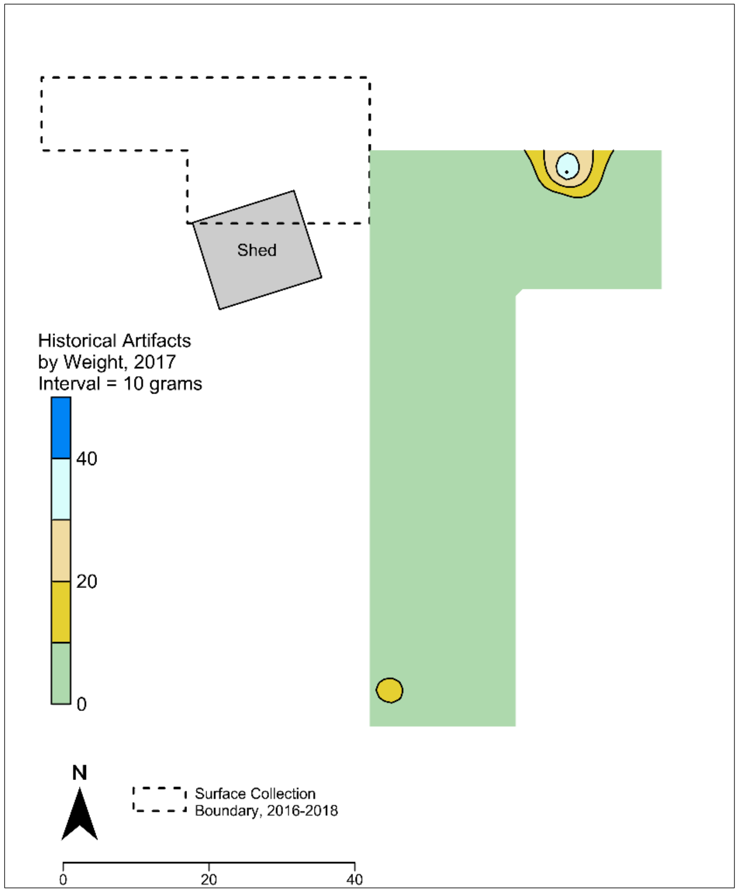

Figure 6.36 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2017 surface collection units by weight (does not include surface finds).

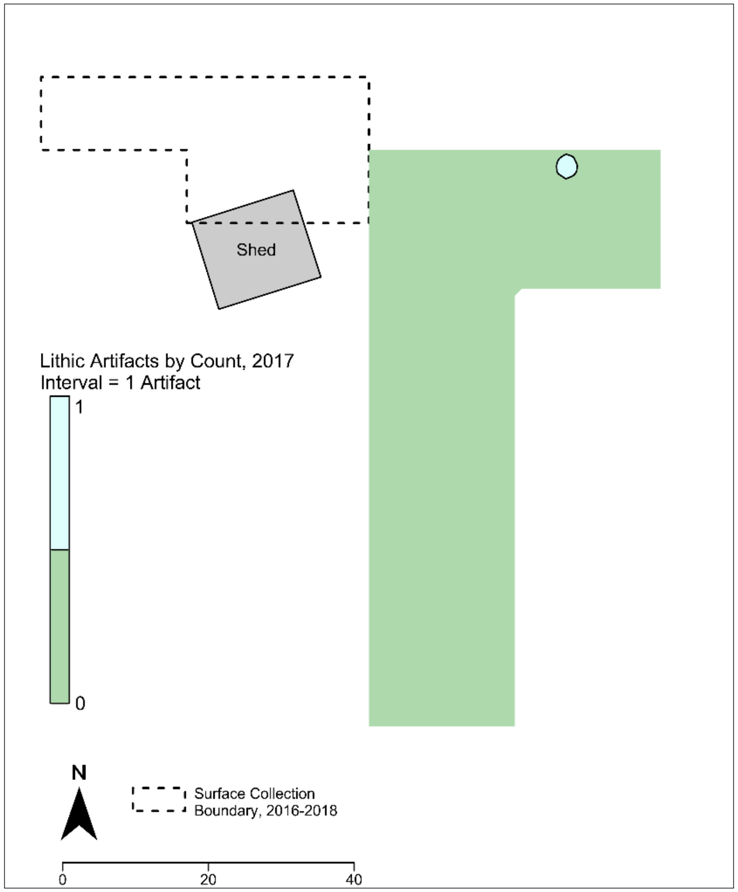

Figure 6.37 Distribution of lithic artifacts from 2017 surface collection units by count (does not include surface finds).

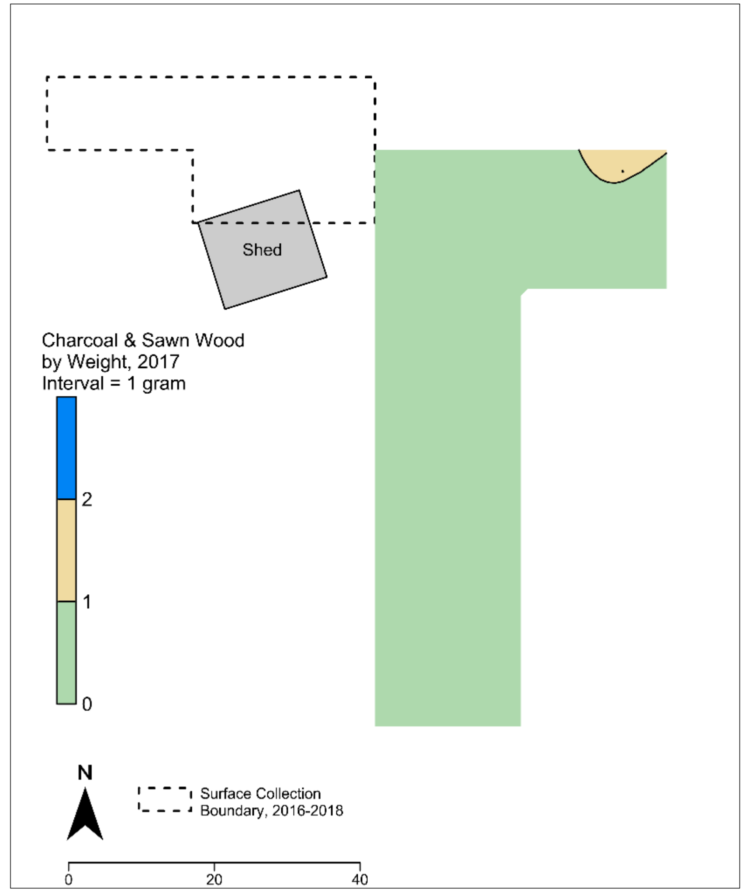

Figure 6.38 Distribution of charcoal and sawn wood from 2017 surface collection units by weight (does not include surface finds).

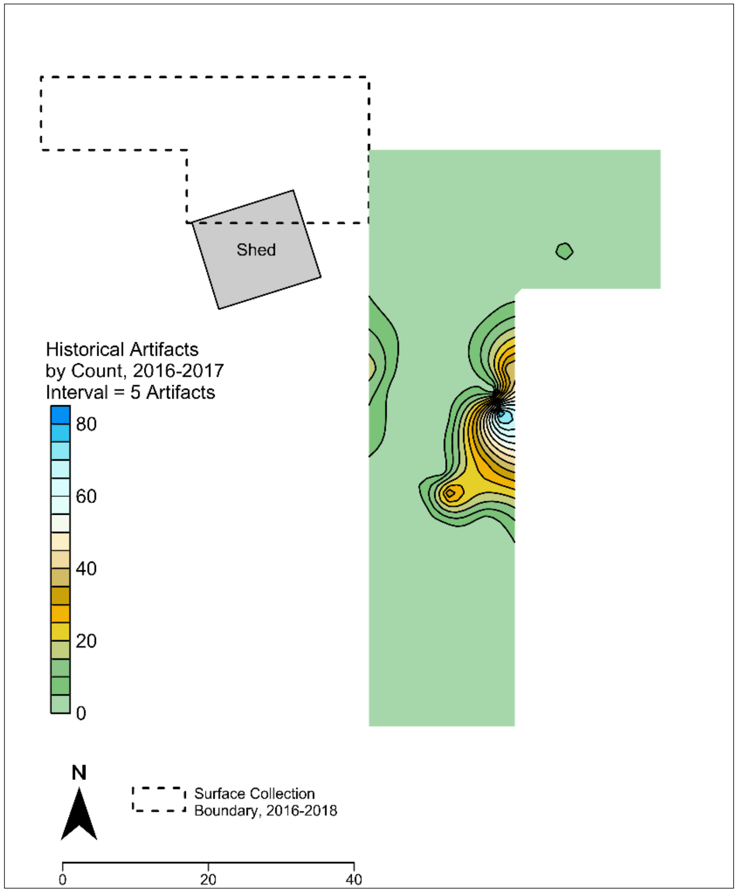

Figure 6.39 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2016-2017 surface collection units by count.

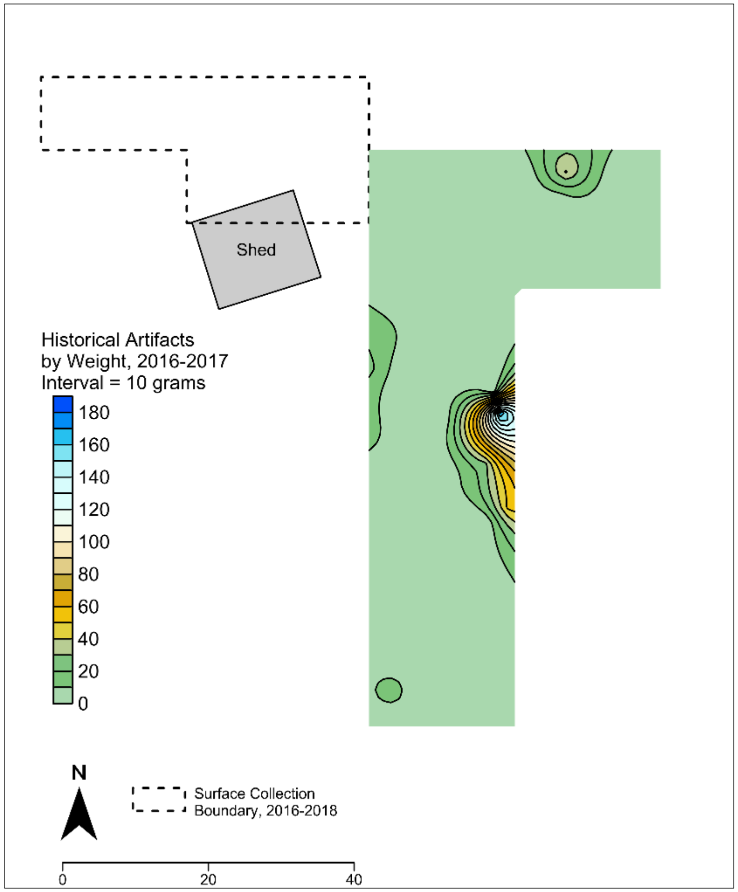

Figure 6.40 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2016-2017 surface collection units by weight.

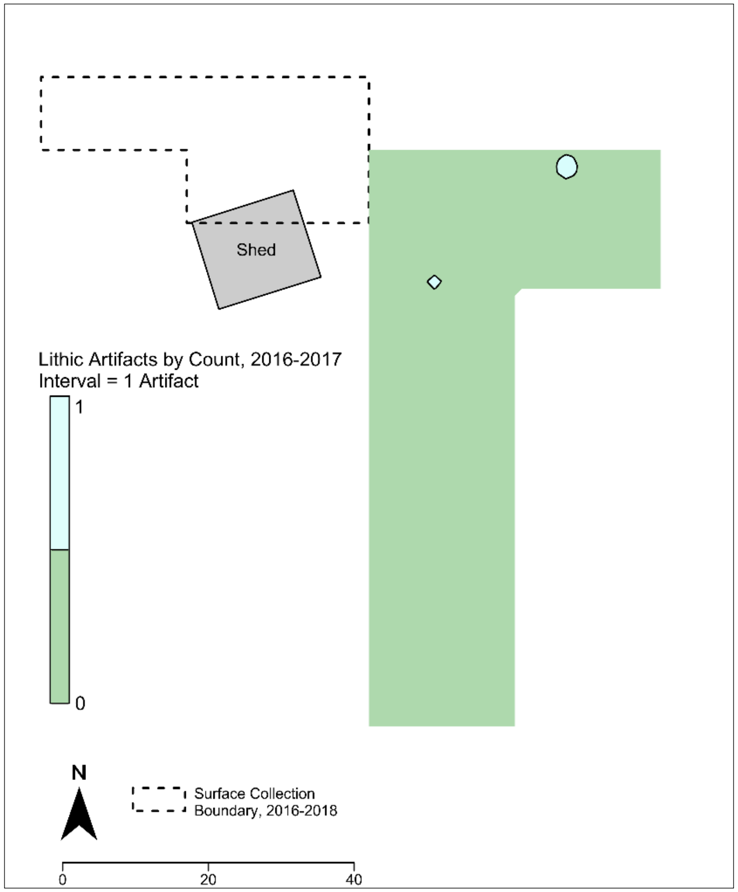

Figure 6.41 Distribution of lithic artifacts from 2016-2017 surface collection units by count.

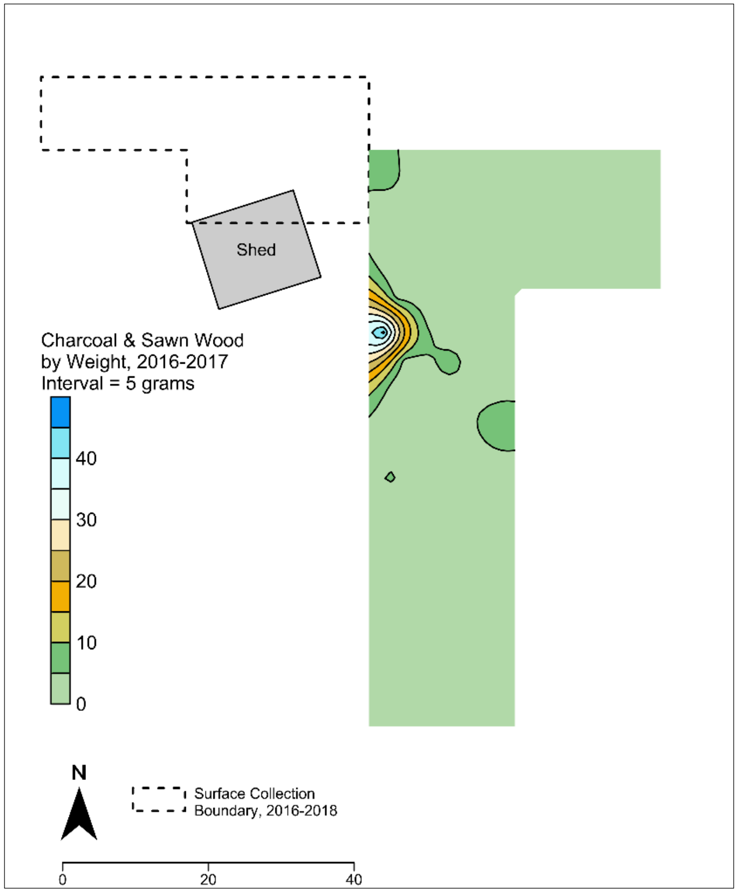

Figure 6.42 Distribution of charcoal and sawn wood from 2016-2017 surface collection units by weight.

Geophysical Survey

Concurrent with intensive surface collection, field teams conducted one additional round of geophysical survey, this time in the area surveyed by Becker et al. (2008) in the Fort Yamhill Park property. As I discuss above, Becker et al. (2008) completed 124 shovel test probes across the property ahead of then-planned construction at the site. They identified a dense concentration of "prehistoric" artifacts along the ridge's southern boundary in the northwestern corner of the property. Without geophysical survey, however, it was unclear whether these finds were associated with sub-surface features or more significant deposits. Furthermore, according to the Hazen Map this area appears bisected by a linear feature, possibly representing a road or trail. This feature linked Fort Yamhill's laborer's camp and the Molalla and Klamath Encampments (Figure 6.8). To address

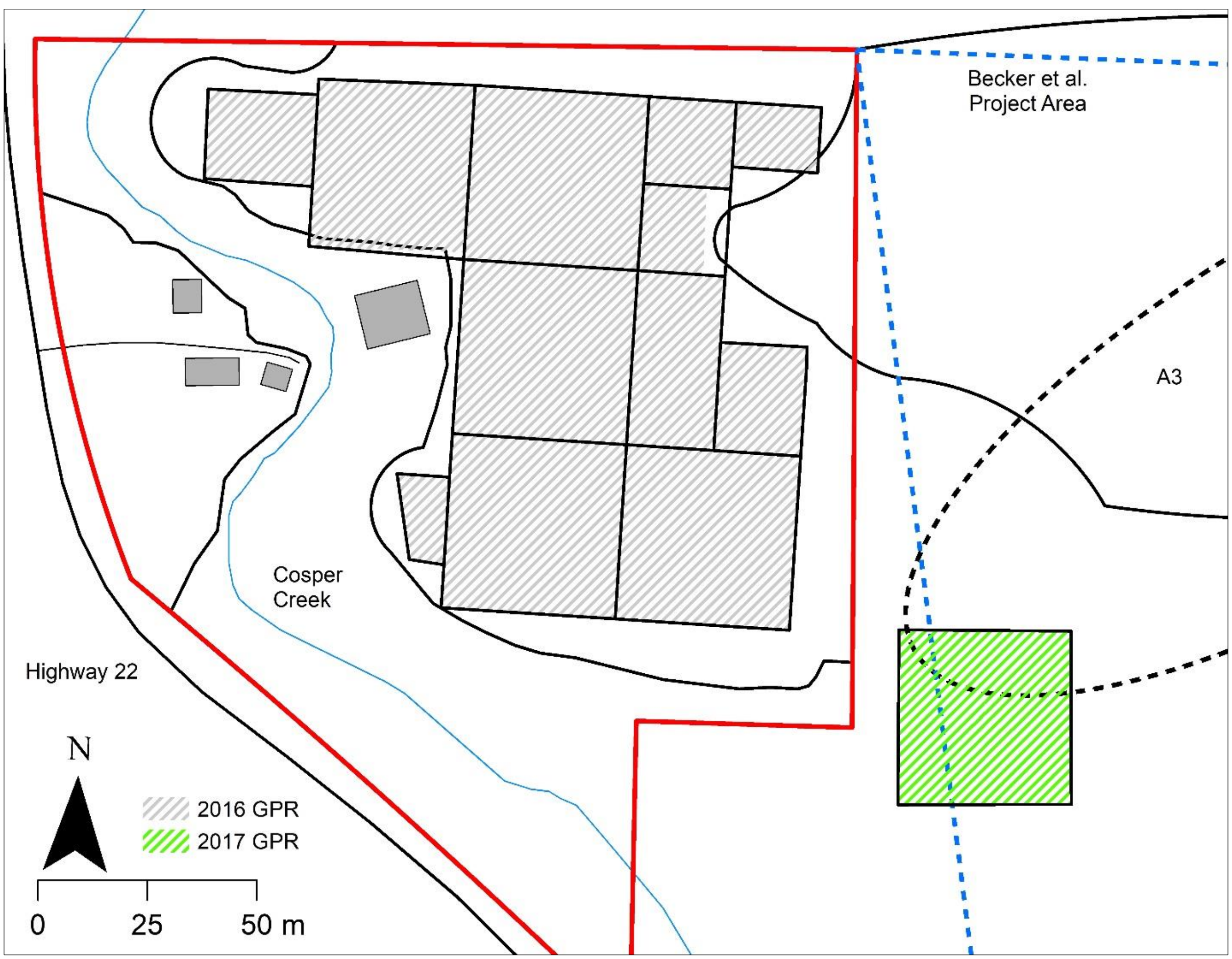

Figure 6.43 Location of 2017 ground penetrating radar survey.

Figure 6.45 Luke Schneider conducting GPR survey in the Fort Yamhill Park property.

both questions—that is, explore whether the property contained sub-surface anomalies including but not limited to the linear feature noted by Hazen—field teams completed GPR survey over a 40-m by 40-m area along the Fort Yamhill Park property's western border immediately south of the ridge (Figure 6.44).

Survey identified three areas containing geophysical anomalies; none appeared to be associated with the Hazen Map road or material

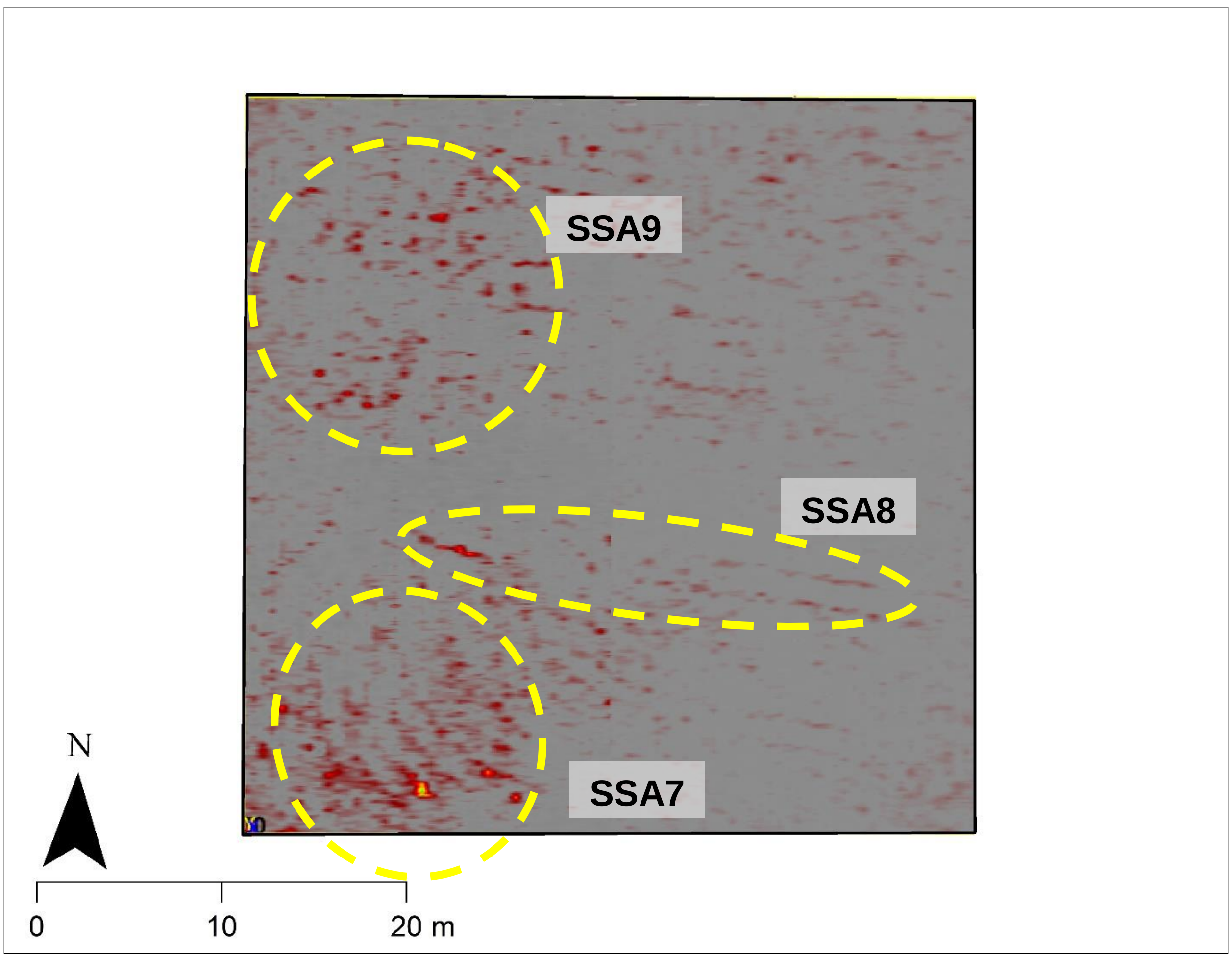

Figure 6.44 Amplitude map of 2017 GPR survey results at 60 cm below surface.

deposits (Figure 6.45). SSA7, in the southwestern quadrant of the survey area, appeared as a series of sweeping, concentric lines. HPO staff and I interpreted this linear pattern of alternating sediment density as evidence of ploughing or other agricultural activities. SSA8 cut through the center of the survey area. At 28 m long and 1.5 m wide, at first glance it resembled the geophysical signature of a road or trail. However, the feature runs in the opposite direction of the Hazen Map feature (northwest to southeast versus northeast to southwest) and sediment compaction occurred only at the edges rather than throughout this feature. It most likely represents a household or irrigation pipe. Finally, the area noted as SSA8 contained several spatially discrete, high density anomalies appeared within 60 cm of the surface. This pattern may reflect a diffuse, near-surface artifact scatter but equally may be the result of rocks and other debris eroding off the ridge slope to the north. After examining these results, HPO staff and I decided to terminate geophysical survey in the area.

Auger Survey

Back on the Rhoades property, HPO staff and I sought to extend archaeological survey to the property's riparian zone and ridge. This required developing a new set of field approaches tailored to the topographic and environmental characteristics of these strata. As with FMIA's investigation at the Umpqua Encampment, geophysical survey and intensive surface collection were unfeasible in the riparian zone and ridge toe due to dense vegetation and slope, respectively. Field teams instead turned to auger survey as the best approach to learning more about site stratigraphy and whether the material signature of these areas differed from that of the field. My goal was to comprehensively sample the riparian zone stretching from the northwestern to the southeastern corners of the Rhoades property and from the ridge's western boundary with the field to the property's northeastern boundary located upslope. Auger bore locations were selected systematically and judgmentally. In areas with low vegetation density, field teams established auger transects roughly parallel with the creek, with each bore placed at regular intervals (either 3 m or 5 m). Bore designations included transect number and distance from transect origin (e.g. T1 at 10 m). Judgmental auger bores, which received a two-digit number (e.g. J30), fell into two categories. The first comprised those placed at relatively even intervals, though the specific location of each bore was affected by vegetation density (along the creek) or topographic change (on the ridge). The second category contained bores placed near artifact-yielding bores, surface collection units, or excavation units. These bores reflected an attempt to "follow" artifact concentrations and identify features and/or meaningful horizontal relationships between deposits.

Auger survey methodology was similar to the one used at the Umpqua Encampment. Using a 5-in bucket auger, survey proceeded in 20-cm intervals to 100 cm below surface or until sub-surface impediments forced early termination. Field teams screened each 20-cm sediment column through 1/8-in screen to document moderately sized artifacts before bagging all sediment for wet screening through 1/16-in mesh. This two-step process provided immediate insight into sub-surface deposits without sacrificing recovery of micro-artifacts. Beginning with J32, augers terminated at 80 cm below surface. HPO staff and I made this change after observing dense, clay-rich and artifact-poor sediments at 80 to 100 cm below surface in other bores.

Auger survey began in the riparian zone near the oak tree at the southern edge of the field. Ground cover in this area was relatively sparse compared to the rest of the riparian zone. Moving upstream, field teams completed five systematic and two judgmental augers along a 40-m stretch of the creek west of the oak. Next, field teams conducted pedestrian survey along the eastern bank of the creek between the northwestern corner of the field and the oak, a distance of approximately 122 m. Metal artifacts, ranging from wire nails to large metal cables to a rusting engine block were discovered eroding out of the creek bank. The densest concentration of artifacts was observed in a 20-m stretch of the creek west and northwest of the shed. Seventeen judgmental auger bores were completed in this area. Remaining bores were placed in four locations: a small clearing 60 m northwest of the shed; the ridge slope in the property's northeastern corner; the western edge of the field, including the area immediately south of the shed; and the riparian zone in the property's southwestern corner, which also contained artifacts eroding out of the creek bank. (Field teams also identified a deteriorating wood fence at the surface in this latter auger survey area.)

Additional bores were completed in September 2017. Following the field season, I made a brief return trip to Grand Ronde and, with the assistance of Eve Dewan and Cody Peak, conducted additional auger survey and excavation (see below). Six judgmental auger bores were placed along Cosper Creek to the southeast, in the Fort Yamhill Park property. These augers targeted the intersection between Cosper Creek and the road/trail visible on the Hazen Map (and targeted during GPR survey) (Figure 6.8).

By the end of the 2017 field season, field teams had completed five systematic and 60 judgmental auger bores, comprising 264 20-cm sediment cores (Figure 6.46). Auger bores yielded an array of artifacts, including vessel and flat glass, nails and other metal implements, ceramics, obsidian and CCS flakes and flake shatter, and charcoal and sawn wood (Tables 6.6-6.7). Artifacts were most abundant within 60 cm of the surface. To identify differences in artifacts' horizontal patterning, I separated auger bores into four groups: (1) 20 bores located west and northwest of the shed; (2) 40 bores situated in the southern half of the property; (3) 18 bores placed along the field edge and up the ridge toe; and (4) 6 bores completed in the Fort Yamhill Park property (Figure 6.46). Since each group contained different numbers of bores and auger levels, I normalized artifact counts and weights by the volume of examined sediment (Table 6.7). Auger Groups 1 and 2 contained comparative numbers of artifacts but the assemblage from the latter was significantly more fragmented. Bores in Auger Group 1 contained greater numbers of larger or complete glassware, metal objects, and lithic material.

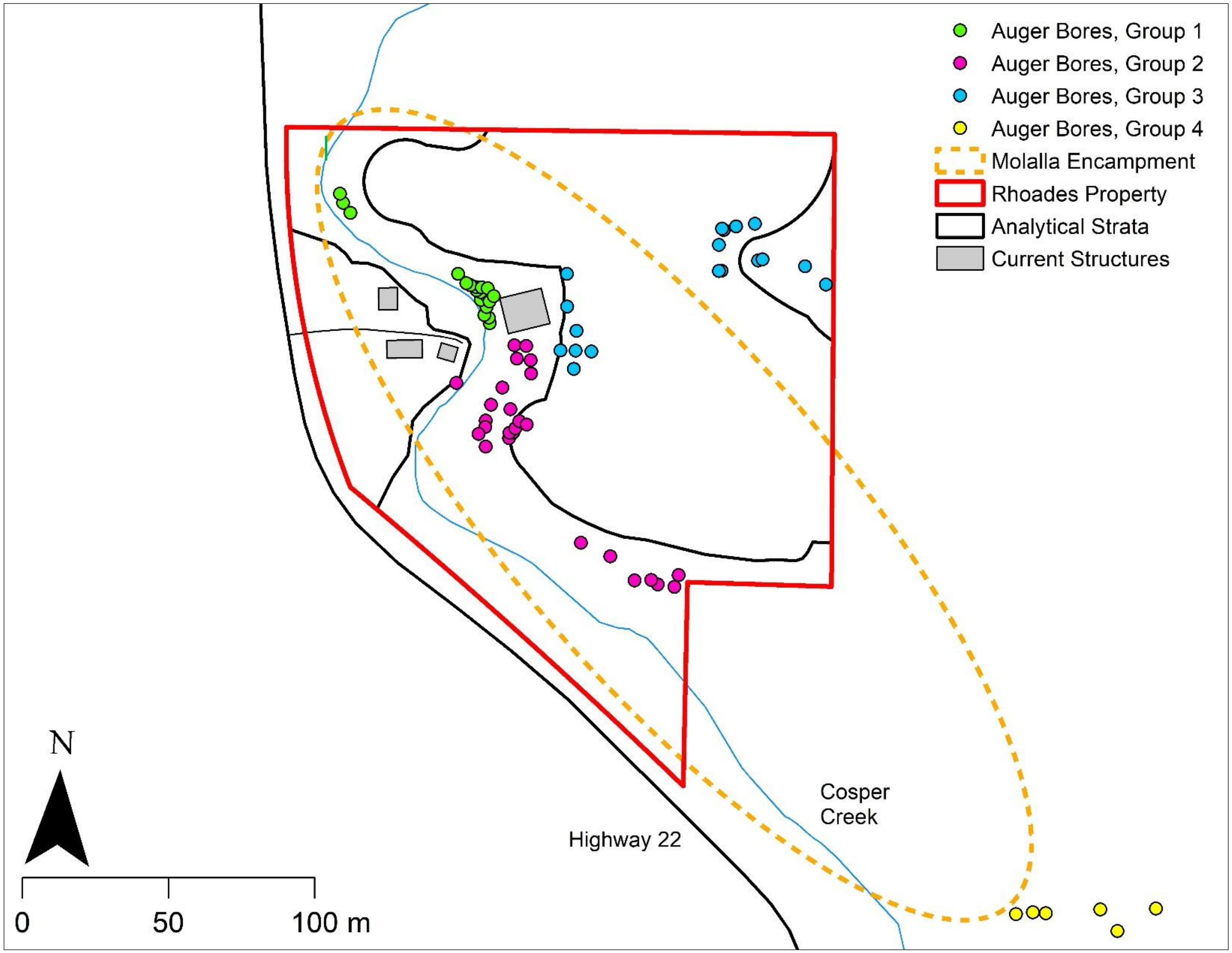

Figure 6.46 Auger bores at the Molalla Encampment, 2017.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
0-20	95	23	2	1.76	704	162.13	20	1.97	14	51.56	27.97	32.14	**835**	**300.53**
20-40	32	48.59	0	0	148	79.56	4	0.37	24	61.71	12.05	18.73	**208**	**221.01**
40-60	6	17.2	0	0	53	36.75	0	0	11	427.83	4.26	8.35	**70**	**494.39**
60-80	2	0.27	1	0.02	12	1.65	0	0	4	0.4	1.8	4.9	**19**	**9.04**
80-100	1	2.37	0	0	2	2.53	0	0	1	0.28	0.4	15.21	**4**	**20.79**
Total	**136**	**91.43**	**3**	**1.78**	**919**	**282.62**	**24**	**2.34**	**54**	**541.78**	**46.48**	**79.33**	**1136**	**1045.76**

Table 6.6 Count and weight (grams) of artifacts from 2017 auger bores by level.

Auger Group	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
1	207.6	268.4	4.1	1.9	1510.0	767.0	65.1	7.9	81.4	1975.9	59.5	243.8	**1868.1**	**3324.4**
2	562.9	182.2	7.3	0.1	3867.5	597.4	58.5	2.9	160.8	349.2	191.5	114.9	**4657.0**	**1438.2**
3	16.1	3.6	8.1	10.4	128.9	51.6	0.0	0.0	8.1	0.1	45.6	0.4	**161.1**	**111.7**
4	148.0	3.0	0.0	0.0	74.0	149.5	0.0	0.0	74.0	28.6	0.0	79.0	**296.1**	**260.1**
Total	**934.7**	**457.1**	**19.4**	**12.5**	**5580.4**	**1565.5**	**123.6**	**10.8**	**324.3**	**2353.7**	**296.7**	**438.1**	**6982.4**	**5134.3**

Table 6.7 Count and weight (grams) of 2017 auger artifacts by auger group per m^3 of excavated sediment.

Excavation

With the results of 80 surface collection units, 65 auger bores, and two test excavation units in hand, the archaeological composition of the Rhoades property came into clearer focus. By count and weight, artifact quantities decreased with distance from the creek, though this decline was less pronounced in the central field, as evidenced by surface collection units (and geophysical anomalies). HPO staff and I interpreted this patterning as evidence that the riparian zone was a locus of past activity and/or protected from post-depositional disturbances. Yet finds were not evenly distributed across the western half of the property. The diversity and density of artifacts from Auger Group 1 exceeded those observed in the field, the ridge, and elsewhere along the creek, suggesting material deposits concentrated in this area.

With these results, HPO staff and I developed a two-part excavation plan. Intensive surface collection in Survey Areas 1 and 5 yielded moderate quantities of artifacts, though fewer than auger bores. However, since these results may have been unrepresentative of material deposits located at depth, field teams would complete three full excavation units to document sub-surface stratigraphy and further ground truth geophysical results (Figure 6.34). In the riparian zone, field teams would complete six test units within an excavation area north of the maintenance shed to expand the sample of artifacts recovered by auger bores and identify deposits and/or features associated with the structures visible in aerial photographs. Each unit in the area explored by Auger Group 1 was designated as AA Unit ##.

I worked with HPO staff to update FMIA's excavation strategy in both areas. Building on the process established the previous October, field teams also collected 10-liter flotation samples from each level (excluding level 1), photographed each unit floor (excluding level 1), created stratigraphic profiles for at least one sidewall following excavation, and extensively photographed unit sidewalls and floors for 3D modeling.

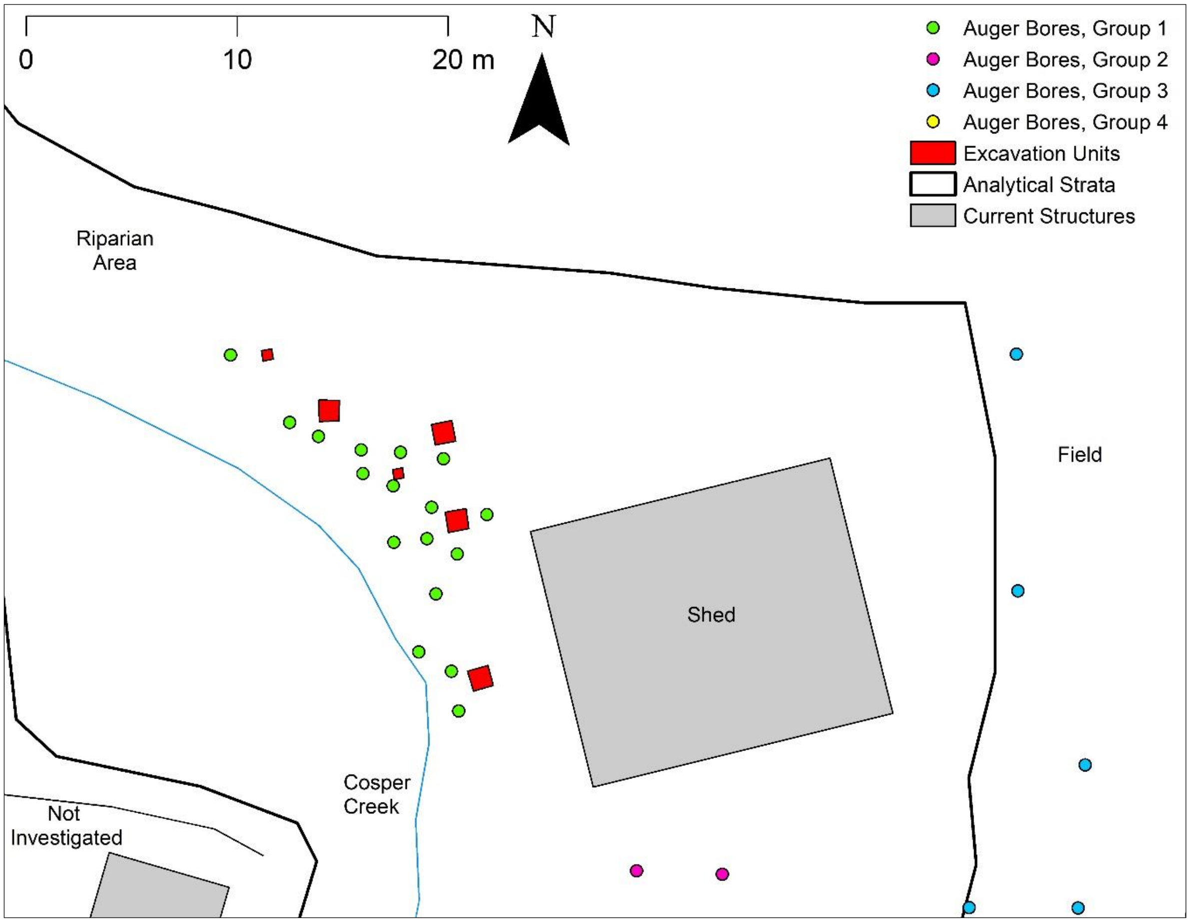

Figure 6.47 Excavation units and auger bores in Auger Group 1, 2017.

In the new excavation area, field teams completed four 1-m by 1-m units and two 50-cm by 50-cm units (Figure 6.47). Unlike intensive surface collection and test excavation in the field, these units were not aligned to the site gird. The shed as well as the property's second oak tree obscured line of sight between the Total Station and the creek, and I was unable to establish a permanent site sub-datum until the end of the field season. A semi-judgmental strategy was thus used for unit placement. AA Unit 01 was placed between J11 and J13, which yielded a dense assemblage of artifacts, and oriented approximately north-south (348°), a bearing roughly parallel with the course of the creek. Subsequent units were placed at even intervals from AA Unit 01, between nearby auger bores, and at a bearing of 348°. In the final week of the field season, a concrete sub-datum was established at the western edge of the row of trees demarcating the northern boundary of the property. From this sub-datum, the Total Station was used to record the spatial coordinates of all excavation units and nearby auger bores (their longitude and latitude coordinates were also recorded via GPS units).

<u>FD Unit 03 (1043 N 1028 E)</u>

This 1-m by 1-m unit was placed in Survey Area 6, on top of SSA3, and near the concentration of artifacts identified in the southeastern corner of Survey Area 3. Excavation terminated at 60 cm below surface. Unit sediment transitioned from medium brown (10 YR 4/3) to mottled, dark yellowish brown (10 YR 4/4) about 40 cm below surface. This transition coincided with an increase in sediment clay content. Levels 1-3 contained silty clay loam with moderate root and earthworm disturbance and few inclusions. Disturbances and inclusions decreased in the clay loam sediment of levels 4-6. As later noted in other excavation units (and auger bores), this mottled, dark yellowish brown, clay-dominated sediment (at times including angular sandstone pebbles and small cobbles) signaled sterile soils. Artifacts were recovered in all levels but level 6, with levels 1 and 2 yielding the majority of objects. The assemblage included sawn wood, wire nails, charcoal, and melted glass. Possible FCR appeared in level 5. These findings were broadly indicative of a hearth feature, though in the absence of more significant quantities of charcoal and FCR this interpretation remained tentative.

<u>FD Unit 04 (1067 N 1024 E)</u>

This 1-m by 1-m unit was placed in Survey Area 5, overlying SSA2. Excavation terminated at 40 cm below surface. The unit's stratigraphy and artifact assemblage were similar to those of FD Unit 03. Sediment transitioned from medium brown (10 YR 4/3) clay loam to mottled, dark yellowish brown (10 YR 4/4) clay loam at about 35 cm below surface. The unit contained more significant rodent burrowing activity, with one sizable burrow in its northwestern corner. Artifacts, which included cordage, charcoal, nail fragments, and one bifacially retouched obsidian projectile point, appeared primarily in levels 1-3.

<u>FD Unit 05 (1079 N 1021 E)</u>

This 1-m by 1-m unit was placed in Survey Area 5 near SSA1 and 3 m west of FD Unit 02. Excavation terminated at 70 cm below surface. At about 35 cm below surface, sediment transitioned from a medium brown (10 YR 4/3) silty clay loam to a mottled, dark yellowish brown (10 YR 4/4) silty clay loam. Clay content increased at about 60 cm below surface, with silty clay loam giving way to silty clay. The artifact assemblage, recovered almost entirely from levels 1-2, consisted of four flake fragments (three CCS and one basalt), charcoal, waterworn glass, and rubber.

<u>AA Unit 01 (1069.7 N 971.7 E)</u>

As mentioned above, this 1-m by 1-m unit was placed between J11 and J13 in the area north of the shed. Excavation terminated at 60 cm below surface. The stratigraphic profile of AA Unit 01 was broadly similar to those of field excavation units, with one notable exception. In levels 1 and 2, field teams encountered friable, gravelly, dark yellowish brown (10 YR 3/4) silty clay loam with elevated numbers of sawn wood fragments. These levels likely have been affected by teasel (*Dipsacus* sp.) root activity, which is prevalent north of the shed, and by property maintenance (e.g. storage of sawn wood and gravel). At about 19 cm below surface, unit sediment abruptly transitioned to a compacted, medium brown (7.5 YR 4/3) silty clay loam, signally the end of ostensibly disturbed layers. Level 2 terminated at this sediment boundary. This new sedimentary matrix persisted into level 6, where it transitioned to a dense, mottled silty clay. AA Unit 01 contained increased levels of rodent activity compared to field units, with one large burrow located in the northwestern corner about 35 cm below surface.

AA Unit 01 yielded a dense assemblage of artifacts. Artifacts were present in all levels but were most abundant in levels 2-4. The assemblage consisted of wire nails and fragments of other metal implements, sherds of semi-vitrified refined white earthenware vessels, charcoal, sawn wood, vessel and lamp glass, CCS and basalt lithic material, and fragmented mammal remains. Though no cultural features were observed, the assemblage recovered from AA Unit 01 confirmed historical deposits were located along the creek.

AA Unit 02 (1072.1 N 969.0 E)

This 50-cm by 50-cm unit was placed 3 m northwest of AA Unit 01. Excavation terminated at 60 cm below surface. Like AA Unit 01, levels 1 and 2 appeared disturbed by vegetation and recent activity. Medium brown (10 YR 4/3) silty clay loam characterized sediment in levels 1-5, though field teams observed a shift toward increased compactness in level 4. In level 6, sediment transitioned to hard, compact, dark greyish brown (10 YR 4/2) silty clay. Rodent activity was present throughout, particularly in level 4. Artifacts concentrated in levels 1-4 and included sawn wood, charcoal, nails, ferrous metal, bullet casings, flat and vessel glass, CCS flakes, and possible FCR. Wire cage material protruded from the unit's western wall about 15 cm below surface.

AA Unit 03 (1074.6 N 965.2 E)

Initial excavation along the creek demonstrated that the material signature of this area differed from that of the field. With additional units, I sought to map the spatial boundaries of extent deposits and identify any features. Units were thus placed at progressively greater distances north, south, and east of AA Unit 01. The 1-m by 1-m AA Unit 03 was located 4.5 m north of AA Unit 2, between J7 and J8. Excavation terminated at 50 cm below surface. Sediment exhibited no marked changes compared to previous AA units: loose, medium brown (10 YR 4/3) silty clay loam gave way in level 3 to compact, dark grayish brown (10 YR 4/2) silty clay loam, which became mottled and more compact in level 5. Moderate rodent activity was present in levels 2-4. Artifact counts remained high, especially in levels 2-4. The assemblage contained elevated numbers of charcoal, nails (both complete and fragmentary), iron stakes, building materials, flat and vessel glass (including several fire-altered pieces), lamp glass, ceramic vessels, and CCS and obsidian lithic material. Again, no features were identified, but this unit offered a diverse array of late nineteenth and early twentieth century objects, lending support to the idea that structures and/or household activities were located nearby.

<u>AA Unit 04 (1073.9 N 970.8 E)</u>

With AA Unit 04, I explored whether the distribution of material deposits extended inland as well as along the creek. Excavation in this 1-m by 1-m unit, which was placed approximately 2 m east of AA Unit 02, terminated at 50 cm below surface. Recent disturbances in levels 1-2 were more pronounced in AA Unit 04, especially in level 1. Medium brown (10 YR 5/3) silty clay loam transitioned to dark yellowish brown (10 YR 4/4) clay loam in level 4, which became mottled and more compact in level 5. Evidence of moderate rodent activity was present throughout. Artifact density, diversity, and distribution were broadly similar to other creek units, though AA Unit 04 contained increased numbers of fragmented mammal remains.

<u>AA Unit 05 (1062.3 N 973.4 E)</u>

I returned to Grand Ronde in September to conduct additional excavation along Cosper Creek. Assisted by Eve Dewan and Cody Peak, I completed two excavation units. These units were situated at the northern and southern extents of the excavation area. The 1-m by 1-m AA Unit 05 was placed approximately 8 m south of AA Unit 01, between J3 and J16. Located along a narrow strip of riparian vegetation between the creek bank and the shed's western wall, this unit offered insight into not only the southern reach of artifacts, but also whether material deposits had been impacted by the construction and use of the shed. Excavation terminated at 50 cm below surface. Contrary to units completed during the summer, evidence of recent disturbance was confined to level 1. Rodent activity was also less prevalent. In level 1, rocky, yellowish brown (10 YR 5/4) silt loam transitioned to a medium brown (10 YR 4/3) silty clay loam in level 2, which persisted into level 4. A dark yellowish brown (10 YR 4/4) silty clay loam appeared in level 5. Few artifacts were observed in levels 1 and 5, with the densest concentration coming in levels 3-4. Field teams encountered a familiar material signature comprised of glass (including a complete canning jar), ceramics, nails, metal, charcoal, sawn wood, and lithic material. However, by count and weight, the assemblage was half that of AA Unit 01. This suggested AA Unit 05 is near deposits' southern boundary in this area.

<u>AA Unit 06 (1077.3 N 962.4 E)</u>

The final unit of the 2017 field season, AA Unit 06, was placed 12 m north of AA Unit 01, near J27. Excavation of this 50-cm by 50-cm unit terminated at 60 cm below surface. In level 1, though evidence of plant disturbance remained high, few pieces of gravel, sawn wood, or other objects of recent origin were observed. The unit's silty clay loam shifted from medium brown (10 YR 4/3) to dark yellowish brown (10 YR 3/4) in level 3, to very dark grayish brown (10 YR 3/2) in level 4. Few artifacts were recovered. The assemblage included a collection of nail fragments, one CCS flake, and charcoal. I interpreted this unit as the northern boundary of material deposits along the creek.

2017 Conclusions

During the 2017 field season, FMIA completed intensive surface collection and excavation in the property's central field, GPR survey in the Fort Yamhill Park property, auger survey along Cosper Creek and the ridge toe, and excavation immediately north and west of the shed. Fieldwork produced mixed results. On the one hand, surface collection and excavation in the field and auger survey in the field and ridge yielded few artifacts and little evidence that sub-surface anomalies corresponded with archaeological deposits (Tables 6.5, 6.10). The inverse situation was true in the Fort Yamhill Park property. Where previous studies (Becker et al. 2008) recorded artifact scatters along the southern slope of the ridge, GPR survey identified no sub-surface anomalies, including no evidence of the Hazen Map road that ostensibly bisected the property. Given these results, HPO staff and I decided to terminate further archaeological investigation in field, the ridge, and the Fort Yamhill Park property.

On the other hand, auger survey in the Rhoades property riparian zone revealed dense concentrations of artifacts along the creek, north and south of the shed. Field teams expanded these results with six excavation units (Tables 6.8-6.9). These units offered insight into site stratigraphy along the creek and a robust sample of historical material, which may be associated with structures visible in early to mid-twentieth century aerial photographs. The vertical distribution of artifacts suggested deposits were somewhat stratified, with construction materials and household trappings appearing primarily in levels 2-4 and items more directly associated with Native presence such as lithic material in levels 3-5. Artifact quantities peaked in AA Units 01 and 03 and declined with distance north (AA Unit 06) and, to a lesser extent, south (AA Unit 05) along the creek. Though only one unit was completed east of auger bores (AA Unit 04), the recovered assemblage indicated deposits extend at least partially inland.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	NISP	Mass	NISP	Mass	NISP	Mass	NISP	Mass	NISP	Mass	Mass	Mass	**n**	**g**
0-10	18	53.13	2	0.25	95	164.06	0	0	4	3.45	175.64	24.1	**119**	**420.63**
10-20	76	186.07	3	5.02	366	1589.1	0	0	11	9.4	20.41	60.41	**456**	**1870.36**
20-30	40	37.33	9	24.37	217	804.17	7	1.47	5	154.53	2.58	71.47	**278**	**1095.92**
30-40	29	278.74	1	7.74	141	495.99	21	26.41	12	87.47	56.12	15.52	**204**	**967.99**
40-50	5	1.64	2	4.05	48	65.01	0	0	11	947.04	5.28	12.76	**66**	**1035.78**
50-60	1	0.39	0	0	7	30.52	0	0	2	2.5	0.33	4.48	**10**	**38.22**
60-70	0	0	0	0	0	0	0	0	0	0	0	0.22	**0**	**0.22**
Total	**169**	**557.3**	**17**	**41.43**	**874**	**3148.8**	**28**	**27.88**	**45**	**1204.4**	**260.36**	**188.96**	**1133**	**5429.12**

Table 6.8 Count and weight (grams) of artifacts from 2017 excavation units by level.

Unit	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
FD 03	1	0.12	1	0.1	1	0.76	0	0	3	279.13	122.45	0.97	**6**	**403.53**
FD 04	0	0	0	0	2	1.16	0	0	1	0.1	0.01	0.15	**3**	**1.42**
FD 05	1	0.39	0	0	1	0.6	0	0	4	3.97	0.49	10.19	**6**	**15.64**
AA 01	24	14.26	7	17.66	207	656.69	8	4.13	7	254.75	62.02	49.44	**253**	**1058.95**
AA 02	8	9.71	2	0.25	79	186.76	0	0	4	595.4	53.45	29.6	**93**	**875.17**
AA 03	72	182.46	2	12.27	282	1479.3	0	0	11	6.68	15.36	75.01	**367**	**1771.03**
AA 04	42	81.17	0	0	244	544.51	17	12.78	6	47.18	4.21	18.25	**309**	**708.10**
AA 05	21	269.19	5	11.15	53	275.38	3	10.97	8	16	2.37	3.69	**90**	**588.75**
AA06	0	0	0	0	5	3.69	0	0	1	1.18	0	1.66	**6**	**6.53**
Total	**169**	**557.3**	**17**	**41.43**	**874**	**3148.8**	**28**	**27.88**	**45**	**1204.4**	**260.36**	**188.96**	**1133**	**5429**

Table 6.9 Count and weight (grams) of artifacts from 2017 excavation units by unit.

2018 Field Season

Archaeological research at the Molalla Encampment concluded in the summer of 2018. The three goals for this final field season were to (1) expand the sample of recovered historical artifacts and sediment samples for macrobotanical analysis; (2) map the horizontal and vertical extents of material deposits; (3) distinguish periods of occupation/activity; and (4) identify features and/or remains of household structures. To accomplish these goals, fieldwork shifted from property-wide investigation to targeted surface collection, auger survey, and excavation, primarily along the creek north of the shed. The 2018 field team consisted of FMIA students, FMIA returnees (Jessica Boggs, Katy Leonard-Doll, Celena McPeak, and Luke Schneider), and graduate student volunteers (Yoli Ngandali and Eve Dewan). Briece Edwards, Jessica Curteman, and other HPO staff provided critical assistance. Fieldwork occurred over seven weeks, from late June to early August.

Intensive Surface Collection

While the 2016 and 2017 field seasons focused on the western half of the property's field and the riparian areas along Cosper Creek, the northwestern corner of the field between excavation units and existing surface collection blocks had been left uninvestigated. When field teams established the site grid in the summer of 2016, this area had been omitted due to dense blackberry and teasel cover. Swaths were cut into this vegetation to access 2017 auger bores and excavation units, but these only minimally reduced ground cover in the area. Before the start of the 2018 field season, however, the Grand Ronde grounds crew removed all vegetation immediately north of the shed. Their hard work was much appreciated. With this area cleared, I was able to link riparian and field survey areas and map the extent of surface disturbances observed in the upper levels of 2017 excavation units.

I began by extending the field survey grid to this boundary zone between the riparian area and the field (Figure 6.48). Three new survey areas were established: Survey Area 7 (15m by 25 m), Survey Area 8 (5 m by 25 m), and Survey Area 9 (10 m by 20 m). As in previous field seasons, each survey area was separated into 5-m by 5-m survey blocks (15 blocks in Survey Area 7, 5 blocks in Survey Area 8, and 8 blocks in Survey Area 9), and one 1-m by 1-m surface collection unit was selected in each block.

Surface collection units in these survey areas yielded moderate quantities of historical artifacts (Table 6.10). The assemblage included a familiar array of construction debris, household trappings, and lithics. Two notable finds lent temporal information to human activity in this area. The first was a fragment of an amethyst glass vessel found at the surface near 1076 N 985 E. The amethyst color of the glass is a byproduct of manganese dioxide, which was commonly used as a decolorizing agent between 1870 and 1920. The second temporally significant artifact was a cast iron

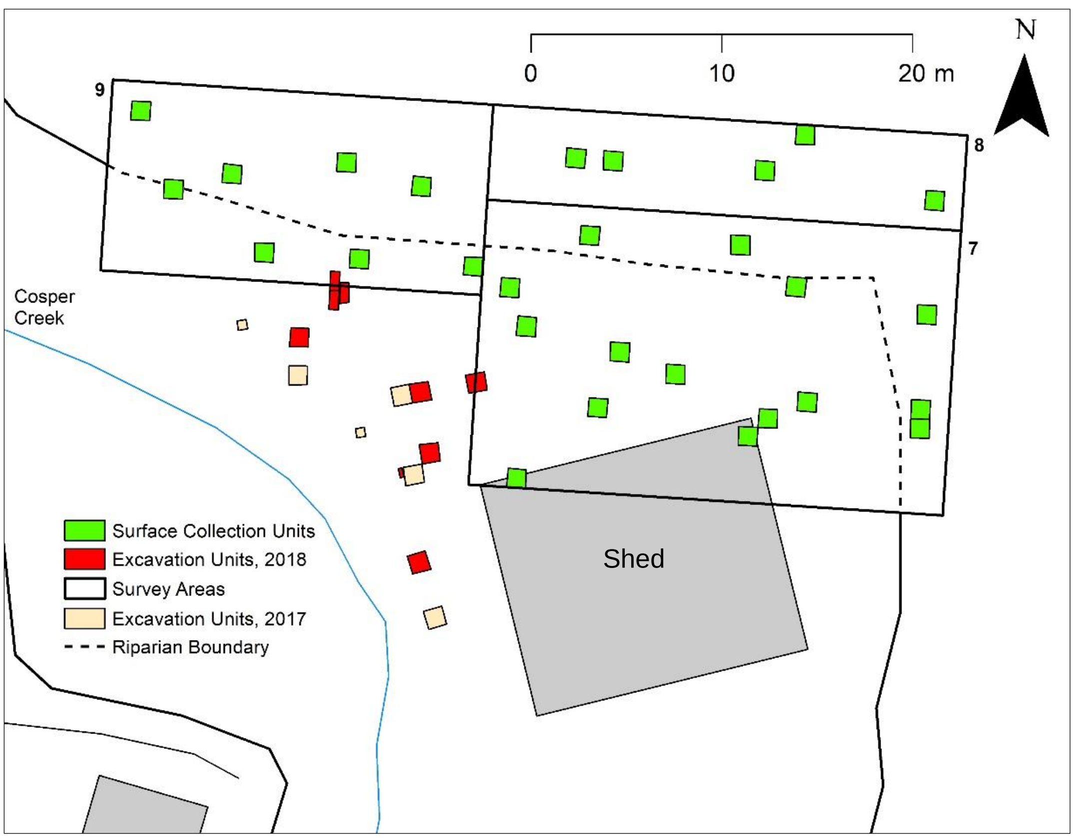

Figure 6.48 Surface collection and excavation units, 2018.

window sash weight, likely predating 1940, found at the interface between the riparian zone and the field at 1081 N 974 E.

Artifacts recovered in Survey Areas 7-9 exhibited distinct horizontal patterning. By and count and weight, historical artifacts, lithics, and charcoal and sawn wood concentrated in the western and southwestern portions of the survey areas (Figure 6.49-6.50). The lack of significant elevation change across the field-riparian boundary suggests artifact concentrations do not stem from post-depositional transport (i.e. artifacts sliding toward the creek edge). Instead, this area may have been associated with historical structures and/or functioned as a storage area or dumping ground. With HPO staff, I contemplated completing additional surface collection in Survey Area 8 (i.e. adding another row of units north of the five completed by field teams), but once the drop-off in artifact counts and weights with distance from the creek became clear, I decided to shift attention back to auger survey and excavation.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal
	n	g	n	g	n	g	n	g	n	g	g	g
Surface	51	44.52	2	1.22	418	2643.9	8	12.87	4	223.81	11.44	2.79

Table 6.10 Count and weight (grams) of artifacts recovered from 2018 surface collection units (includes surface finds).

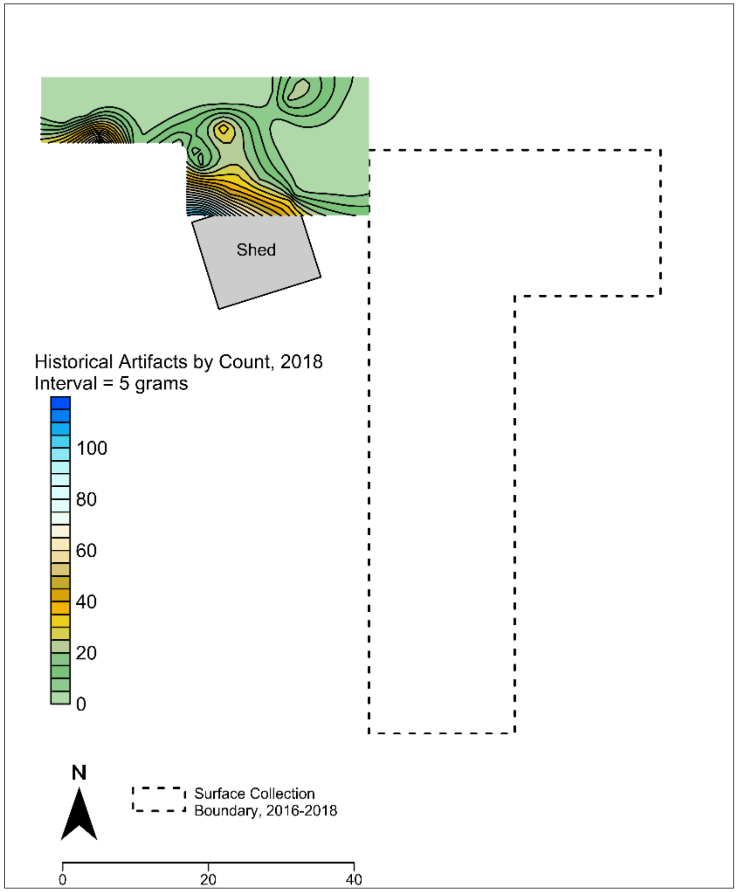

Figure 6.49 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2018 surface collection units by count. (This visualization excludes the heavy window sash weight recovered in 1081 N 974 E as it obscured the distribution of other finds.)

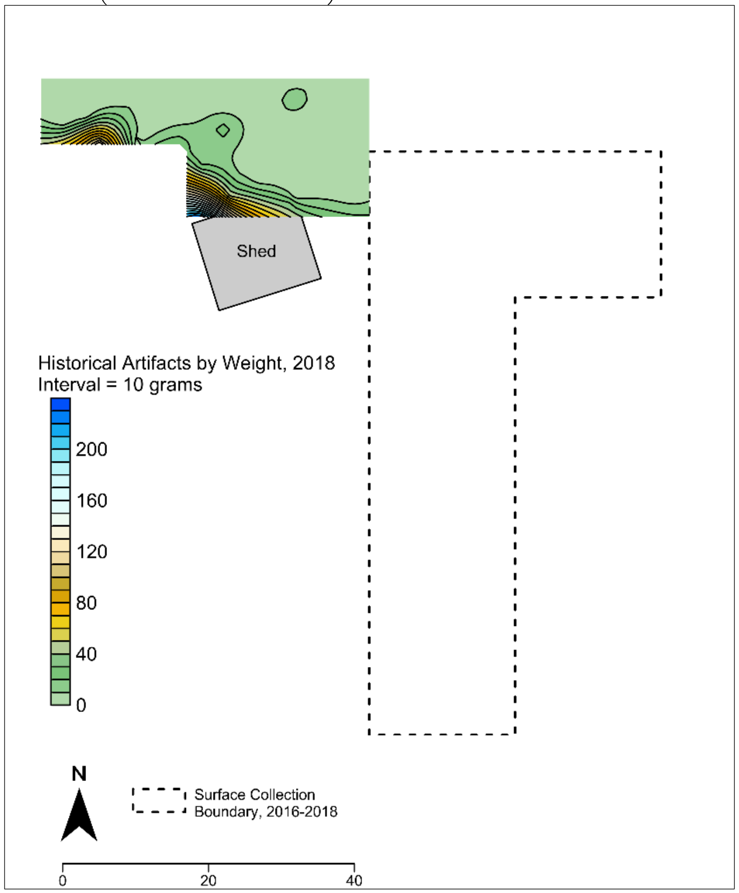

Figure 6.50 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2018 surface collection units by weight. (This visualization excludes the heavy window sash weight recovered in 1081 N 974 E as it obscured the distribution of other finds.)

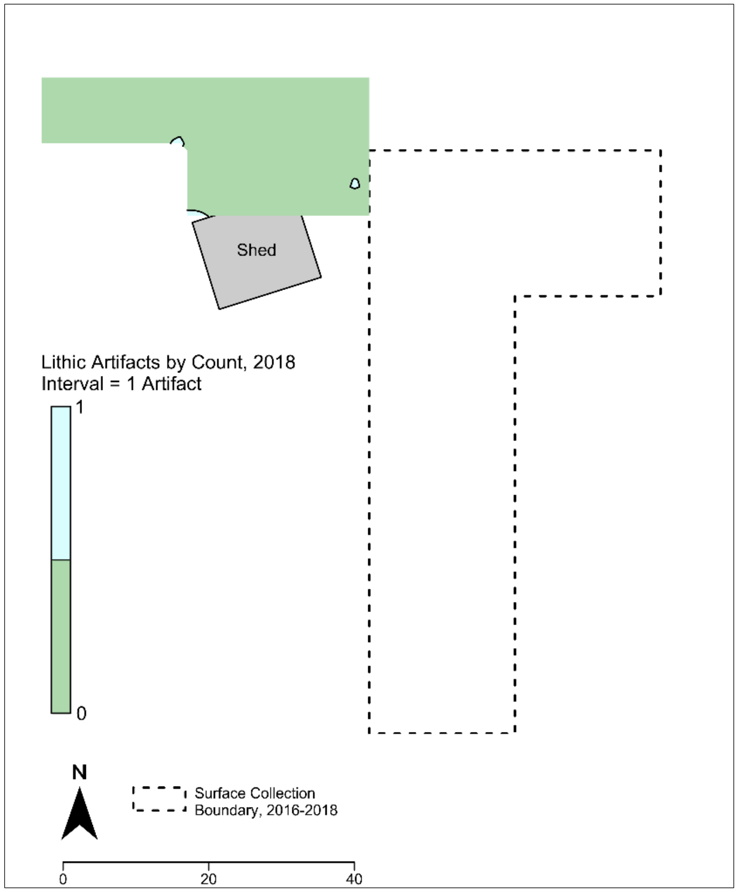

Figure 6.51 Distribution of lithic artifacts from 2018 surface collection units by count.

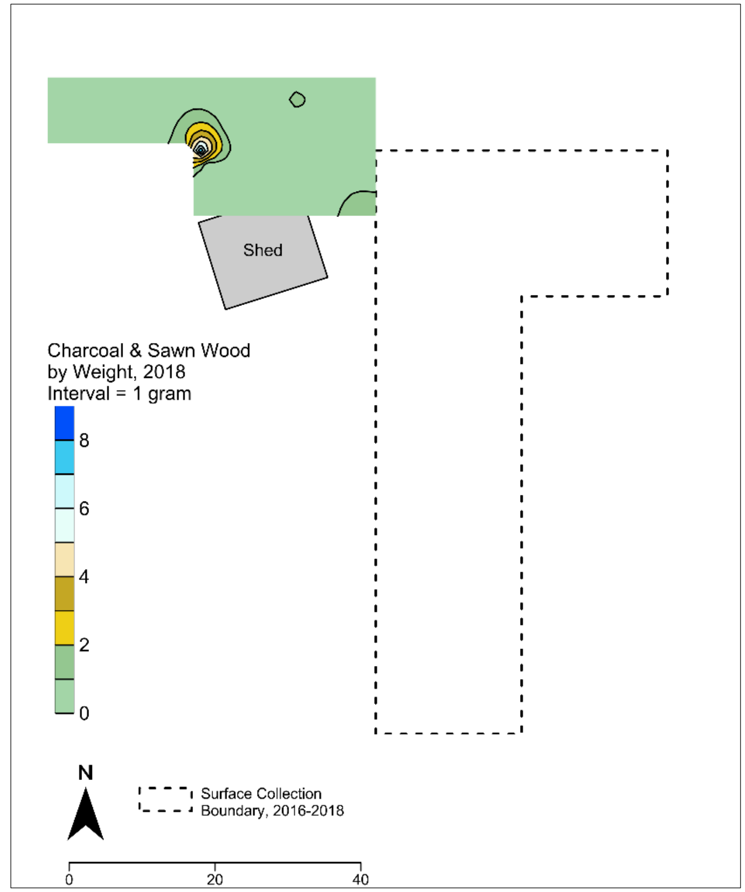

Figure 6.52 Distribution of charcoal and sawn wood from 2018 surface collection units by weight.

Auger Survey

Additional auger testing was completed to fill another gap in the survey area (Figure 6.53). Dense riparian vegetation south of the shed limited the spatial extent of 2017 auger survey and prevented placing bores along the stretch of creek between the shed and the property's southwestern corner. Moreover, three lines of evidence compelled me to pursue additional study in this area. First, during field teams' survey of the creek bank, complete nails and other medium- to large-sized metal artifacts were identified eroding from the creek bank. Yet similar materials were largely missing from auger bores. Second, wet screening auger sediments through 1/16-in mesh yielded intriguing smaller finds such as glass beads. Third, in recent years community members have

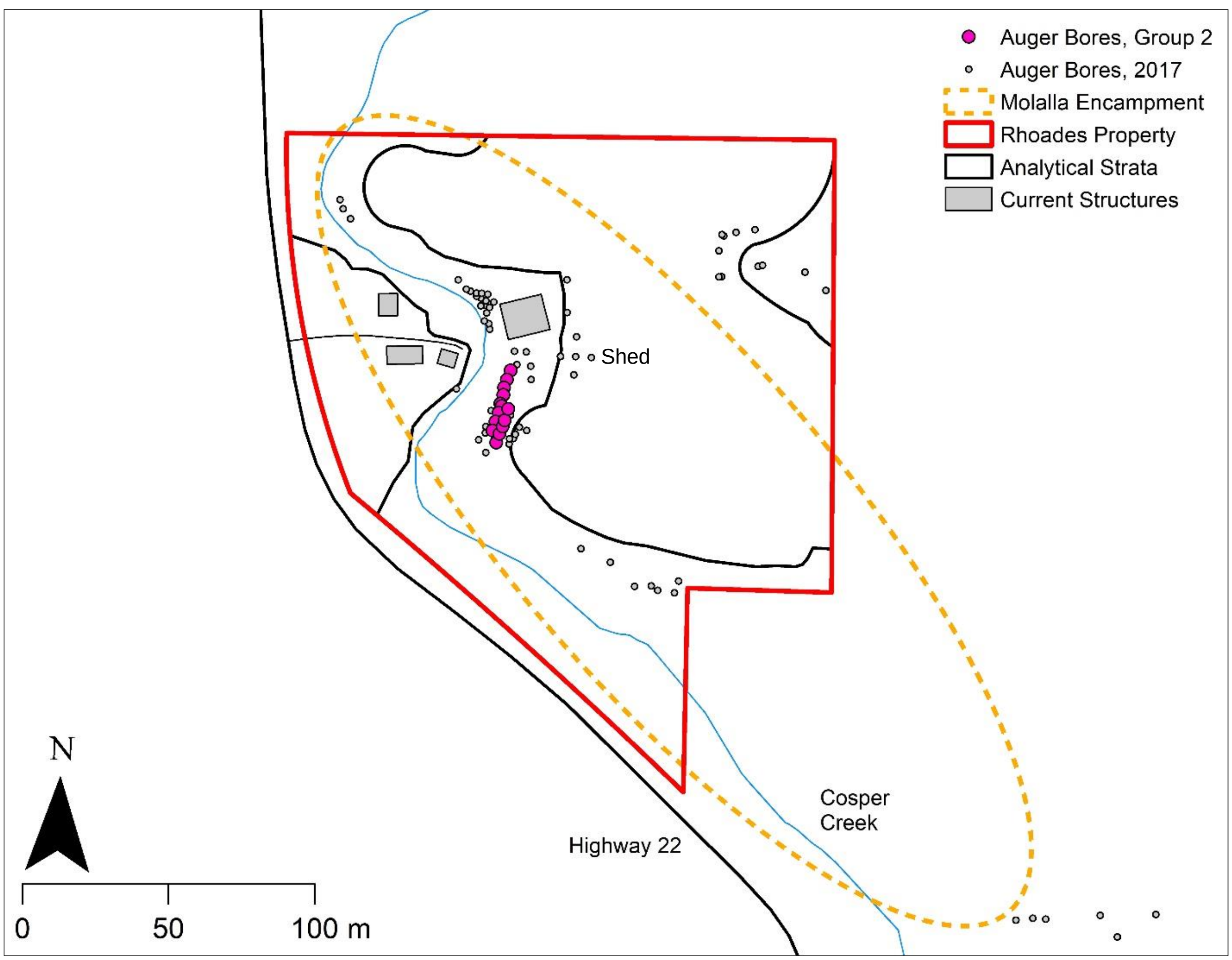

Figure 6.53 Auger bores, 2017 and 2018.


Figure 6.54 Ethan Mofidi and Bay Loovis conducting auger survey in Auger Group 2.

recovered lithic material along this stretch of the creek bank (Bobby Mercier, personal communication). Before deciding to focus excavation solely on the area north of the maintenance shed, I needed to determine whether the property's southwestern corner contained similarly rich material deposits.

As with the riparian-field boundary area, field teams would have been unable to extend auger survey along the creek without the efforts of the Grand Ronde grounds crew, who trimmed riparian vegetation along the creek before the field season. Field teams completed 14 auger bores, which were divided into three transects (Figure 6.54). Transects proceeded at a bearing of 200° (roughly parallel to the creek course). Each bore was separated by 3 m and terminated at 80 cm below surface. Sediment was screened through 1/8-in mesh and collected for later wet screening through 1/16-in mesh.

Auger bores yielded additional artifacts, including moderate quantities of CCS flakes and flake shatter, three glass beads, and metal fragments (Table 6.11). The glass beads in particular provide suggestive evidence of nineteenth occupation at the site. However, artifacts in this area continued to exhibit significant fragmentation, especially when compared to those from Auger Group 1 (Table 6.12). HPO staff and I thus decided to focus the remainder of the field season on excavation north of the shed rather than open up additional units in the Auger Group 2 area. This was an example in which additional, invasive testing was not justified by available lines of evidence.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
0-20	23	0.43	0	0	146	17.1	17	1.32	3	0.06	0.04	2.5	**189**	**21.45**
20-40	3	0.05	0	0	25	1.27	1	0.01	12	0.09	0	1.74	**41**	**3.16**
40-60	0	0	0	0	13	1.82	0	0	5	1.42	0	0.53	**18**	**3.77**
60-80	0	0	0	0	0	0	0	0	2	0.02	0	0.58	**2**	**0.60**
Total	**26**	**0.48**	**0**	**0**	**184**	**20.19**	**18**	**1.33**	**22**	**1.59**	**0.04**	**5.35**	**250**	**28.98**

Table 6.11 Count and weight (grams) of artifacts from 2018 auger bores by level.

Auger Group	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
1	207.6	268.4	4.1	1.9	1510.0	767.0	65.1	7.9	81.4	1975.9	59.5	243.8	**1868.1**	**3324.4**
2	265.8	65.5	2.6	0.1	1839.8	262.9	67.1	4.4	111.0	127.3	67.7	54.4	**2286.2**	**582.3**
3	16.1	3.6	8.1	10.4	128.9	51.6	0.0	0.0	8.1	0.1	45.6	0.4	**161.1**	**111.7**
4	148.0	3.0	0.0	0.0	74.0	149.5	0.0	0.0	74.0	28.6	0.0	79.0	**296.1**	**260.1**
Total	**637.5**	**340.5**	**14.7**	**12.4**	**3552.7**	**1231.0**	**132.2**	**12.4**	**274.4**	**2131.8**	**172.8**	**377.6**	**4611.5**	**4278.5**

Table 6.12 Count and weight (grams) of 2017-2018 auger artifacts by auger group per m^3 of excavated sediment.

Excavation

Seven excavation units were completed north of the shed over the course of the field season (Figure 6.48). These units were placed between 2017 excavation units along the creek and 2018 surface collection units further inland. Units were oriented parallel with AA Unit 01, at a bearing of 348°. Excavation procedures remained largely unchanged, though as the summer progressed elevated quantities of micro-artifacts, especially lithic material, were observed in level 3 and below. Because the property's clay-rich sediment impeded full recovery of these artifacts during dry screening, field teams shifted to wet screening sediment through 1/8-in mesh for AA Units 10-14, levels 3-6. Wet screening took place took place near the FMIA camp on the Uyxat Powwow Grounds.

<u>AA Unit 07 (1074.1 N 971.8 E)</u>

Excavation started by returning to AA Units 01 and 04, which yielded high numbers of artifacts during the 2017 field season. The southwestern corner of AA Unit 07 was placed at the southeastern corner of AA Unit 04, doubling the size of the unit to 1 m by 2 m. Excavation terminated at 50 cm below surface. Sediment exhibited few differences from AA Unit 01. Levels 1-2 contained loose, rocky, medium brown (10 YR 3/3) sandy clay loam. In level 3, sediment transitioned to a compact, dark yellowish brown (10 YR 3/4) silty clay, which persisted into level 5. Moderate rodent disturbance was identified in levels 3-4. The artifact assemblage contained a range of historical materials. Notable finds included three square-headed iron lag bolts and elevated quantities of nails, metal fragments, and charcoal. No lithics were recovered. Artifacts concentrated in levels 1-4.

AA Unit 08 (1070.9 N 972.5 E)

The southwestern corner of AA Unit 08 was placed at the northeastern corner of AA Unit 04, approximately 4 m south of AA Unit 07. This location offered insight into artifacts situated between AA Units 01 and 04 and maintained distance from the shed, the immediate surroundings of which yielded few artifacts during intensive surface collection. Excavation in this 1-m by 1-m unit terminated at 50 cm below surface. Evidence of recent disturbance was noted in levels 1-2, which were characterized by medium brown (10 YR 4/3) silty clay loam. At about 16 cm below surface, wood planks, nails, and basalt cobbles appeared across the eastern half of the unit. Level 2 terminated at 18 cm below surface; these materials were the focus of level 3. No features emerged, though the planks were associated with flat and vessel glass fragments, elevated quantities of nails, and charcoal. In level 4, sediment transitioned to dark yellowish brown (10 YR 3/4) silty clay. Silt content decreased in level 6, which was characterized compact, dark brown (10 YR 3/3) clay. Artifacts concentrated in levels 2-4, above and below the wood planks. Two lithic artifacts were recovered, a proximal CCS flake in level 1 and a battered cobble in level 6.

AA Unit 09 (1070.1 N 971.3 E)

In the lead-up to AA Units 07 and 08, AA Units 01 and 04 were unbackfilled to reexamine site stratigraphy and finalize new unit placements. During this process, field teams inadvertently disturbed sediment beyond the northwestern corner of AA Unit 01. I decided to expand this disturbance into a 50-cm by 20-cm unit attached to AA Unit 01. This required squaring the corners of the disturbance and cleaning up side walls. Precise vertical control was not possible for recovered artifacts, which were assigned to levels 1-6. Excavation terminated at 60 cm below surface. Silty clay loam was present throughout. The recovered artifact assemblage was small and contained ceramic, metal, and charcoal.


Figure 6.55 Justice McNeeley conducting excavation in AA Unit 10.

AA Unit 10 (1074.8 N 974.7 E)

This 1-m by 1-m unit was placed 3 m east of AA Unit 07 (Figure 6.55). From this location, excavation assessed whether and if so to what extent material deposits extended inland, as suggested by surface collection units in Survey Areas 7-9. Excavation terminated at 50 cm below surface. Field teams encountered a familiar sediment profile: medium brown (10 YR 4/3) sandy clay loam in level 1, medium brown (10 YR 4/3) silty clay loam in levels 2-3, and dark yellowish brown (10 YR 4/4) silty clay in levels 4-5. Rodent activity was more pronounced in this unit, particularly in levels 2-4. The unit yielded CCS flakes and a range of historical materials, including a 1920s era fence post spade and an early twentieth century canning jar lid. The assemblage concentrated in levels 2-4, and, in level 3, field teams identified an *in situ* metal pipe running north-south through the middle of the unit. After verifying that the pipe extended beyond the unit, I contacted Grand Ronde Facilities Supervisor Tyson Mercier to check if it was currently in use. He confirmed the pipe was not associated with the shed or any other recent building on the property. As such, AA Unit 10 may be located within the boundaries of a historical structure or, given the distribution of the artifact assemblage and presence of fire-modified material, in or around an outbuilding.

AA Unit 11 (1076.6 N 965.1 E)

AA Unit 10 tested whether artifacts observed in AA Units 04 and 07 existed further inland.

AA Unit 11 explored a similar question, this time moving inland from AA Unit 03. This 1-m by 1-m unit was placed 2 m north of AA Unit 03 on the western boundary of a circular rise located between AA Unit 03 and the southern boundary of Survey Area 9. This topographic feature had gone unnoticed during previous summers due to dense ground cover near the shed. With vegetation removed, it was possible to test its association with material deposits. Excavation terminated at 60 cm below surface. Level 1 sediment was characterized by medium brown (10 YR 4/3) sandy clay, levels 2-6 by medium brown (10 YR 4/3) and dark yellowish brown (10 YR 3/4) silty clay and silty clay loam. Sediment compactness increased with depth. No evidence of recent disturbance was observed in levels 1-2, suggesting these activities were limited to the shed's immediate surroundings. Artifacts concentrated in levels 2-4 and included historical materials and, in level 6, CCS flakes and possible FCR. No features were identified. The overall count and weight of recovered artifacts was comparable to those of AA Units 03. While material deposits appear to diminish with distance from the shed (e.g. AA Unit 06), the drop-off inland appears less pronounced.

AA Units 12 and 13 (1078.7 N 967.1 E)

Given the size of the artifact assemblage in AA Unit 11, I decided to place two additional units along the boundary of the field and riparian zone. This decision was based on (1) the pipe in AA Unit 10, which extended into the unit's north wall, raising the possibility of additional deposits to the north; (2) elevated numbers of artifacts from nearby surface collection units such as 1081 N 974 E, which yielded the sash weight; and (3) the rise, which may have represented a feature or artifact dump and thus merited further testing. Two 50-cm by 1-m units (AA Units 12 and 13) were placed along the northeastern extent of the rise, perpendicular to the direction of the slope of the feature. Arranging units in this way provided insight into sub-surface deposits situated on and at the base of the feature's slope.

AA Unit 12 terminated at 60 cm below surface. Sediment transitioned from grayish brown (10 YR 5/2) sandy loam in level 1 to dark yellowish brown (10 YR 4/4) silty clay loam in level 2 to dark brown (10 YR 3/3) silty clay in level 5. Levels 1-2 were characterized by rocky, loose sediment indicative of recent disturbance. Sediment compactness increased in level 3, as did the percentage and size of geological inclusions. In addition to historical materials, levels 4-6 yielded CCS flakes, unmodified and fire-modified cobbles, and faunal remains, including a cut-marked artiodactyl tibia. Compared to lithic material in other excavation units, which were recovered in screens, field teams observed many of these objects *in situ* in the northeastern quadrant of the unit. That these objects existed within a spatially constrained area and below most historical artifacts implied they dated to an earlier—possibly early reservation—occupation period.

AA Unit 13 terminated at 50 cm below surface. Given the slope of the rise, at this depth the floor of the unit was level with that of AA Unit 12 at 60 cm below surface. A similar sediment profile emerged: dark grayish brown (10 YR 4/2) silty clay loam in level 1, dark yellowish brown (10 YR 4/4) silty clay in levels 2-5. Relatively little evidence of recent disturbance and geological inclusions were identified in the unit's upper levels, but levels 2-4 exhibited widespread rodent activity as well as an ant hill in the unit's southwestern quadrant. Evidence of disturbance decreased in level 5. Field teams collected fragments of PVC pipe in all levels and in levels 2-3 encountered three PVC pipes *in situ* running east-west across the northern third of the unit. All three no longer appeared to be in use. Only one remained intact and, like the pipe in AA Unit 10, was left in place. A fourth *in situ* PVC pipe was identified in surface collection unit 1081 N 968 E, about 0.5 m north of AA Unit 13's north wall. These pipes were likely installed post 1950 as part of irrigation efforts on the property. Otherwise, the unit's artifact assemblage mirrored that in AA Unit 12. Historical artifacts concentrated in levels 2-4, lithic material in level 5. Possible cut nail fragments appeared in level 5. Cut nail manufacturing predates that of wire nails, though both were used in western states during the late nineteenth century. If actually cut nails—rust and fragmentation make morphological interpretations difficult—these artifacts support the interpretation developed in AA Unit 12 that levels 4-5, and by association lithic material, constituted older deposits.

<u>AA Unit 14 (1065.1 N 972.4 E)</u>

Preceding excavation and surface collection units mapped the northern and eastern extent of material deposits north of the maintenance shed. AA Unit 14 explored deposits' southern extent. In 2017, I noted a decrease in artifact density between AA Units 01 and 05, though this decrease was less pronounced than that between AA Units 01 and 06. Ideally, I would have placed additional units south of AA Unit 05 until a comparable artifact decrease emerged. A narrowing in the riparian zone, however, made this unfeasible. The southwestern corner of the shed comes within 2 m of the edge of the creek bank. Riparian vegetation in this strip is dominated by small and large trees and shrubs, including the property's second oak tree, while the area fronting the southern wall of the shed is actively used by Grand Ronde grounds crews. HPO staff and I therefore decided to place the 1-m by 1-m AA Unit 14 equidistant from AA Units 01 and 05.

AA Unit 14 terminated at 60 cm below surface. Sediment in levels 1-6 was characterized by silty clay and silty clay loam, transitioning from medium brown (10 YR 4/3) to dark yellowish brown (10 YR 3/4 and 4/4) in level 4. Evidence of recent disturbance remained visible in levels 1-2. Rodent activity appeared minimal compared to other units. The unit yielded a familiar assemblage of historical artifacts and lithics. The most significant find was a cache of wire nails of varying sizes (though the majority appeared to be smaller construction and finishing nails) in levels 2-4 of the unit's northeastern corner. Although nails commonly appeared in other excavation units, based on the spatial concentration of these nails *in situ*, I interpreted this deposit as an intentional burial and/or disposal. In levels 2-4, field teams recovered over 2,600 metal fragments (totaling over 1,500 grams), the vast majority of which were complete and fragmented wire nails. The density of nails decreased in level 5 (n=200, 85.64 g), though they continued to concentrate in the northeastern corner. As such, field teams bisected the unit and brought the eastern half of the floor to 60 cm below surface. Few nails or other artifacts were identified this level, signaling that excavation had reached sterile soils below the cache.

AA Unit 15 (1079.1 N 967.6 E)

The final excavation unit was placed alongside AA Units 12 and 13. In attempt to follow the lithic material that appeared in the eastern half of these units, field teams placed an additional 50-cm by 1-m unit in this area. AA Unit 15 focused on the interface between AA Units 12 and 13, with the southwestern corner of the unit located along the eastern boundary of AA Unit 12, halfway between its southeastern and northeastern corners. Excavation terminated at 60 cm below surface. At this depth, the floor of the unit was level with that of AA Units 12 and 13. Medium brown (10 YR 4/3) sandy clay loam characterized levels 1-2, medium brown (10 YR 4/3) silty clay loam level 3, and dark yellowish brown (10 YR 3/4) silty clay levels 4-5. Rodent and ant disturbances noted in AA Unit 13 appeared throughout levels 2-4. In level 1, a wood plank emerged from the eastern side wall. During surface collection and excavation closer to the shed, field teams generally did not collect sawn wood from level 1, as most of it likely stemmed from storage and chopping by tribal staff. These pieces were often fragmentary, however, measuring at most 10 cm long. This larger, intact plank appeared different and may be related to a historical structure. The artifact assemblage around and below the plank included a range of historical material but no notable finds and few lithics. Artifacts concentrated in levels 2-4.

2018 Conclusions

During the 2018 field season, intensive surface collection and auger survey filled gaps in FMIA's survey of the Molalla Encampment. Fieldwork accomplished three of four goals set at the start of the field season. First, it increased the sample of historical artifacts from the site, providing additional insight into the nature of household, construction, and lithic activities (Tables 6.13-6.14). Second, fieldwork led to a more robust understanding of the site's horizontal and vertical boundaries. Artifacts from surface collection units in Survey Areas 7-9 exhibited clear horizontal patterning, concentrating by count and weight in the southwestern corner of the three areas. In excavation units, artifact quantities decreased with distance north from AA Unit 01 and remained comparable in units inland and south along the creek. Vertically, historical artifacts concentrated in levels 2-4, lithics and mammal remains in levels 3-6. Third, surface collection and excavation units yielded temporally significant artifacts. Powwow tent stakes, amethyst glass, a window sash weight, a fence post spade, a wire jar lid, cut nails—these objects suggest occupation and activity at the Molalla Encampment extends from the present to at least the late nineteenth century (see Chapter 7 for additional discussion on occupation periods. The fourth goal—identify features and/or household structures—went largely unrealized. Notwithstanding the iron pipe in AA Unit 10, nail cache in AA Unit 14, and seemingly older plank in AA Unit 15, no materially-dense features indicative of household activity, organization, or construction were identified.

CONCLUSION

Over four field seasons, FMIA conducted archaeological research at the Umpqua and Molalla Encampments. At every step, I worked with HPO staff to implement a low-impact approach to field investigation that maximized the amount of information gained from each property while minimizing physical and cultural impacts to them. Aerial survey, site mapping, geophysical survey, intensive surface collection, auger and metal detection survey, and targeted excavation provided new insight into the material record at Grand Ronde. In the following chapter, I examine these results in-depth, returning to the three research questions outlined in Chapter 5.

Unit	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
AA 07	21	26.47	1	0.19	535	2156.8	6	5.26	2	357.65	21.7	46.63	**565**	**2614.73**
AA 08	23	11.26	1	0.07	229	297.52	12	38.64	6	121.15	64.49	15.01	**271**	**548.14**
AA 09	0	0	1	3.2	2	1.47	0	0	0	0	0	0.42	**3**	**5.09**
AA 10	11	100.91	1	0.79	285	679.06	0	0	12	133.74	6.93	2.95	**309**	**924.38**
AA 11	15	37.8	2	0.35	451	1085.8	1	0.01	20	362.55	7.34	17.7	**489**	**1511.52**
AA 12	10	5.27	0	0	250	156.75	1	1.66	10	741.42	70.55	4.23	**271**	**979.88**
AA 13	18	21.52	2	4.03	333	244.86	0	0	5	362.28	1.39	2.63	**358**	**636.71**
AA 14	29	8.02	2	6.98	2885	1722.4	2	6.54	6	249.58	6.85	9.03	**2924**	**2009.40**
AA 15	9	2.14	0	0	438	261.97	1	0.07	3	32.44	29.31	4.03	**451**	**329.96**
Total	**136**	**213.39**	**10**	**15.61**	**5408**	**6606.6**	**23**	**52.18**	**64**	**2360.8**	**208.56**	**102.63**	**5641**	**9559.8**

Table 6.13 Count and weight (grams) of 2018 artifacts by excavation unit.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
0-10	18	11.12	2	0.98	248	334.49	1	4.49	1	0.24	0.96	13.68	**270**	**365.96**
10-20	43	146.04	3	5.17	803	2636.1	7	31.49	14	90.32	94.96	23.46	**870**	**3027.57**
20-30	40	43.54	1	3.76	2375	1677.5	5	2.67	6	24.47	35.77	40.05	**2427**	**1827.76**
30-40	26	9.74	2	2.23	1457	1695.5	9	13.46	10	516.24	6.4	6.7	**1504**	**2250.25**
40-50	9	2.95	1	0.27	452	238.13	1	0.07	22	991.3	70.38	15.63	**485**	**1318.73**
50-60	0	0	0	0	66	15.22	0	0	11	738.24	0.09	2.69	**77**	**756.24**
Total	**136**	**213.39**	**9**	**12.41**	**5401**	**6597**	**23**	**52.18**	**64**	**2360.8**	**208.56**	**102.21**	**5633**	**9546.51**

Table 6.14 Count and weight (grams) of 2018 artifacts by excavation unit depth.

CHAPTER 7: DAILY LIFE ON THE GRAND RONDE RESERVATION

In Chapter 2, I argue that the archaeological record comprises temporally durable aspects of past communities' survivance stories. In Chapters 3 and 5, I show how an archaeology of survivance requires rethinking scholars' role in the telling of Native histories, engaging with middle-range concepts grounded in Native presence, and developing collaborative research projects. In this chapter, I weave these strands to explore what fieldwork at the Umpqua and Molalla Encampments reveals about reservation daily life during the nineteenth and early twentieth centuries. I consider the extent to which field results answer the research questions presented in Chapter 5, examine how archaeological data expand existing accounts of Grand Ronde history, and offer recommendations for additional research.

My discussion focuses on the manifestations, or lack thereof, of residence and transmotion within identified material deposits. On the one hand, I argue that the absence of intact structural features at the Umpqua and Molalla Encampments leaves unanswered questions about the roles the built environment played in cultivating residence within the community. Families used settlement location and organization to cultivate cultural familiarity; future archaeological investigation at households (and other structures) will be necessary to determine whether similar practices occurred within Grand Ronde homes.

On the other hand, I see evidence of transmotion in reservation dietary patterns and lithic practices. Families relied on several traditional plant foods, which were acquired via movement within and beyond the reservation. These plants demonstrate the community's commitment to relationships with nonhuman communities, places, and practices. Furthermore, though they were not part of my initial discussion of transmotion (Chapter 3) or guiding hypotheses (Chapter 5), obsidian lithic material originating off-reservation points to additional transmotion strategies. Though I cannot be certain these artifacts postdate the establishment of the reservation, the preponderance of available evidence points to post-1850 transport and/or recycling.

The presence of obsidian and traditional plant foods alongside mass-produced household trappings and construction materials highlights the opportunities and challenges of reservation life. Grand Ronde families engaged in dynamic cultural production whereby they adapted long-important practices and connections while incorporating new materials into daily lifeways. This process has continued into the present, especially at the Uyxat Powwow Grounds. Plastic beads, friendship bracelets, and tent stakes left by recent attendees of powwows and other celebrations reveal the enduring importance of this place as a site of creativity and belonging. Through the project's low-impact methodology, collaboration with the HPO, and commitment to the community-centered research outcomes, FMIA has actively listened to Grand Ronde's historical (and contemporary) survivance stories. The project has helped bring these stories into the present for the benefit of the tribal nation.

What Objects Characterize the Grand Ronde Archaeological Record?

I begin this discussion by returning to the three research questions presented in Chapter 5. Existing historical accounts of Grand Ronde stem from documentary, cartographic, and oral sources. Development-related mitigation projects conducted by HPO staff and the tribe's consulting partners have complemented these accounts, offering insight into the nature of local material deposits. But because these projects adhered to accelerated field and project schedules, the sample of materials and activities they documented was relatively small. As the first multi-season, multi-stage archaeological research project at Grand Ronde, FMIA's investigations at the Umpqua and Molalla Encampments sought to expand the HPO's knowledge of reservation materiality and, in turn, assist historic preservation staff in the identification and protection of cultural resources elsewhere.

Laboratory Analysis

Artifact documentation started in the autumn of 2015 with the establishment of a laboratory cataloging and analysis methodology. Cataloging procedures followed Gonzalez's (2011:156-159) analysis of deposits from Fort Ross State Historic Park and FMIA's investigations at the Grand Ronde Agency Schoolhouse (Gonzalez et al. 2018:98-101). After each field season, I worked with undergraduate students at the University of Washington's Pacific Northwest Archaeology Laboratory to clean, analyze, and house recovered artifacts.

My approach to lab work combined standard disciplinary practice with sensitivity for Grand Ronde cultural concerns. I discussed ongoing and prospective projects with historic preservation staff and did not undertake any form of destructive analysis without their express consent. And though the university is located over 200 miles from Grand Ronde, I took steps to minimize the impact of lab work on the Grand Ronde landscape and community. During cleaning and cataloging, students frequently encountered objects that had been collected in the field but, upon further inspection, were deemed non-archaeological. These objects, most commonly non-modified rocks, wood, and plant material were placed in a separate curation area and will be returned to their respective site during the summer of 2020. This practice not only reiterated FMIA's commitment to low-impact archaeology, it introduced new students to the project's Grand Ronde-centered approach to historical inquiry.

For the purpose of laboratory recording, the Umpqua and Molalla Encampments were known as UmpCamp1 and MolCamp, respectively. These terms derived from Hazen's map of the early reservation landscape and reflected HPO staff's original interest in these properties. That being said, these names are not fully representative of the properties' complex histories of use and occupation. During lab analysis, I emphasized to FMIA students that the Hazen encampments are the first but certainly not the last expression of Grand Ronde presence at each property.

With site designations in place, field catalog (FCAT) numbers were assigned to each analytical unit. FCAT numbers were assigned to each 20-centimter column of auger sediment, each surface collection unit, and each excavation unit level. FCAT numbers consisted of three parts: (1) a project and site designation (e.g. FMIA-UmpCamp1); (2) the date field teams started the unit (e.g. 07252015); and (3) a three-digit number proceeding sequentially from 000 and restarting each field season (e.g. 035). A single FCAT number was given to all artifacts recovered from the same unit, but each material type within the unit received a unique Laboratory Catalog (LCAT) number, which consisted of a four-digit number proceeding from 0000 (e.g. 0498). For example, the porcelain vessel sherd recovered from the Umpqua Encampment received the following FCAT and LCAT numbers: FMIA-UmpCamp1-07292015-235, 0120.

Artifact cleaning followed standard procedures (Banning 2000:131-132). Lab teams used toothbrushes and water to remove loose dirt from durable artifacts such as ceramics, lithics, glass, most faunal material, and most metal objects. For wood, charcoal, textiles, and other fragile items, only light dry brushing was used. Lab teams then assigned a three- or four-part code to each group of compositionally, morphologically, and/or functionally distinct set of artifacts within each FCAT number. Artifacts were first placed into one of five Basic Groups: lithics (LI), faunal material (FA), European-American manufactured items (EA), ethnobotanical remains (EB), and other objects (OT). Artifacts then received a Material Category and Artifact Class designations (see below). Select materials such as lithics also received codes noting their raw material composition. A full list of codes used during analysis is presented in Appendix C.

Lithic Artifacts

Analysis of lithic artifacts followed the morphological typologies outlined by Andrefsky (2005:76), with modifications by Gonzalez (2011:156). Lab teams sub-divided artifacts placed in the

LI Basic Group into three Material Categories: flaked stone (LF), ground stone (LG), and other (LO). Flaked stone contained five morphology-based Artifact Classes: projectile point fragment (PF), complete flake (CP), proximal flake (PX), flake fragment (FF), and flake shatter (SH). Complete flakes exhibited clear ventral and dorsal surfaces, striking platform, bulb of percussion, and at least part of a distal termination. Flakes with intact striking platforms but no distal termination, often as a result of a step fracture, were placed into the proximal flake artifact class. Flake fragments described lithics with identifiable dorsal and ventral surfaces but no striking platform and at times no distal termination. Shatter referred to lithics without identifiable dorsal or ventral surfaces. These pieces, usually angular in shape, likely spalled from a core or newly created flake during knapping. Lastly, lab teams recorded flakes' platform type (simple, complex, cortical, missing), primary termination (feathered, stepped, overshot, hinged), number of dorsal scars, and percent of dorsal cortex (in 10% increments).

The ground stone Material Category was represented by one Artifact Class: battered cobble (BC). Battered cobbles exhibited evidence of pecking, splitting, and/or shaping. The lithic other Material Category contained two Artifact Classes: fire-cracked rock (FCR) and other (OT). Rocks were classified as fire-cracked based on patterns of angular shatter and discoloration from heat exposure.

Lab teams examined all lithics for edge modification (use wear and retouch), noted their raw material, and recorded their size class (in 0.125-cm increments). Following Ozbun (2015:2), laboratory analysis maintained a general, tripartite approach to raw material categorization. All artifacts were classified as cryptocrystalline silicate (CCS), obsidian (OB), or basalt (BA). A complete, chert flake would therefore receive the following catalog code: LI-LF-CP-CCS.

Faunal Material

Lab teams placed faunal remains into one of three Material Categories: mammal (MA), mollusk (MO), and other (OT). Taxa, element, and side were noted when possible, as was the presence, type, and extent of butchery and post-depositional modifications.

European-American Manufactured Artifacts

The most diverse Basic Group was European-American manufactured items. It comprised five Material Categories: historical ceramics (HC), glass (GL), metal (ME), building materials (BU), and other (OH).

Lab teams divided historical ceramics into three Artifact Classes based on function and morphology: vessel (VS), utilitarian (UT), and other (OT). Sherds were placed into Artifact Groups based on paste composition and degree of vitrification, as outlined by Lightfoot and Gonzalez (2018a:60-64) and Majewski and O'Brien (1987). Artifact Groups for non-vitrified earthenware included red ware (RW), yellow ware (YW), stone ware (SW), and non-vitrified white earthenware (NV). The latter was followed by an additional Ware Type code, either whiteware (WW), creamware (CW), or pearlware (PW). Remaining Artifact Groups included semi-vitrified white earthenware (SV) and porcelain (PO). For vessels, form (flat ware, hollow ware, indeterminate), anatomy (base, body, rim, indeterminate), and decoration (hand painted, transfer print, undecorated, etc.) were also noted.

Glass artifacts received one of five Artifact Class codes: flat glass (FG), lamp glass (LG), vessel glass (VG), bead (BE), and other (OT). The latter category included burned, melted, and/or waterworn glass, the original function of which could not be determined. Artifact size, color, shape, and decoration were noted when present. For large vessel fragments, lab teams recorded mode of manufacture, vessel type, finish, maker's marks, and dates of manufacture. Glass beads were classified by morphology, color, decoration, and method of manufacture, as outlined by Kidd and

Kidd (1970), and compared to common early colonial period bead types from Fort Vancouver (Cromwell et al. 2013).

Metal artifacts contained two Artifact Classes: ferrous (FE) and non-ferrous (OT). Lab teams expanded these general classifications in catalog descriptions, noting size, morphology, function, and for nails portion (complete, proximal, shaft), size, and mode of manufacture (cut, wire).

Building materials included seven Artifact Classes: brick (BR), mortar (MR), composite material (CMP), concrete (CE), insulation (IN), and plaster (PR).

The final Artifact Class, other historical materials, included five Material Categories: plastic (PL), string/cordage (ST), rubber (RU), chalk (CK), and other (OT).

Ethnobotanical Remains

The Ethnobotanical Remains Basic Group contained three artifact classes: sawn wood (WO), charcoal (CH), and seeds (SE).

Other Materials

Lab teams placed unidentifiable artifacts into the Other Material Basic Group. Most frequently, these objects exhibited signs of heat exposure and had been melted or burned to an extent that their original composition and function could not be determined.

The Umpqua Encampment

FMIA focused on the Umpqua Encampment during the 2015 field season. Field teams surveyed the riverine terrace at the confluence of the South Yamhill and Rogue Rivers for evidence of the encampment, allotment-era habitation associated with John Warren, and subsequent activities.

Due to the terrace's dense ground cover, HPO staff and I opted for drone photography, auger bores, and metal detection in lieu of pedestrian survey, intensive surface collection, and other forms of geophysical survey. Auger bores, 42 systematic and six judgmental, and metal detection along the terrace's northern slope revealed diffuse evidence of human activity (Table 6.1). Artifacts were identified in 29% (n=68) of 20-cm levels, though the recovered assemblage was dominated by charcoal fragments. Only 13% (n=31) of levels yielded non-charcoal artifacts such as CCS flakes and flake shatter, ferrous metal, glass fragments, and beads. Charcoal and non-charcoal finds were small, and many appeared significantly fragmented. They concentrated in upper strata, with 96% of artifacts by weight and 79% of artifacts by count appearing within 40 cm of the ground surface. Artifacts were weakly clustered along the northern boundary of the terrace (Figure 6.7).

Lithic Materials

Field teams recovered a small lithic assemblage from the Umpqua Encampment consisting of eight CCS flakes and shatter, one obsidian flake fragment, and one piece of FCR. The assemblage exhibited significant fragmentation: the FCR piece aside, all lithics weighed less than 1 gram. It is difficult to draw conclusions from such an assemblage, but the absence of larger flakes, formal tools, and cores suggests primary lithic production occurred elsewhere. Terrace inhabitants appeared to have focused instead on the production of multi-purpose, expedient flakes requiring little retouch or other shaping following initial flaking.

Figure 7.2 Glass beads from the Umpqua Encampment. Top right: polychrome drawn bead with hot-tumbled finish, red on white. Bottom right: polychrome drawn bead with hot-tumbled finish, green with white speckles. Others: monochrome, drawn beads with hot-tumbled finished, white.

Figure 7.1 Porcelain vessel sherd

Other Artifacts

Fragments of other artifact types were also recovered. These included ferrous metal fragments, a small piece of mammal bone, vessel glass shards, and seven glass beads (Figure 7.1). All appear similar to HBC beads from Fort Vancouver and thus likely predate 1900. The largest recovered artifacts were identified during metal detection: three machine-made tin can fragments postdating 1904 (Rock 1984) and one undecorated, hard-paste porcelain vessel base that postdates 1850 (Chenoweth and Janowitz 2016) (Figure 7.2). These surface finds provide approximate dates for recent occupation on the property, but their relationship to artifacts from auger bores is unclear.

Conclusions and Recommendations for Future Research

The material signature at the Umpqua Encampment hints at Grand Ronde presence through time. Lithic flakes and flake shatter likely stem from post-1856 flake production, as suggested by their proximity to the surface, while tin cans and the porcelain vessel likely date to the allotment period and early twentieth century. The size of the artifact assemblage resists detailed interpretations such as whether these objects are linked to those living at the Umpqua Encampment and/or the

Warren family. The economy of the lithic assemblage though, suggests raw material was highly conserved, perhaps because residents had minimal access to stone and/or little time in which to acquire and produce specialized tools. The dire living conditions and travel restrictions of the reservation's initial decades, as noted by Lewis (2009) and remembered within the community, may explain this approach to lithic production. People had little choice but make a limited resource go a long way.

As I discuss in Chapter 6, the relative absence of material deposits at the Umpqua Encampment may be the result of post-depositional alterations, inaccurate cartographic representation on the Hazen Map, and brief occupation and/or use by the property's inhabitants through time. In addition to these, it is possible FMIA's investigations overlooked nearby material deposits from the early reservation or allotment periods. Indeed, HPO staff have already identified rock features possibly associated with Hazen Map graves elsewhere on the property (see the cross symbol near encampment L on Figure 6.1). The terrace and adjacent stretches of the two waterways are not currently slated for development, but any future ground disturbance should include pre-construction survey. Additional auger testing in the terrace's southwestern corner would further delimit artifact distributions and round out the assemblage of recovered artifacts. Surface pedestrian survey, surface collection, and geophysical survey in the less densely wooded areas to the east and south would facilitate comparisons across property landforms. The latter would be critical for identifying burials and other sensitive deposits that should be shielded from all development-related impacts. Regardless of survey findings, monitoring should be conducted during construction.

The Molalla Encampment

Fieldwork at the Molalla Encampment occurred over three field seasons, from 2016 to 2018. Alongside HPO staff, I developed field strategies tailored to each of the Rhoades property's four analytical strata. In the central field, FMIA completed drone photography, ground penetrating radar and gradiometer survey, intensive surface collection, and targeted excavation. Along Cosper Creek and on the nearby ridge slope, field teams relied on auger bores and targeted excavation. The grassy strip fronting Highway 22 was not investigated. In total, field teams completed geophysical survey over 15,100 m^2, 108 surface collection units, 66 auger bores, and 20 excavation units (Figure 7.3). Cultural material was identified in 77% (n=83) of surface collection units, 95% (n=104) of excavation strata, and 55% (n=173) of auger strata.

Aerial photography and geophysical survey identified several locations potentially containing cultural deposits. GPR and gradiometer survey on the Rhoades property identified six sub-surface anomalies, five of which were located in the property's field. Anomalies appeared sub-circular to rectangular in plan, ranged from 4 to 25 m long, and may have stemmed from historical living surfaces associated with temporary camps and/or semi-permanent structures. All were visible in aerial photographs as discolorations in surface vegetation. GPR survey in the Fort Yamhill Park property identified three additional sub-surface anomalies, though none stood out as definitively archaeological.

Intensive surface collection complemented geophysical survey by exploring near-surface deposits in nine survey areas comprising 2,683 m^2. Intensive surface collection during the 2016 and 2017 field seasons focused on the property's field (Survey Areas 1-5); the 2018 field season focused on the boundary between the riparian zone and the field (Survey Areas 7-9). Survey Area 6 was left unsurveyed. Surface collection units in Survey Areas 1-5 yielded moderate abundances of historical material as well as additional objects stemming from recent, powwow-related camping. Historical artifacts were more abundant in Survey Areas 7-9.

Across all surface collection units, historical artifacts concentrated by count and weight in the field along the eastern edge of the survey area and in the riparian zone north of the maintenance shed (Figures 7.4-7.7). The former corresponded with the location of sub-surface anomalies identified during GPR and gradiometer survey. Field teams explored these areas via targeted excavation during the 2016 and 2017 field seasons. FD Units 01-05 provided insight into the property's sedimentary composition but yielded little evidence of cultural activity. The latter area was situated at the intersection of Survey Areas 7-9 and near structures visible in early twentieth century aerial photographs. These survey areas yielded 60% of historical artifacts recovered during surface collection, despite containing only 26% of completed surface collection units (n=28 in the field-riparian boundary, n=80 in the field).

That artifact abundances differed between the field and the riparian area was confirmed by auger survey. Augers were used to explore the margins of the field, the riparian area on the Rhoades

Figure 7.3 Surface collection units, auger bores, and excavation units on the Rhoades property, 2016-2018.

and Fort Yamhill Park properties, and the hillslope in the property's northeastern corner. As at the Umpqua Encampment, geophysical survey and intensive surface collection were not feasible in these areas due to dense ground cover and uneven topography. Field teams completed 66 auger bores, each of which was separated into 20-cm arbitrary strata. Auger survey terminated at 100 cm or, beginning with J32, 80 cm below surface.

Auger bores were divided into four groups. The 20 bores (97 levels) in Auger Group 1 contained a dense assemblage of glass, metal, and ceramic artifacts. Within this area, objects exhibited a pattern of declining abundance outward from J10 (Figure 7.8), though this pattern was more pronounced to the north than the south. The 40 bores (151 levels) in Auger Group 2 yielded a similar albeit more fragmented material array. However, most of the glass beads found on the property stemmed from these bores. The 18 bores (49 levels) in Auger Group 3 and 6 bores (16 levels) in Auger Group 4 yielded few artifacts.

The uneven distribution of artifacts between the riparian area on the one hand and the field, ridge toe, and Fort Yamhill Park property on the other can be explained in two ways. First, the property's historical residents resided and/or conducted activities along Cosper Creek, leaving the field for crops, animal pasture, and/or activities with trace material signatures. Second, past activities were evenly spread across the western half of the property—indeed, if the Hazen Map is accurate and 200 people resided in the Molalla Encampment, the boundaries of this settlement would have extended well beyond the creek—but post-depositional alteration from agricultural and pastoral activities disproportionately affected artifacts and structures in the field. Given their proximity to the surface, material deposits would have been vulnerable to such activities. That the field contains geophysical anomalies suggestive of past living surfaces but few artifacts supports the latter explanation.

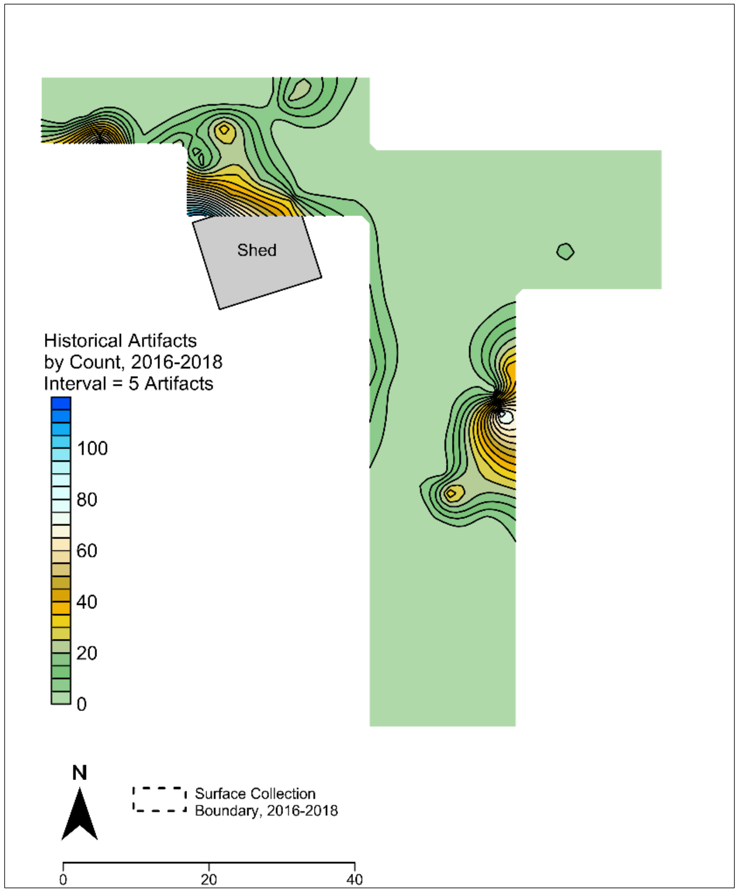

Figure 7.4 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2016-2018 surface collection units by count.

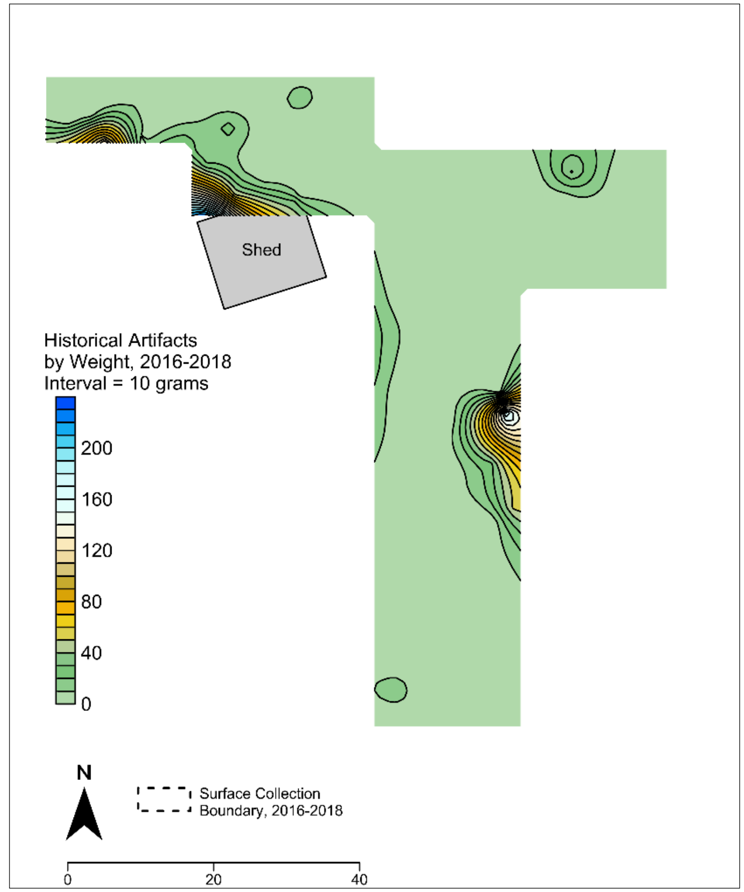

Figure 7.5 Distribution of historical artifacts (glass, metal, ceramic, mammal bone) from 2016-2018 surface collection units by weight.

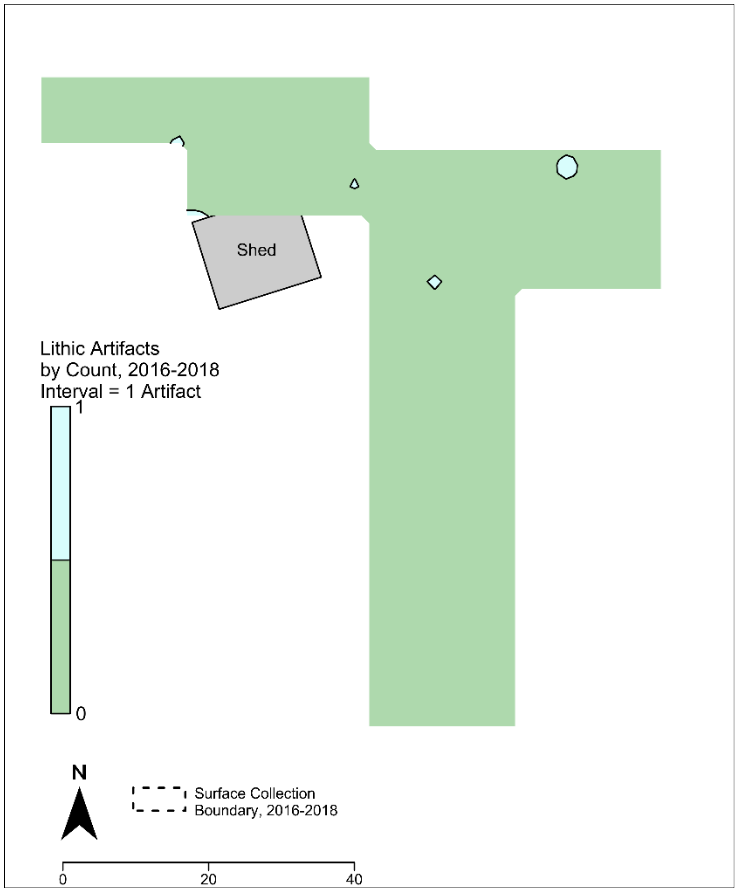

Figure 7.6 Distribution of lithic artifacts from 2016-2018 surface collection units by count.

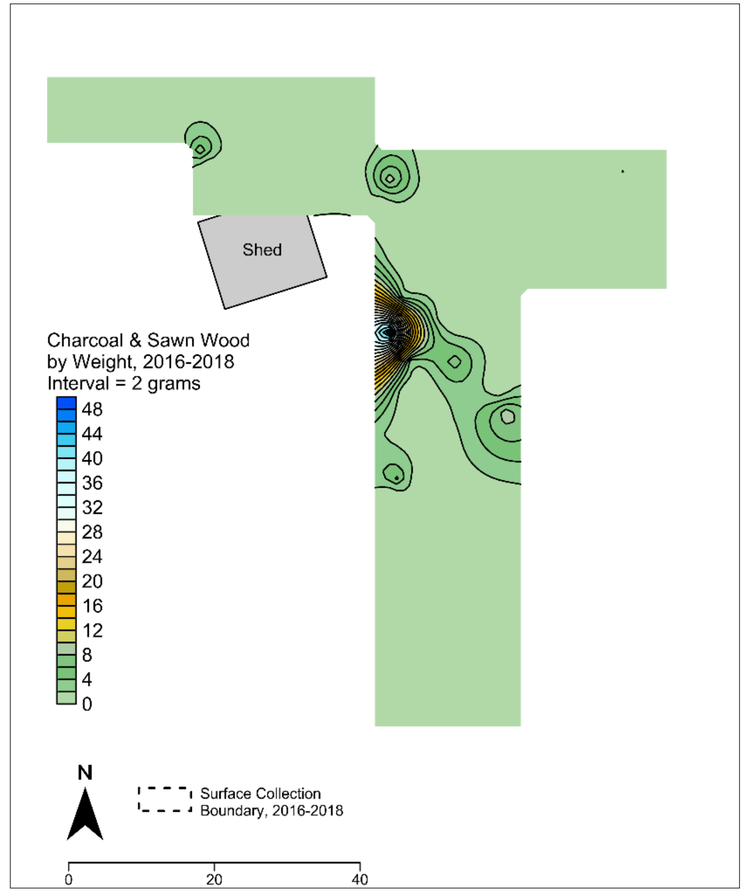

Figure 7.7 Distribution of charcoal and sawn wood from 2016-2018 surface collection units by weight.

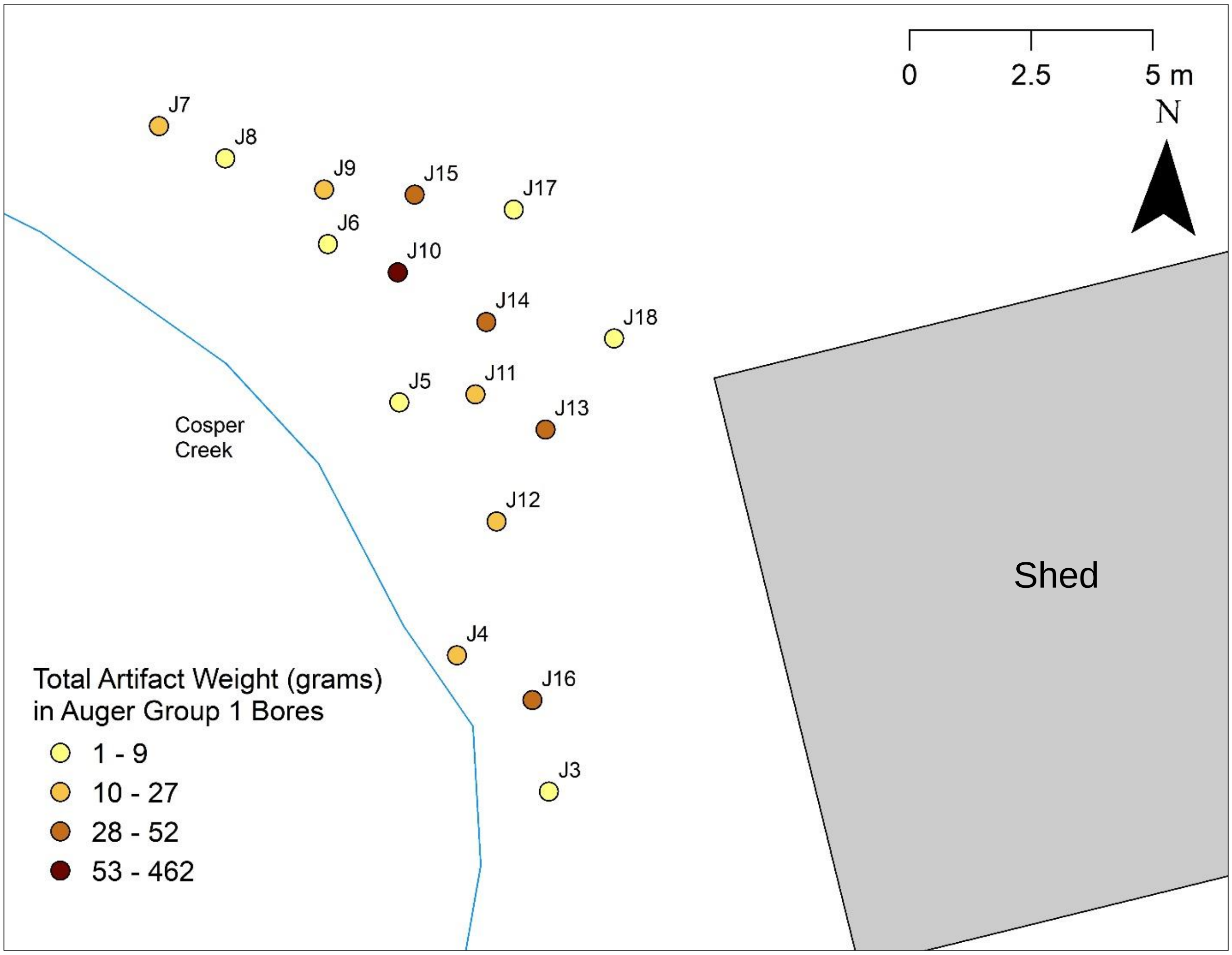

Figure 7.8 Artifact weight by bore in Auger Group 1.

Of course, both interpretations may be correct. Past inhabitants may have preferred to live near the creek while still maintaining select activity areas and structures in the field that, in turn, were impacted by subsequent ground disturbance.

With these differences identified, HPO staff decided to limit more intensive field strategies (i.e. excavation) to the riparian area north of the shed. FMIA completed 15 excavation units here during the 2017 and 2018 field seasons. The excavation area was bordered by J27 to the north, J3 to the south, the creek to the west, and the western edge of Survey Areas 7 to the east. Cultural material was identified in all excavation units and levels, with AA Units 07 and 14 and levels 3 and 4 exhibiting the greatest numbers (Tables 7.1-7.2). The artifact assemblage is dominated by metal objects (n=6,291, 76%), containing moderate quantities of building material (n=232, 2.8%), flaked and ground stone (n=112, 1.3%), glass (n=306, 3.7%), ceramics (n=29, 0.35%), and mammal remains (n=51, 0.62%). These findings, the elevated quantities of nails and building material in particular, point to the presence of households or other structures on the property.

Although archival and material evidence suggest the Grand Ronde community lived along Cosper Creek for several decades (see below), most artifacts recovered during fieldwork can be dated to the turn of the twentieth century and thus are likely related to the structures visible in early twentieth century aerial photographs. Perhaps the property's inhabitants used the area north of the shed (the footprint of which appears to overlap with those of previous structures) as a sort of yard. Indeed, if these structures faced south or east—which would minimize travel time to Highway 22 and the house across the creek—property inhabitants may have viewed the riparian zone to the north as an out-of-sight "back of house" for storage and/or dumping. The prevalence of building materials and metal objects (mostly nails and sheet metal fragments) compared to interior trappings such as ceramics, glassware, and mammal remains further implies this area was used for the storage and/or discard of work-related objects rather than those featured within homes.

Unit	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	NISP	Mass	NISP	Mass	NISP	Mass	NISP	Mass	NISP	Mass	Mass	Mass	**n**	**g**
FD 01	1	4.77	0	0	1	0.17	0	0	0	0	1.07	0.14	**2**	**6.15**
FD 02	0	0	0	0	0	0	0	0	1	15.39	0.6	0	**1**	**15.99**
FD 03	1	0.12	1	0.1	1	0.76	0	0	3	279.13	122.45	0.97	**6**	**403.53**
FD 04	0	0	0	0	2	1.16	0	0	1	0.1	0.01	0.15	**3**	**1.42**
FD 05	1	0.39	0	0	1	0.6	0	0	4	3.97	0.49	10.19	**6**	**15.64**
AA 01	24	14.26	7	17.66	207	656.69	8	4.13	7	254.75	62.02	49.44	**253**	**1058.95**
AA 02	8	9.71	2	0.25	79	186.76	0	0	4	595.4	53.45	29.6	**93**	**875.17**
AA 03	72	182.46	2	12.27	282	1479.3	0	0	11	6.68	15.36	75.01	**367**	**1771.03**
AA 04	42	81.17	0	0	244	544.51	17	12.78	6	47.18	4.21	18.25	**309**	**708.10**
AA 05	21	269.19	5	11.15	53	275.38	3	10.97	8	16	2.37	3.69	**90**	**588.75**
AA06	0	0	0	0	5	3.69	0	0	1	1.18	0	1.66	**6**	**6.53**
AA 07	21	26.47	1	0.19	535	2156.8	6	5.26	2	357.65	21.7	46.63	**565**	**2614.73**
AA 08	23	11.259	1	0.07	229	297.52	12	38.64	6	121.15	64.49	15.01	**271**	**548.14**
AA 09	0	0	1	3.2	2	1.47	0	0	0	0	0	0.42	**3**	**5.09**
AA 10	11	100.91	1	0.79	285	679.06	0	0	12	133.74	6.93	2.95	**309**	**924.38**
AA 11	15	37.8	2	0.35	451	1085.8	1	0.01	20	362.55	7.34	17.7	**489**	**1511.52**
AA 12	10	5.27	0	0	250	156.75	1	1.66	10	741.42	70.55	4.23	**271**	**979.88**
AA 13	18	21.52	2	4.03	333	244.86	0	0	5	362.28	1.39	2.63	**358**	**636.71**
AA 14	29	8.02	2	6.98	2885	1722.4	2	6.54	6	249.58	6.85	9.03	**2924**	**2009.40**
AA 15	9	2.14	0	0	438	261.97	1	0.07	3	32.44	29.31	4.03	**451**	**329.96**
Total	**306**	**775.46**	**27**	**57.04**	**6283**	**9755.6**	**51**	**80.06**	**110**	**3580.6**	**470.59**	**291.73**	**6777**	**15011**

Table 7.1 Count and weight (grams) of artifacts from 2016-2018 excavation units by unit ID.

Depth (cm bs)	Glassware		Ceramics		Metal		Mammal Remains		Lithic Material		Sawn Wood	Charcoal	**Total**	
	n	g	n	g	n	g	n	g	n	g	g	g	**n**	**g**
0-10	37	69.02	4	1.23	343	498.55	1	4.49	6	19.08	177.41	37.92	**391**	**807.70**
10-20	119	332.11	6	10.19	1170	4225.4	7	31.49	25	99.72	116	83.87	**1327**	**4898.73**
20-30	80	80.87	10	28.13	2592	2481.7	12	4.14	11	179	38.4	111.52	**2705**	**2923.73**
30-40	55	288.48	3	9.97	1598	2191.5	30	39.87	22	603.71	62.7	22.22	**1708**	**3218.42**
40-50	14	4.59	3	4.32	500	303.14	1	0.07	33	1938.3	75.66	28.39	**551**	**2354.51**
50-60	1	0.39	0	0	73	45.74	0	0	13	740.74	0.42	7.17	**87**	**794.46**
60-70	0	0	0	0	0	0	0	0	0	0	0	0.22	**0**	**0.22**
Total	**306**	**775.46**	**26**	**53.84**	**6276**	**9745.9**	**51**	**80.06**	**110**	**3580.6**	**470.59**	**291.31**	**6769**	**14997.8**

Table 7.2 Count and weight (grams) of artifacts by excavation unit depth, 2016-2018.

Alternatively, material deposits north of the shed may have been produced in part by (1) the disassembly of historical structures and/or (2) recent shed-related activities. If the former, artifacts would not have been deposited over time as part of regular household or outbuilding maintenance but in a series of discrete episodes associated with structures' demolition. Nearby residents or family members would have repurposed still useful building materials and interior trappings, exporting them off-site and leaving broken and otherwise non-functional objects spread across the demolition area. The absence of spatially distinct, high density artifact deposits—the lone exception being the nail dump in AA Unit 14—would result from such a diffuse discard strategy. If the latter, material deposits would have been affected and/or produced by shed construction and use by tribal staff. For example, the presence of sawn wood within 10 cm of the surface is evidence of recent construction activity rather than the remains of historical structures. It is unlikely the shed significantly impacted deposits located at greater depth, but this possibility cannot be completely ruled out.

Fieldwork recovered several classes of artifacts at the Molalla Encampment. The assemblage included lithics (chipped and ground stone), glass (vessel, flat, lamp, and beads), ceramics, mammal remains, metal objects, and building materials. Laboratory analysis employed the coding system presented above (Appendix C).

Lithic Materials

<u>Chipped Stone Artifacts</u>

The chipped stone assemblage recovered from the Molalla Encampment is composed almost entirely of debitage. During surface collection, field teams recovered four pieces of debitage (3% of the chipped stone assemblage), including two complete flakes, one proximal flake, one flake fragment, and one piece of shatter. No formal tools were discovered, though three of the flakes

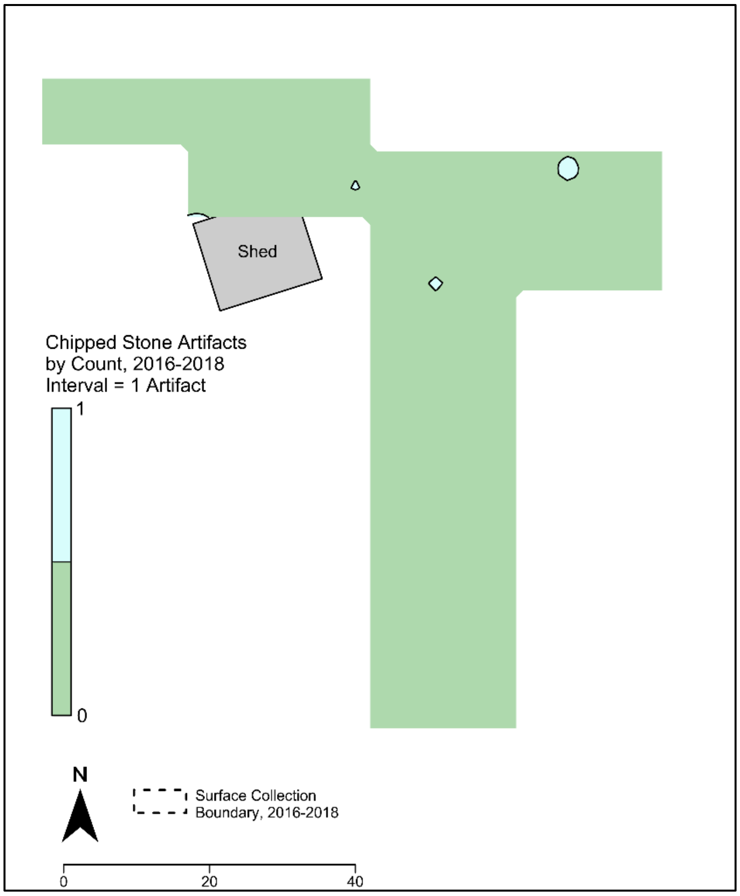

Figure 7.9 Distribution of chipped stone artifacts from 2016-2018 surface collection units by count.

exhibited moderate retouch on at least one lateral margin. Two of the flakes were classified as CCS, two as obsidian, and one as basalt. Spatially, chipped stone pieces were evenly distributed across the northern half of the survey area (Figure 7.9).

Auger bores yielded greater numbers of chipped stone. Fifty-five pieces of debitage (48% of the chipped stone assemblage) were recovered, including 31 flakes and 24 pieces of shatter. CCS shatter (n=20) and flake fragments (n=15) were the most common recovered artifact type. Raw materials included one piece of basalt, nine of obsidian, and 45 of CCS, and 96% (n=53) of pieces fell within the three smallest size classes (0.5 cm, 1 cm, and 2 cm). Chipped stone artifacts were most abundant by count and weight within 40 cm of the ground surface (67%, n=37). In space, all appeared within Auger Group 1 (n=14) or Auger Group 2 (n=37).

Remaining chipped stone artifacts were recovered from excavation units. Field teams recovered 55 debitage pieces (48% of the chipped stone assemblage), including 14 complete flakes, 14 flake fragments, and 12 proximal flakes. Raw materials again consisted of basalt (n=10), CCS (n=43), and obsidian (n=2). The bulk of the assemblage was recovered from riparian units, especially AA Unit 03 (n=11). However, the most notable chipped stone find (and only formal tool), a bifacially retouched obsidian projectile point tip, was found in level 3 of FD Unit 04 (Figure 7.10).

Figure 7.10 Obsidian projectile point from FD Unit 05.

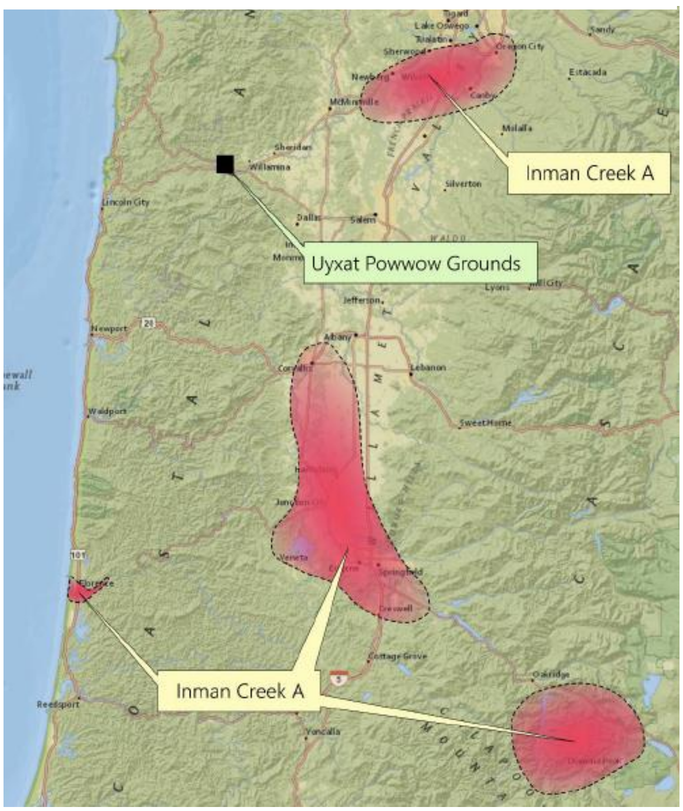

Figure 7.11 Distribution of Inman Creek A obsidian in the Willamette Valley. Map by Alex Nyers (Appendix D).

Chipped stone pieces from excavation units exhibited greater variability in size class, ranging from 1 cm (n=17) to 5 cm (n=1). Twenty-nine pieces (53%) exhibit light to moderate edge modification, whether use wear or retouch. Artifacts were most abundant between 30 and 40 cm below surface. In fact, 30 cm marked a change in lithic distribution, with fewer artifact in upper levels and more in lower levels.

Four recovered obsidian pieces were submitted to the Northwest Research Obsidian Studies Laboratory for sourcing analysis (Appendix D). Geochemical sourcing uses nondestructive X-ray fluorescence to assess the elemental composition of each artifact. This geochemical signature is then matched to known obsidian sources. X-ray fluorescence is widely used in archaeological research to track the movement of obsidian nodules and tools via trade, migration, hunting patterns, and other social processes (e.g. Silliman 2005b). Three of the four submitted artifacts successfully returned geochemical signatures (the fourth was below analysis' size minimum). All matched to Inman Creek A, an obsidian source distributed throughout the Willamette Valley (Figure 7.11) (Baxter et al. 2015). The closest Inman Creek source area is located near Newberg, Oregon, at a distance of approximately 35 miles from the Molalla Encampment.

After receiving sourcing results, I initiated conversations with HPO staff to discuss whether obsidian hydration should be part of FMIA's laboratory strategies. After flaking, the margins of obsidian artifacts absorb ambient water, creating a rind that increases in thickness through time. Although hydration rates vary by obsidian types and fluctuate in response to micro-environmental factors, archaeologists have used rind thickness as a relative dating method (Liritzis 2015). Hydration analysis is destructive, however. Cuts are made along the artifact's edge to produce a 1-mm wide and 3-5-mm long thin section, which is then observed under a microscope. For smaller artifacts (such as those recovered from the Molalla Encampment), the thin sectioning process can lead to shattering. Hydration's destructive nature raised concerns, but ultimately HPO staff agreed that its potential to offer additional temporal information about the Molalla Encampment outweighed its impact to tribal heritage. They specified that hydration should be limited to two objects and exclude the projectile point tip. I selected two obsidian artifacts, both of which had been identified as Inman Creek A obsidian, and submitted them to Willamette Analytics for analysis.

The artifacts exhibited hydration rinds 1.0 and 1.2 μm thick. With the caveat that hydration rates are dependent on micro-environmental conditions, studies from Salem in the floor of the Willamette Valley have found that Inman Creek A obsidian hydrates at 1.9 μm per millennia (Baxter et al. 2015:228). Assuming the artifacts have not left Grand Ronde since flaking and that hydration-related environmental factors in Grand Ronde are similar to those in Salem—both fairly sizable assumptions—this rate suggests the artifacts are between 500 and 700 years old (Appendix E).

This finding can be interpreted in two ways. First, the artifacts are products of pre-reservation activities, perhaps by Yamhill Kalapuya groups. If so, these artifacts may have been visible on the surface and/or known to the reservation's founding community. In either case, those at Grand Ronde may have gravitated toward an area that supported the lifeways of their ancestors. Second, those living at the Molalla Encampment (and/or later settlements) reused obsidian flakes and tools found on site or during off-reservation journeys, including to Inman Creek A source areas. Archival records provide ample evidence of community members leaving the reservation to gather foods and secure employment. Furthermore, flaked glass (see below) indicates flaked tool production occurred at the Molalla Encampment during the late nineteenth century. If, as I discuss below, community members fashioned expedient tools in part out of necessity, then the reuse of obsidian (and glass) obtained locally or further afield would be expected (see Lightfoot and Gonzalez 2018a:101-104 and Silliman 2003 for examples of obsidian recycling in colonial settings). And though post-depositional processes have impacted material deposits at the site (e.g. dated obsidian artifacts were recovered from the surface and level 4), obsidian and other chipped stone artifacts were found in association with objects clearly manufactured post-1856. In my view, the preponderance of evidence lends support to the second interpretation—that is, obsidian artifacts point toward continuation in cultural practice rather than occupation.

<u>Ground Stone Artifacts</u>

Only two battered cobbles were placed in the ground stone Material Category. However, many of the 42 artifacts classified as FCR also exhibited evidence of battering and/or pecking. For this section, I consider FCR and battered cobbles as comprising the ground stone assemblage. All ground stone pieces were classified as basalt. Two pieces, one FCR and one battered cobble, were recovered from surface collection units (and the ground surface). The cobble exhibited moderate pecking damage on one end and may have been used as a hammerstone or food processing


Figure 7.12 Battered cobble from AA Unit 01.

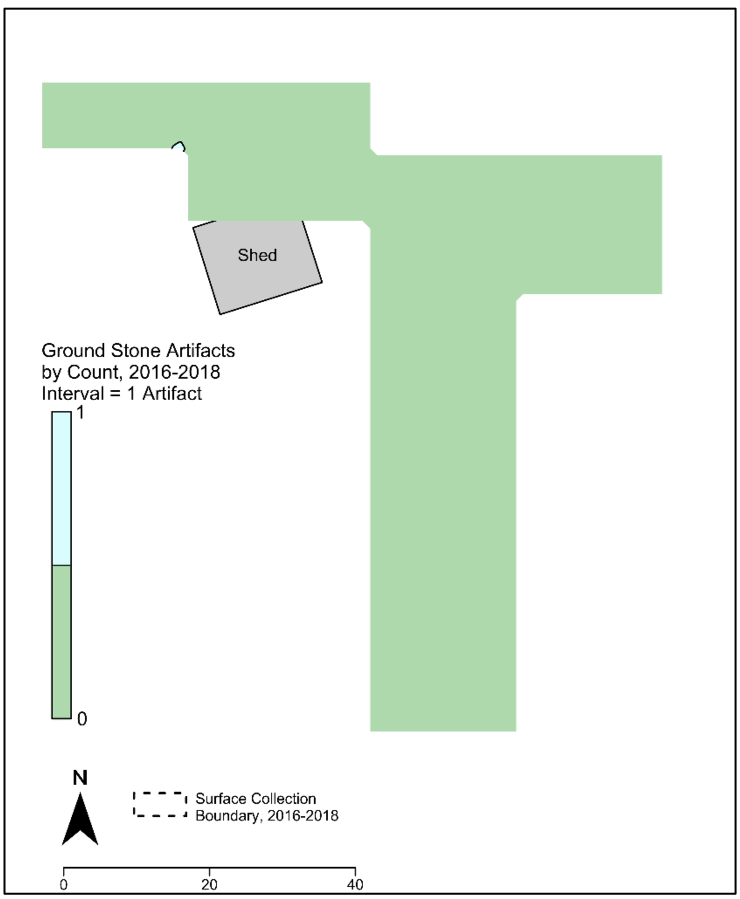

Figure 7.13 Distribution of ground stone artifacts from 2016-2018 surface collection units by count.

implement. Ground stone artifacts concentrate in the northwestern corner of the survey area.

Thirteen additional pieces of FCR were recovered from auger bores. One was recovered from 0-20 cm below surface, nine from 20-40 cm below surface, and three from 40-60 cm below surface. Finds were evenly split between Auger Group 1 (n=6) and 2 (n=7), though FCR's average weight was higher in the former (96 grams) than the latter (46 grams).

Excavation units yielded 29 ground stone artifacts, including 28 pieces of FCR and one battered cobble (Figure 7.12). Eighty-three percent (n=24) of artifacts were recovered between 30 and 60 cm below surface; ground stone finds trend toward greater depth more strongly than do chipped stone artifacts. The average size class of ground stone artifacts increased with depth, from 6.5 cm in level 3 to 8 cm in level 6. Artifacts were evenly distributed across excavation units. Thirty-one percent were found in AA Units 12, 13, and 15 at the northwestern extent of the study area, 10% in AA Units 05 and 14 at the southern extent, and 17% in AA Unit 01 at its center.

Summary of Lithic Materials

The lithic assemblage recovered from the Molalla Encampment provides insight into the adaptation of pre-reservation practices. The Grand Ronde community maintained lithic production post-removal, utilizing materials available locally and further afield. CCS raw material would have been present in stream beds on the reservation or in the nearby Coast Range while obsidian would have required transport from Inman Creek A sources in the Willamette Valley. Whether obsidian import occurred before, during, or after removal is unknown, as is whether all obsidian originated from Inman Creek A or the same Inman Creek A source area. However, since reservation families returned to off-reservation places for subsistence and economic opportunities in the final decades of the nineteenth century, they likely would have had opportunities to acquire obsidian for use at Grand Ronde.

As at the Umpqua Encampment, raw material appears to have been highly conserved and used to create multi-purpose expedient flake tools. Apart from the projectile point tip recovered in FD Unit 04, no formal tools were recovered. The chipped stone assemblage is dominated by debitage; 82% of the assemblage fell into the three smallest size classes (0.5 cm, 1 cm, 2 cm); and 38% exhibited retouch or use wear on at least one lateral margin. Moreover, 85% of flakes contained less than 10% dorsal cortex. The absence of dorsal cortext is generally understood as an indicator of late-stage lithic reduction (Andrefsky 2005:103-106). Overall, these data indicate raw material selection and initial flake reduction occurred elsewhere and that only expedient, multi-purpose flakes were brought to the powwow grounds. These flakes were likely used for numerous tasks and resharpened as needed but not shaped into more durable (but less versatile) tools.

For the ground stone assemblage, the presence of FCR indicates hearths were present on the property, while battered cobbles were likely used for food processing, hard hammer percussion, and/or construction (e.g. as weights at the edges of tents or other temporary structures). Ground stone was likely acquired from basalts local to the reservation.

Given the dire living conditions that prevailed on the early reservation, chipped and ground stone artifacts may have been critical not just to residents' daily lifeways, but to their survival. As I discuss in Chapter 2, archaeologies of survivance caution against interpretations that rigidly tether the behavior of Native peoples to expressions of cultural continuity or change. The dissolution of doxic practices and the navigation of a political landscape played key roles in communities' decision-making, but the material realities of life under settler colonialism often took priority. Lithic materials from the Molalla Encampment inhabit this tensive space between cultural persistence and functional value. Through the acquisition of obsidian, community members reiterated connections to historically meaningful, storied landscapes off-reservation. Yet, in the moment, this practice may have been motivated by obsidian's value for resolving the challenges of daily life.

Glass Artifacts

Fieldwork recovered a sizable, albeit heavily fragmented, glass assemblage from the Molalla Encampment. Glass artifacts were classified by type (vessel glass, flat glass, lamp glass, glass beads, or indeterminate). The latter category was used for small, melted, or otherwise unidentifiable fragments. Color (most commonly colorless, amber, and green), alteration (melting, internal fractures, etc.), decoration (paint, patterning, etc.), and for vessel fragments part (base, body, neck, finish) and mode of manufacture were also noted.

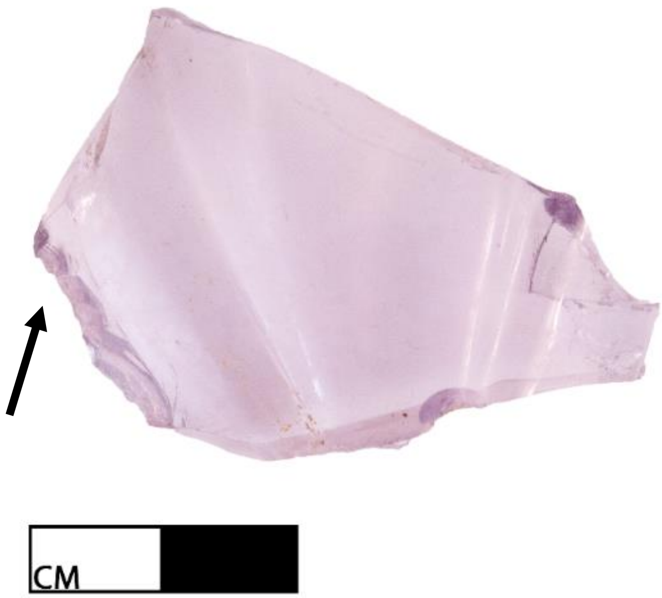

Figure 7.14 Worked amethyst vessel glass fragment, with evidence of flaking highlighted.

Surface survey (surface collection plus surface finds) identified 114 fragments (20% of the total glass assemblage). These were split between vessel glass (n=22, 19% of glass surface finds), flat glass (n=43, 38%), lamp glass (n=33, 29%), and unidentifiable (n=16, 14%). The vast majority (n=89, 81%) were colorless, with smaller numbers of amber (n=9, 8%) and aquamarine (n=6, 5%) fragments. Eighty-eight percent (n=97) did not exhibit post-manufacture alteration such as melting or water erosion. As with other surface finds, glass concentrated in the eastern edge of Surveys Areas 2-4 and the intersection of Survey Areas 7-9 (Figures 7.15-7.16).

The most notable find was a fragment of solarized amethyst glass from the surface approximately 0.5 m northwest of surface collection unit 1076 N 985 E (Figure 7.14). The fragment's purple hue comes from the inclusion of manganese dioxide, which was used by historical glass makers to neutralize colors (usually green) introduced by iron impurities and thus produce colorless glass. When exposed to the sun's ultraviolet rays, manganese's purple hues become more apparent. To the naked eye, sunlight transformed colorless glass into amethyst glass. Manganese was used in US glass manufacture between 1870 and 1920 (Lockhart 2006). This particular amethyst glass fragment also appears to contain evidence of retouch along one margin. Worked glass is not unheard of at Grand Ronde (Dennis Werth, personal communication), but few examples have been identified in archaeological contexts.

Figure 7.16 Distribution of glass artifacts from 2016-2018 surface collection units, by count.

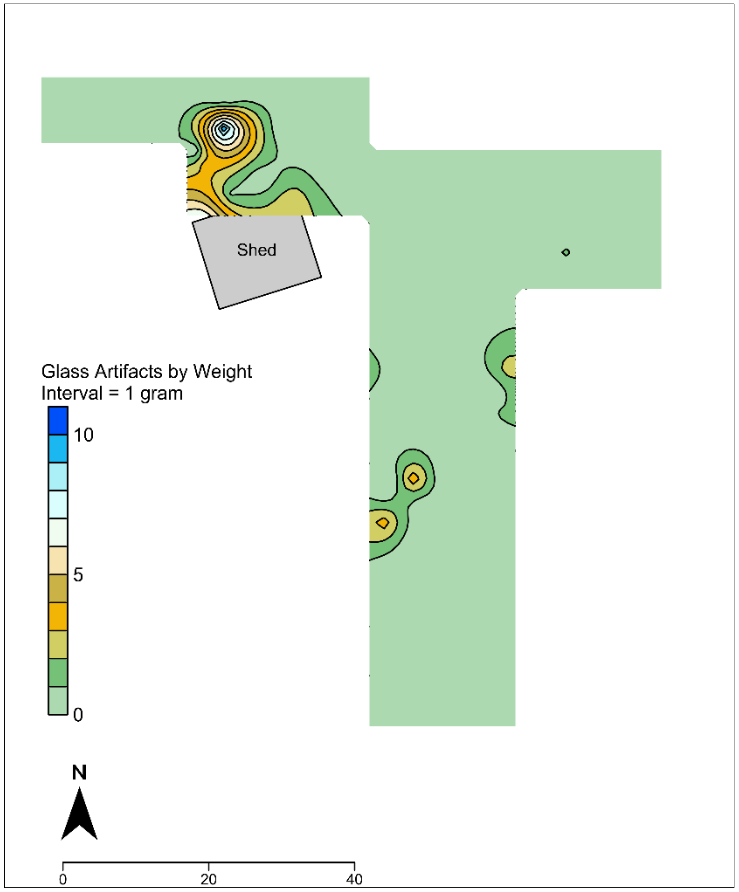

Figure 7.15 Distribution of glass artifacts from 2016-2018 surface collection units, by weight (grams).

Figure 7.177 Green vessel glass fragment.

Figure 7.188 Straight brandy vessel finish.

Auger bores yielded a larger glass assemblage (n=162), though most pieces exhibit evidence of post-manufacture alteration. Over half of the assemblage (n=95, 59%) consists of small, water worn glass fragments. The rest of the assemblage consists of 34 pieces of flat glass (21%), three lamp glass fragments (2%), and 27 pieces of vessel glass (17%). A sizable majority of glass artifacts (n=118, 73%) were found within 20 cm of the ground surface. Spatially, artifacts concentrated in the area north of the shed. Notable finds here included, in J15, a green bottle base with an unidentifiable maker's mark, the word "QUART" along the base of the body, and a possible worked area along one margin (Figure 7.17). In Auger Group 2's J21, field teams recovered a threaded, aquamarine jar rim fragment. The presence of a fine base seam and valve mark on the green bottle fragment and rim seams on the aquamarine jar identify both vessels as machine-made. They thus postdate 1900 (Lindsey 2017b).

Excavation units contained 53% (n=306) of the total glass assemblage. Indeterminate fragments again comprised a sizable portion (n=115, 38%). Vessel glass fragments were nearly as common (n=107, 35%) and far more so than flat glass (n=61, 20%) or lamp glass (n=19, 6%). Four diagnostic artifacts were recovered. First, a colorless straight brandy bottle finish was recovered from AA Unit 11 (Figure 7.18). This finish type was common on liquor and medicine bottles between 1890 and 1920 (Lindsey 2019b). Second, 15 amber glass fragments, likely from the same bottle, were recovered from AA Unit 03. Most were body pieces with few identifying characteristics, though one piece comprised about half

Figure 7.19 Amber vessel glass base.

of the bottle's base (Figure 7.19). The base possesses a textured edge, the upper half of the numbers "3492," and a stylized, interlocking "GC" maker's mark. This mark was employed by the Glass Container Corp. between 1934 and 1968 (Lockhart et al. 2015). Third, a complete, colorless canning wire bail jar lid was recovered from AA Unit 10. The absence of the jar body and base (and corresponding maker's marks or inscriptions), makes the lid difficult to date, though a manufacturing range of 1900 to 1940 is plausible. Lastly, a complete, colorless, threaded jar was recovered from AA Unit 05. The jar contains vertical seams spanning the body and finish and a basal valve mark, both qualities of machine-made glass (Lindsey 2019a).

Figure 7.20 Glass beads from the Molalla Encampment. Top row, from left: monochrome, blue; polychrome, red on white; monochrome, light blue. Bottom row: monochrome, white. All drawn beads with hot-tumbled finished.

In addition to vessel and flat glass, field teams recovered six glass beads from the property (Figure 7.20). Two beads were found in AA Unit 07, one each from levels 3 and 4; one from a field surface collection unit; and three from bores from the upper

40 cm of bores in Auger Group 2. Following Kidd and Kidd (1970), the beads were classified as drawn, hot-tumbled finished, monochrome (blue, light blue, or white) or polychrome (red on white), and undecorated. They appear similar to several of the bead types sold by the Hudson's Bay Company via Fort Vancouver (Cromwell et al. 2013); as such, they likely predate 1900.

Metal Objects

Metal objects (n=8,045) were the most abundant artifact type recovered during fieldwork. Approximately 99% of these objects were classified as ferrous metal. Finds included nails, screws, pieces of sheet metal, and fragments of metal tools. The non-ferrous assemblage was represented by 82 objects such as copper-coated bullet casings, aluminum tent stakes, and a copper button. Field teams recovered 659 metal fragments (8% of the total metal assemblage) from the surface or surface collection units, which concentrated in the area north of the shed and along the eastern boundary of Survey Areas 2-4 (Figures 7.21-7.22). Auger bores yielded 1,103 fragments (14%), which were most commonly observed within 20 cm of the surface. Excavation units contained 6283 fragments (78%). Level 3 (n=2592, 41% of the excavation assemblage) and level 4 (n=1598, 25%) contained the bulk of the nails by count. AA Unit 14 contained a dense cache of over 2,500 nails, almost all of which were small wire nails, spread across levels 3-5 in the unit's northeastern quadrant. This was the only definitively intact material deposit observed during fieldwork.

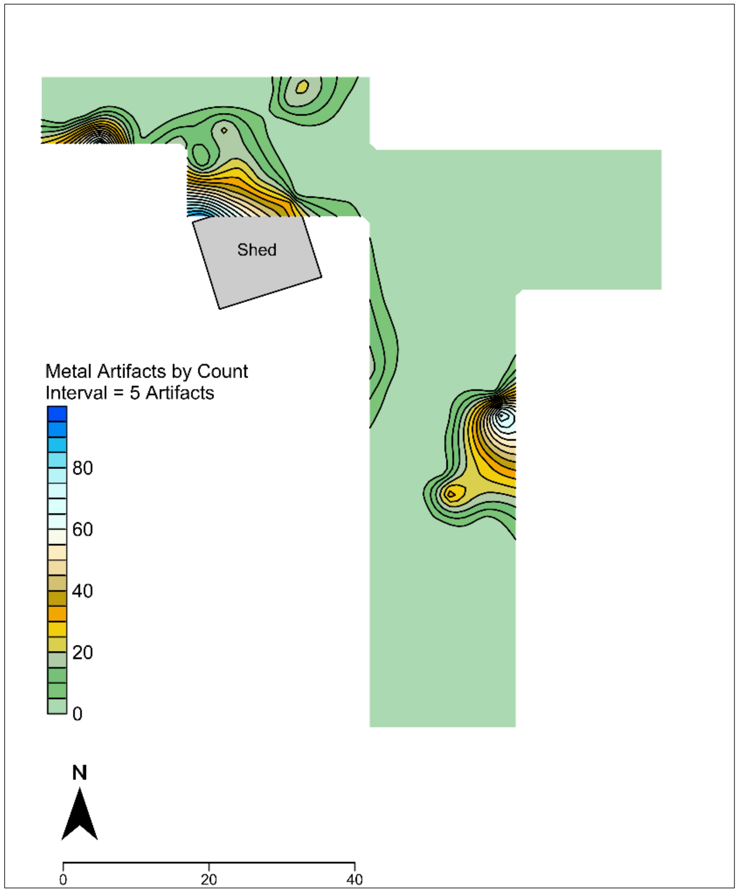

Figure 7.22 Distribution of metal artifacts from 2016-2018 surface collection units by count.

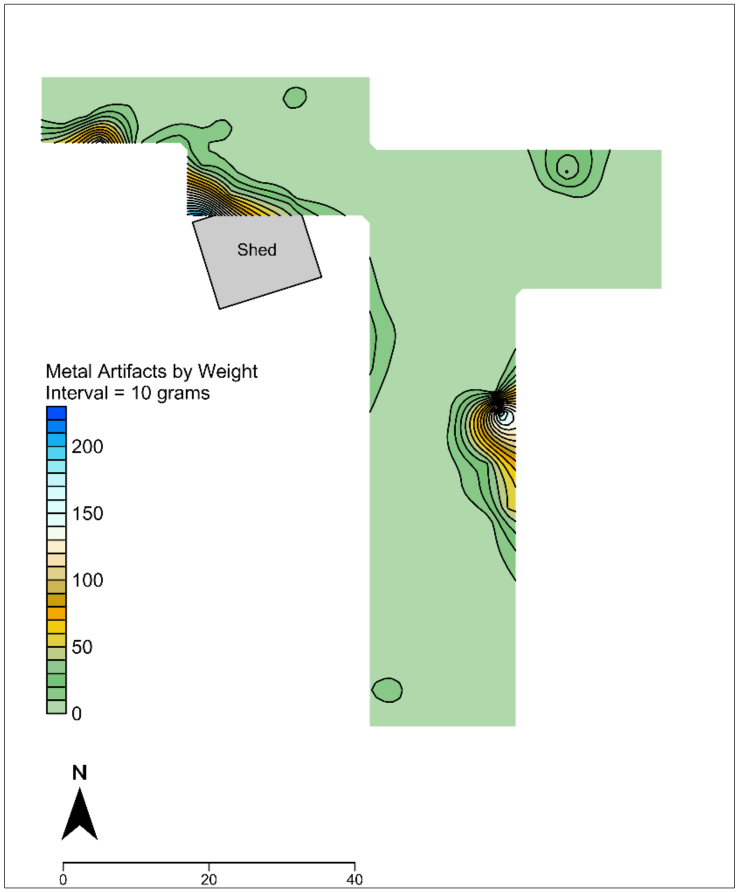

Figure 7.21 Distribution of metal artifacts from 2016-2018 surface collection units by weight.

Penny Size	Length Range (mm)
<2d	<25
2d	25-31
3d	32-37
4d	38-43
5d	44-50
6d	51-56
7d	57-63
8d	64-69
9d	70-75
10d	76-82
12d	83-88
16d	89-101
20d	102-113
30d	114-126
40d+	>127

Table 7.3 Nail penny size and corresponding length ranges (mm).

Ferrous nails and nail fragments represent the bulk of the metal assemblage. Following initial cataloging, lab teams recorded several attributes for each nail: completeness (complete, proximal, distal, shaft), style (cut, possible cut, possible wire, wire, indeterminate), shaft length and thickness, head diameter (if present), and presence and nature of post-manufacture modifications. Given the size of the nail assemblage, this analysis was performed on a sample of recovered nails: approximately 75% (n=1775) of nails from excavation units. Furthermore, length, thickness, and diameter values should be viewed as approximate, as rust consistently obscured nails' original dimensions. Because of the assemblage's size and the relative absence of temporally diagnostic items (see below), no rust-removal strategies were attempted.

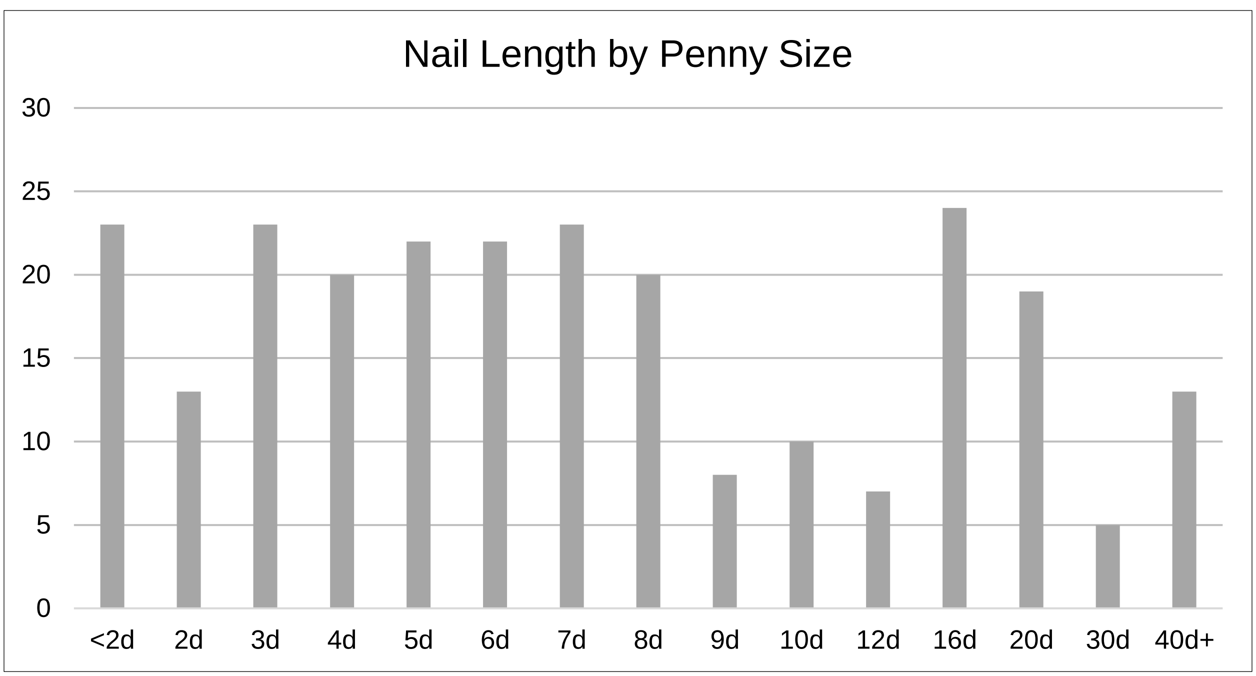

Figure 7.23 Complete wire and cut nails by penny size.

By type, nails were overwhelming classified as wire (n=1412, 80%), followed by indeterminate (n=264, 15%), possible wire (n=64, 4%), possible cut (n=25, 1%), and cut (n=4, 0.2%). Five large stakes (0.3%) were also recovered. Wire nails took over the US nail market around 1890 and remain common today. Machine cut nails date to the middle decades of the nineteenth century, approximately 1830 to 1890. Since nails remain functional well-beyond their original manufacture date, the presence of individual cut or wire nails is not necessarily temporally diagnostic. The relative proportions between counts of wire nails (83%, possible plus definitive) and cut nails (2%, possible plus definitive) offers a more precise temporal assessment. Similar splits are common at archaeological sites dated to the first two decades of the twentieth century (Adams 2002; Nelson 1968; Wells 1998).

The 252 complete wire and cut nails come in a range of sizes. By penny size (Table 7.3), complete nails exhibit a bimodal distribution (Figure 7.23). Roughly 66% of complete nails fell into 8d or smaller size classes, 24% into 16d or larger. This distribution shows that residents relied on a suite of nail types during daily activities. Shoe, furniture, and other small-scale construction appears to have been the primary focus, but large-scale building also appears to have occurred.

Although nails and small fragments comprised the bulk of the metal assemblage, three larger metal objects were also identified. The first is a cast-iron window sash weight recovered from a surface collection unit in the riparian-field boundary (Figure 7.24). Inscribed with the numbers 4

Figure 7.24 Window sash weight.

Figure 7.25 Fence post spade from AA Unit 10.

1/2, which refer to the object's weight in pounds, the sash weight served as a counterbalance to panels within a window frame. The use of internal sash window weights declined during the 1930s and 1940s (Pickles et al. 2014:23). Second, field teams recovered a steel fence post spade from AA Unit 10, likely postdating 1920 (Figure 7.25). Lastly, an *in situ* metal pipe was also identified in AA Unit 10, level 3. As I note in Chapter 6, Grand Ronde maintenance staff confirmed the pipe is not currently in use and is likely associated with a historical structure.

Charcoal, Sawn Wood, and Building Materials

During fieldwork, the distribution of charcoal and sawn wood by weight offered insight into the location of historical structures and demolition activities, as well as the presence of hearths. Fourteen percent of charcoal and sawn wood by weight was recovered from surface collection units, primarily along the western boundary of Survey Areas 2-4 in the area containing SSA4 (Figure 7.28). Auger bores contained 10% of charcoal and sawn wood, which appeared most commonly within 20 cm of the surface (5% of the total assemblage versus 5% in all over levels). This was true for excavation units as well, though as I discus above sawn wood in levels 1-2 stemmed from recent rather than historical activities. Excavation units yielded 76% of the charcoal and sawn wood assemblage. Of this, 74% was recovered from levels 1-3.

Finally, fieldwork recovered a small assemblage of roofing material, brick, concrete, plaster, and other building materials. Fifty-eight (19%) building artifacts were recovered from the surface or surface collection units. They exhibited the most dispersed distribution of all artifact types, with discrete concentrations by count and weight across the survey areas (Figures 7.26-7.27). Auger bores contained 21 (7%) pieces of building material, most of which originated within 40 cm of the surface. Excavation units yielded 232 (75%) pieces. Most of these were pieces of asphalt roofing tiles with mineral inclusions. This style of roofing tile has been available since the early twentieth century. Like metal objects, building materials were most abundant in level 3 (n=92, 37.3% of the excavation assemblage) and level 4 (n=81, 32.8%). Together, metal, nails, charcoal and sawn wood, the *in situ* pipe, and building materials provide clear evidence for historical structures in or near the excavation area.

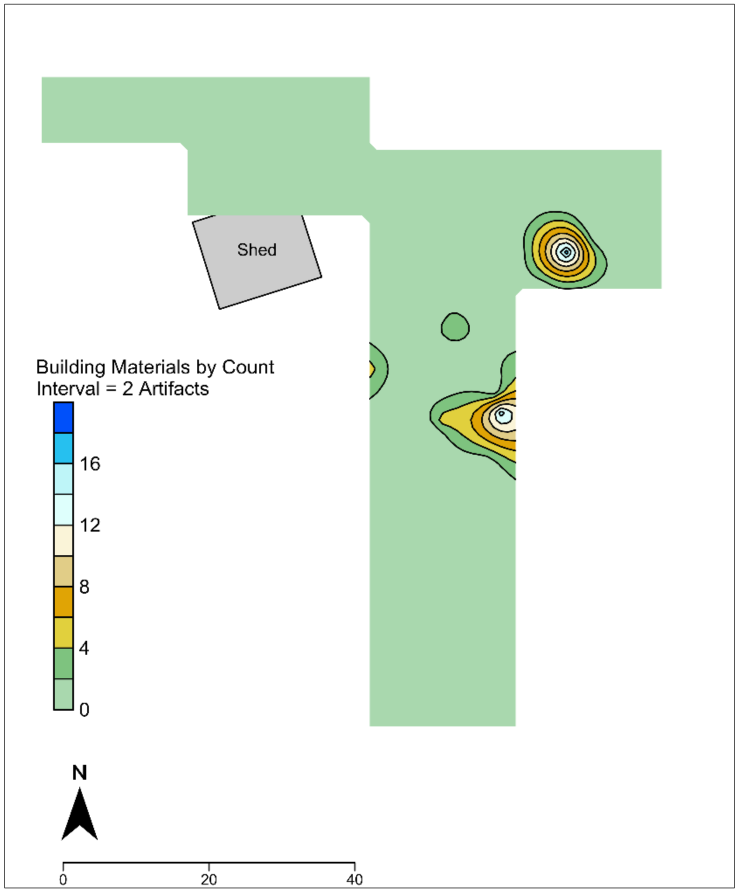

Figure 7.26 Distribution of building materials from 2016-2018 surface collection units by count.

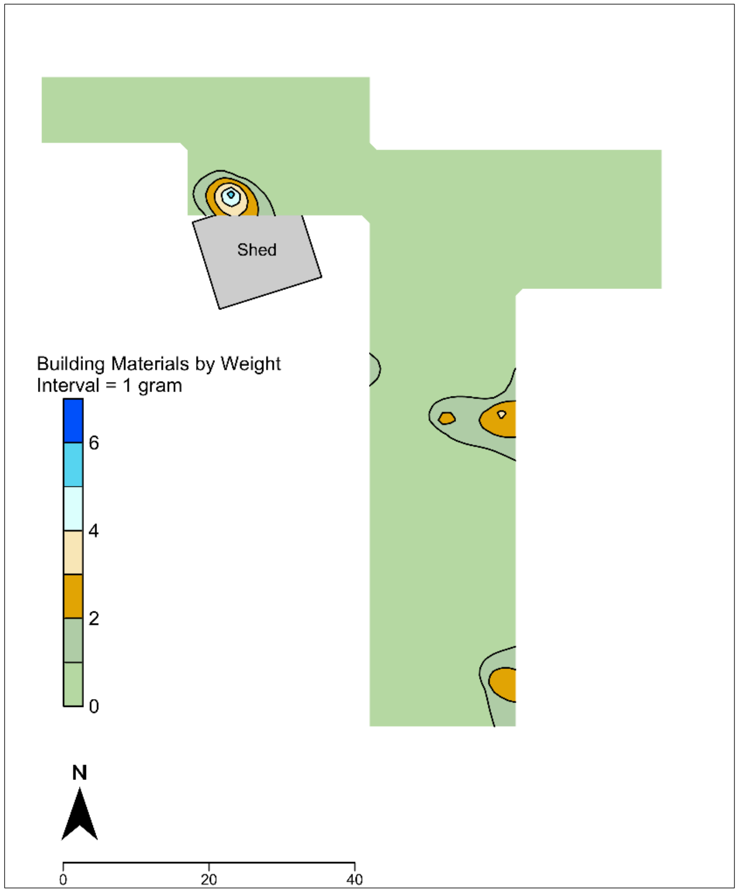

Figure 7.27 Distribution of building materials from 2016-2018 surface collection units by weight (grams).

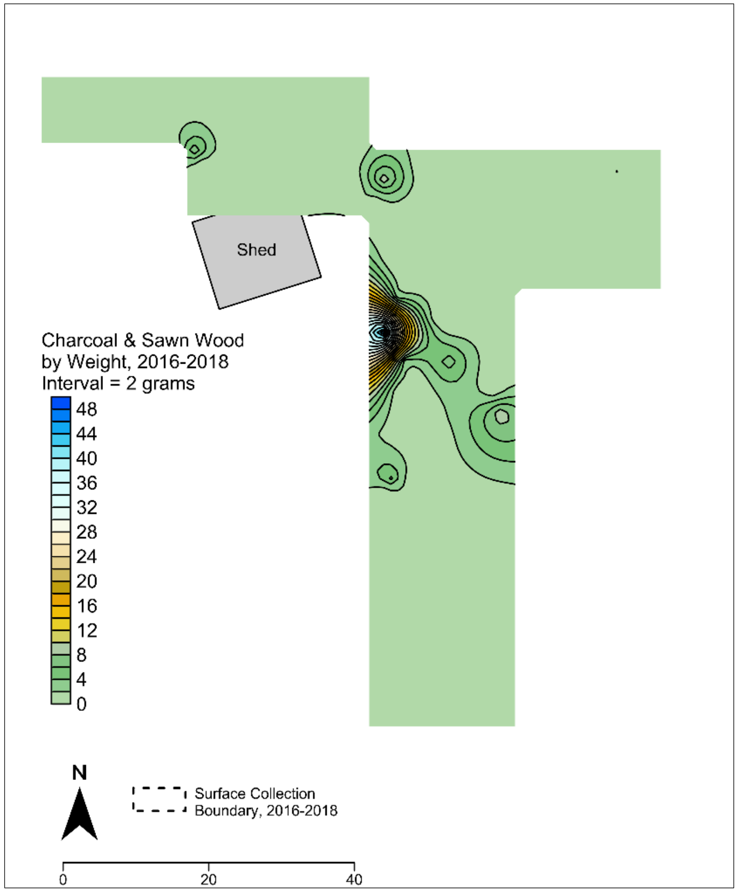

Figure 7.28 Distribution of charcoal and sawn wood from 2016-2018 surface collection units by weight.

Ceramics Artifacts

The property's ceramic assemblage (n=36) contains primarily semi-vitrified refined earthenware (i.e. ironstone) (n=23, 64%), with smaller numbers of vitrified refined earthenware (i.e. porcelain) (n=4, 11%) and non-vitrified refined earthenware (n=6, 17%). The assemblage exhibits significant fragmentation. No complete or nearly complete vessels were recovered, nor were any sherds with identifiable maker's marks. Only two sherds could be reasonably cross-mended. The absence of complete vessels, clear decorative motifs, and manufacturing information made it challenging to assign sherds to specific periods and potteries. This difficulty was compounded by the prevalence of ironstones, which have been widely produced in the United States since 1850 (Chenoweth and Janowitz 2016:56).

Field crews recovered four ceramic sherds from surface collection units. These sherds, all classified as ironstones, included two flat ware rims, one flat ware of indeterminate anatomy, and one small indeterminate sherd. The largest sherd displayed a yellow and orange underglaze transfer print alongside a hand painted geometric design (Figure 7.29). This design is suggestive of a late twentieth century manufacturing. The small indeterminate flat ware sherd contains a remnant of underglaze blue paint. The remaining two are undecorated. Ceramics generally concentrated in the western half of the site, but the small sample size resists further interpretation (Figures 7.30-7.31).

Figure 7.29 Ironstone sherd.

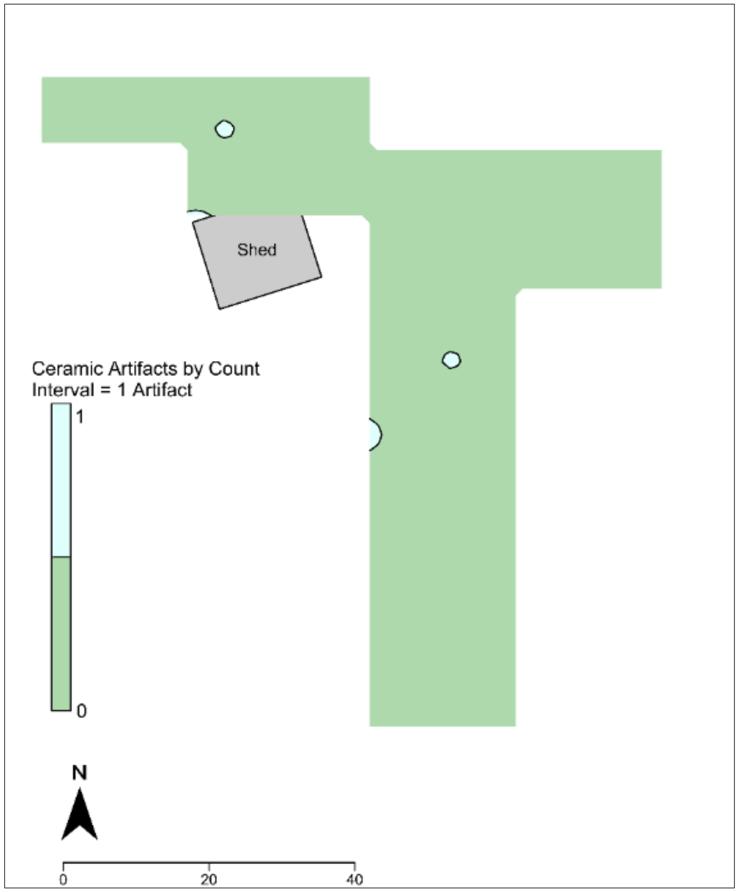

Figure 7.30 Distribution of ceramic artifacts from 2016-2018 surface collection units by count.

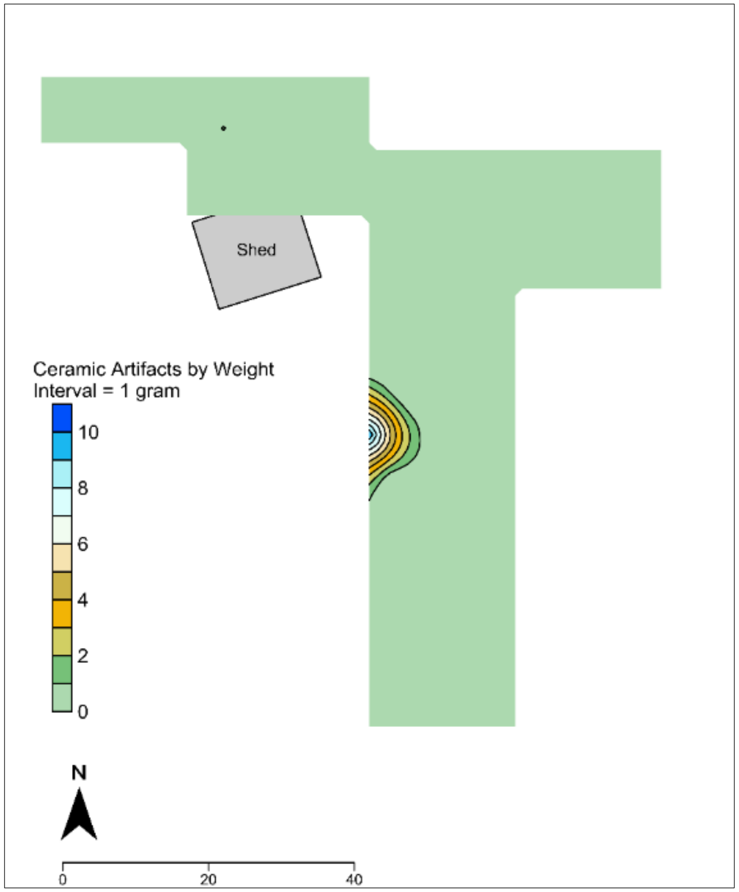

Figure 7.31 Distribution of ceramic artifacts from 2016-2018 surface collection units by weight (grams).

Figure 7.32 White ware fragment from AA Unit 11.

Three sherds were recovered from auger bores. The first is a white-bodied porcelain hollow ware rim sherd, possibly from a small saucer. It contains remnants of underglaze blue paint and postdates 1850. The remaining sherds are an undecorated ironstone flat ware body sherd and a small piece of redware.

The remaining sherds (n=29) originated in excavation units. Sherds were evenly distributed across units (though none were found in AA Units 04 and 15). The excavation assemblage was dominated by ironstone (62%). Nineteen flat ware sherds were recovered from levels 2 through 4. Two sherds from level 2 possessed a banded decal decoration and are likely from the same plate; the rest are undecorated. Decals appeared on refined earthenware around 1890 (Chenoweth and Janowitz 2016:63). Of the remaining sherds, one ironstone rim sherd exhibits a blue and green banded overglaze decal decoration; two others contain bands of overglaze gold luster. Another flat ware rim sherd is shell-edged, lending a terminus post quem of 1840 (Chenoweth and Janowitz 2016:64). Two non-vitrified sherds (Figure 7.32) recovered from Unit 11, one from level 2 the other from level 4, likely stem from the same vessel. Both are decorated with blue and white transfer print, possibly a floral pattern. Both were classified as whitewares, which were widely manufactured beginning in 1820.

Faunal Remains

Fieldwork yielded a small zooarchaeological assemblage consisting entirely of vertebrate mammal remains. Like other artifact types, faunal remains exhibit a high degree of fragmentation. As a result, only general taxonomic classifications were possible for most remains. Nearly all were identifiable to class, but only 20% (n=10) were identifiable to order or below. No complete bones were recovered and no minimum number of individuals (MNI) determinations were attempted. For each specimen, lab teams recorded the following attributes: approximate size class (small, medium, large), skeletal element, element portion, side, weight, and evidence of modification (gnaw marks, butchering, burning, etc.).

Surface collection units yielded eight faunal remains: one rodent mandible and eight fragments of an artiodactyl long bone shaft fragment (Figure 7.33). The shaft likely stems from a commercial meat cut of a cow (*musmus; Bos taurus*) or pig (*kushu*; *Sus scrofa*), as its proximal and distal ends were cut with a power saw. These two specimens were found at the intersection of Survey Areas 7-9 (Figures 7.34-7.35).

Auger units yielded 42 mammal remains, but all were fragmented to a degree that element and taxa identifications were not possible. Fragments were split between Auger Group 1 (38%) and Auger Group 2 (62%).

Figure 7.33 Power sawn artiodactyl long bone shaft.

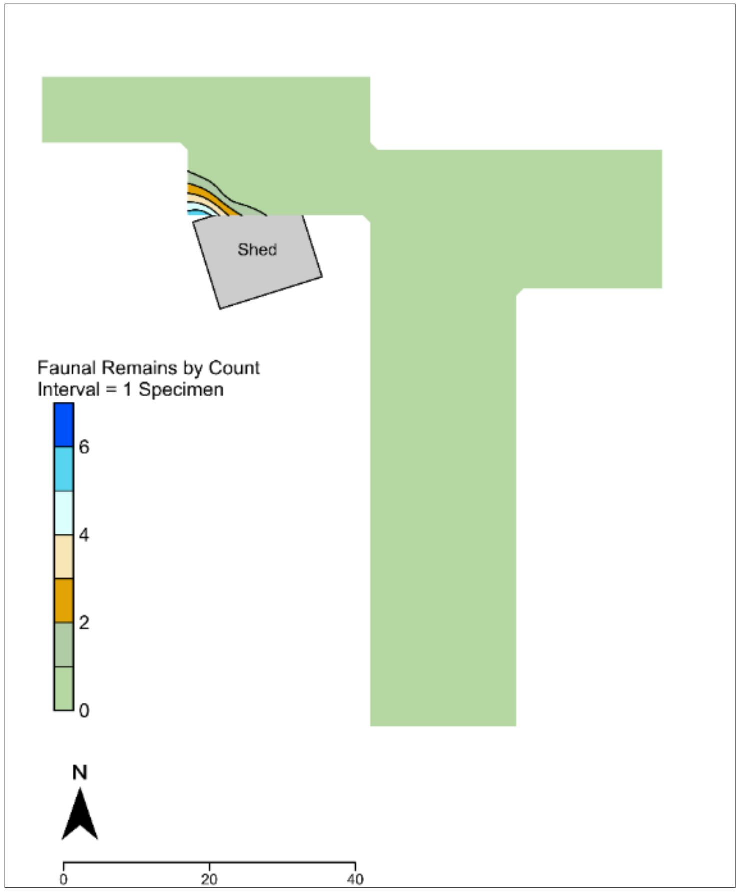

Figure 7.34 Distribution of faunal remains from 2016-2018 surface collection units by count.

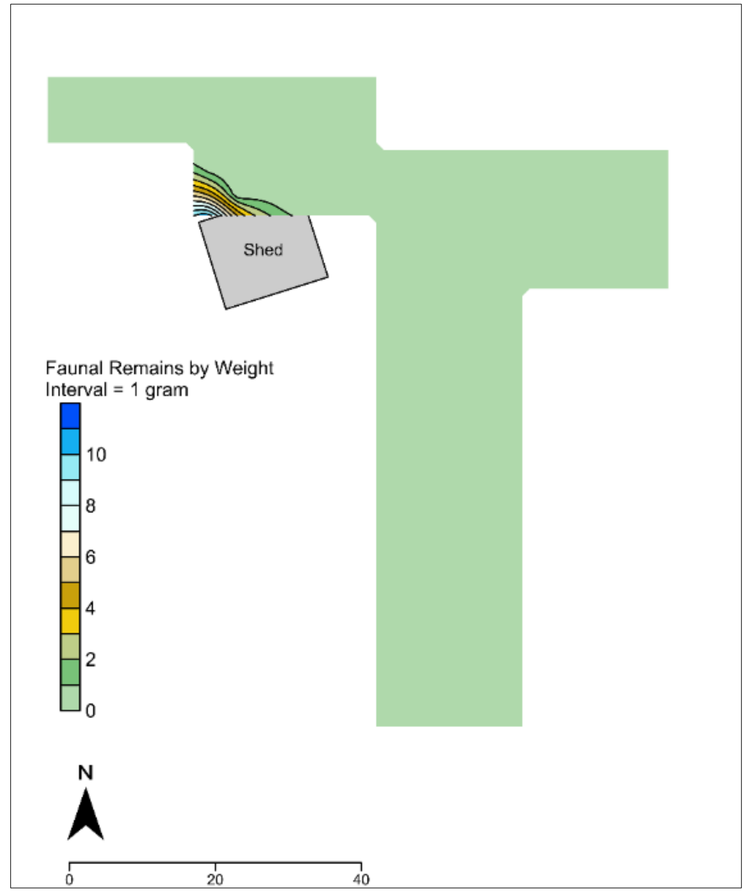

Figure 7.35 Distribution of faunal remains from 2016-2018 surface collection units by weight (grams).

Figure 7.36 Cut marked artiodactyl tibia, with deep with cut mark highlighted.

Figure 7.37 Detail of cut mark. Photograph and illustration by Taylor Schlabs and Abigail Harward.

Excavation units yielded 51 remains. Notable finds include an additional power sawn long bone shaft fragment, likely from a pig; a nearly complete artiodactyl molar; a distal costal shaft with extensive gnaw marks; and a cut marked artiodactyl tibia shaft (Figures 7.36-7.37). The latter was butchered by hand with metal tools, as evidenced by the deep, rectangular-shaped cut cross section and presence of even striations within the cut groove (Greenfield 1999). Remains concentrated in levels 3 through 5 by count (n=46, 95.8%) and weight (75.63%), with most remains found in level 4 (n=37, 77.08%). Remains were found primarily in the central excavation area: AA Units 01, 04, and 05 accounted for 68.75% (n=33) of all excavated remains.

Across all study types, medium-sized mammals (n=28, 56%) were most common, with smaller numbers of large (n=15, 30%) and small (n=5, 10%) mammal throughout. Two fragments (4%) could not be placed in a size class. Despite the assemblage's small size, the presence of hand and machine cut bones point to diverse resource acquisition and consumption strategies. These findings complement agent accounts of animal husbandry on the reservation. They do not, however, offer clear evidence of hunting, as no remains could be reliably classified as deer, elk, or other game (though one possible lagomorph tibia was recovered in AA Unit 08). Lastly, remains did not appear evenly distributed with depth, but concentrated in the lower levels of excavation units, suggesting they relate to an earlier period of site occupation.

Macrobotanical Remains

Beginning with FD Unit 03, field teams collected 10-liter scatter samples from each level (excluding level 1). Of these, 29 samples from seven AA units and one FD unit were floated and analyzed by Joyce LeCompte-Mastenbrook. Samples were evenly distributed across the site, horizontally and vertically. Flotation followed standard procedures and took place at FMIA's camp on the Uyxat Powwow Grounds or in Seattle, WA. Samples were sorted and analyzed at UW's Pacific Northwest Archaeology Laboratory under Joyce's supervision. Laboratory teams used a series of nested sieves (4.0, 2.0, 1.0, 0.5, 0.3, and <0.3 mm) to sort sample light fraction into size classes. Select size classes were sampled via a riffle box. Joyce then examined material at 10-40x magnification to identify extant macrobotanical remains. The full list of carbonized seeds and other plant material from the Molalla Encampment is presented in Appendix F.

Macrobotanical remains recovered from the site fell into three categories: cultigens, non-domesticated foods, and other plants. The first group is represented by remains of wheat (*saplel*; *Triticum* spp.), which appeared in AA Units 04 and 05, levels 2-5. Although theses remains reveal more about the community's economic activities than their dietary practices, as wheat would have required processing into flour to be consumed, they speak to agricultural production on the reservation. Wheat cultivation was frequently mentioned by reservation agents and community members (e.g. Kenoyer 2017:140-143), but it is unclear whether agricultural output ever reached the levels noted in agent reports. And while it is not possible to conclusively associate these (and other macrobotanical remains) with a particular occupation period, the fact that wheat is found in all levels points to an extended history of cultivation on the property.

The second group, non-domesticated foods, is comprised of charred remains from a variety of taxa. This assemblage includes tarweed (*limulo-saplil*; *Madia sativa*), brambles (*ulali*; Rubus spp.), acorn shells (*k'anawi*; *Quercus garryana*), blue elderberry (*hayash-təmtəm stik*; *Sambucus* spp.), and saskatoon berry (*Amelanchier alnifolia*). Plant foods concentrated in AA Units 05 (n=36, 37%) and 04 (n=31, 32%) and were evenly distributed with depth (31% in level 2, 20% in level 3, 31% in level 4, 18% in level 5). Each plant is associated with unique gathering, processing, and consumption practices.

Tarweed was an important plant food for Willamette Valley Kalapuyan groups and Takelma groups in southwestern Oregon during the nineteenth century and for many centuries prior. During the late summer and early autumn, communities set prescribed burns to char tarweed seeds, grasshoppers, and maintain productive meadow habitats. The seeds were then collected, dried, ground, and mixed with camas, hazelnuts, or other plants (Boyd 1999:113; Jacobs 1945a:19, 26; Zenk 1976: 23-24, 27-28, 59; see also Phillips 2016:99-100).

Oak acorns were another important autumn food source. Acorn flesh is highly nutritious but must be processed to remove bitter tanins. In the Willamette Valley where oak savannahs were plentiful, communities charred acorns to extract the flesh, which they then soaked in water or buried with clay. The leached acorn flesh was then boiled or mixed with other foods to form a highly nutritious paste (Gahr 2013:73-75; Jacobs 1945a:17-20; Zenk 1976:60-61; see also Phillips 2016:43-44;). Oak wood, along with yew, was also used to fashion bows (Zenk 1976:92). Gatschet (in Zenk 1976:60) notes that Tualatin groups stopped using acorns following removal. The presence of charred acorn shells at the Molalla Encampment suggests other groups continued this practice. The two oaks trees on the Rhoades property, at least one of which would have been present since the reservation's establishment, would have provided local access to acorns. They may have also provided appealing summer camping areas. In 1928, John B. Hudson families described "windbreak shelters," which families built under oak trees as temporary summer residences (Jacobs 1945a:39). Recovered acorn fragments may be evidence of initial nut charring and, more broadly, late summer and early autumn habitation and food processing.

Blue elderberry, saskatoon berry, and brambles, which includes salmonberry, thimbleberry, and trailing blackberry, were widely used among western Oregon's Native peoples. Berry stands were often carefully managed and periodically burned to enhance fruit productivity. Young shoots of thimbleberry and salmonberry were harvested as greens (Zenk 1976:94); berries of several taxa were eaten fresh and dried into cakes for winter provisions. Some species, like blue elderberry had medicinal uses as well (Moerman 1998). Berry gathering took place in mid to late summer, usually at moderate to high elevations where the plants were more abundant (French 1965:379-380; Gahr 2013:68 Jacobs 1945a:21, 1949:489-490; Zenk 1976:60; see also Phillips 2016:49-50). Today, berry species grow around the Uyxat Powwow Grounds and are plentiful in the forested uplands in the northern reaches of the reservation (as FMIA students and staff can attest). In the 1930s, Kenoyer (2017:120) offered a detailed account of travelling to Mt. Hebo west of Grand Ronde to hunt and pick and dry berries with his family. Seeds at the Molalla Encampment likely originated from such gathering trips.

Finally, the other plants group was comprised of taxa such as dock (*Rumex* spp.) and cleavers (*Galium aparine*). Grand Ronde community members did not mention these plants in the reservation's primary ethnographies, but other communities in the region harvested these plants for multiple purposes. First Nations on Vancouver Island consumed young dock stems and boiled dock roots into poultices to reduce swelling while dried cleavers served as effective fire starters (Turner and Bell 1971:85; see also Suttles 1951:58). Native groups in western Washington used cleavers as pleasant-smelling body rub while dock stalks were eaten and boiled as part of antiseptic washes (Gunter 1973:29, 46).

Occupation Histories

According to documentary and cartographic sources, members of the Grand Ronde community lived on or near the Rhoades property from the 1850s to 1923. However, these sources provide few details about the duration or intensity of occupations during this span. This silence in the archival record raises a number of questions. Did early reservation families repeatedly return to winter settlements along the banks of Cosper Creek? Or did they prefer to use the area as a temporary campsite during the warmer summer months? During the allotment period, did the Foster or Teabo families build homes or other structures? Or were material deposits produced predominantly by the property's post-1923, settler residents?

FMIA's fieldwork provides only partial answers to these questions. On the one hand, parsing the occupation histories of the property is beset by four complicating factors. First, the ceramic and nail assemblages exhibit little temporal specificity, as their production dates encompass much of the late nineteenth and twentieth centuries. Second, deposits were weakly stratified and did not contain clear boundaries between qualitatively different assemblages or depositional environments. Third, temporally pertinent information such as artifact form, decorative styles, and modes of manufacture (on ceramic and glass artifacts in particular) was obscured by fragmentation. Fourth, the vast majority of objects recovered during survey and excavation were found within 60 cm of the surface. Field teams documented moderate levels of sub-surface disturbance via tree roots and rodent burrowing. Bioturbation, the construction and use of the shed, and historical land use have combined or at least partially mixed otherwise temporally distinct deposits.

On the other hand, the nature and distribution of recovered artifacts offers several temporal clues. Several objects with narrow dates of manufacture were recovered. These include glass beads (pre-1900); a solarized amethyst glass fragment (1870s-1920s), a straight brandy bottle finish (1890-1920), a canning jar lid (1900-1940), machine-made bottles (post-1900), an amber glass bottle (1934-1968), a fence post spade (1930s), and a window sash weight (pre-1945). And though all artifact types appeared in nearly all units and levels, by count and weight most glass, ceramics, and metal objects appeared within 30 cm of the surface while those of mammal bones, macrobotanical remains, and lithics appeared between 20 and 60 cm below surface. The distribution of lithic materials in particular trends toward deeper levels (Figures 7.40-7.41).

From this division in artifact types, it is possible to separate the assemblage into three broad occupation periods: an early reservation period spanning the decades following removal (1856-1889); an allotment and post-allotment period (1890-1940); and a powwow period (2012-present). During the first period, site residents engaged in lithic production, assembled hearths, and built temporary and/or semi-permanent structures (as evidenced by geophysical anomalies in the field). They engaged in diverse resource procurement strategies such as wild plant gathering and animal husbandry and relied on comparatively few objects manufactured in settler factories (though nails may be an exception in the final years of this period).

The second occupation period left a more pronounced material signature, as evidenced by increases in the total number and weight of documented artifacts between 20 and 40 cm below surface (Table 7.2). This likely reflects a shift toward increased sedentism, perhaps as a result of allotment and the fact that the property was now owned via possession of title. This period saw the construction of structures visible in early twentieth century aerial photographs and an attendant increase in settler-made household objects. Who created these material deposits, and whether they represent a mixture of temporally distinct activities by the Foster and/or Teabo families and later settlers, remains unknown. Although both groups are likely represented, the recovery of important food plants, including charred seeds of tarweed, berries, and acorns within 30 cm of the surface and flaked vessel glass presents compelling evidence for continued Native presence. It should also be noted that though the property passed from Native ownership following the Teabo's sale, the loss of title did not necessarily coincide with the departure of Grand Ronde families. As I discuss in Chapter 6, Grand Ronde families continued to live on former allotments or fee lands in various official and unofficial capacities. I did not encounter any evidence, whether from archival sources or community knowledge, suggesting similar events occurred at the Rhoades property. But this possibility cannot be dismissed.

Figure 7.39 Contemporary plastic and glass beads.

Figure 7.38 Plastic friendship bracelet.

Finally, while few characteristically middle to late twentieth century objects were recovered, field teams identified several objects linked to the property's reacquisition and reuse by the Grand Ronde community. This third, ongoing occupation period is characterized by objects of ceremony and celebration. Each summer, Grand Ronde hosts two powwows, the Marcellus Norwest Memorial Veteran's Powwow in July and Contest Powwow in August, as well as gatherings such as Youth Culture Camp and Warrior Camp. Tent stakes, contemporary food refuse, recently-produced plastic and glass beads, possibly associated with powwow regalia (Figures 7.38-7.39) attest to these new forms of Grand Ronde presence on the property.

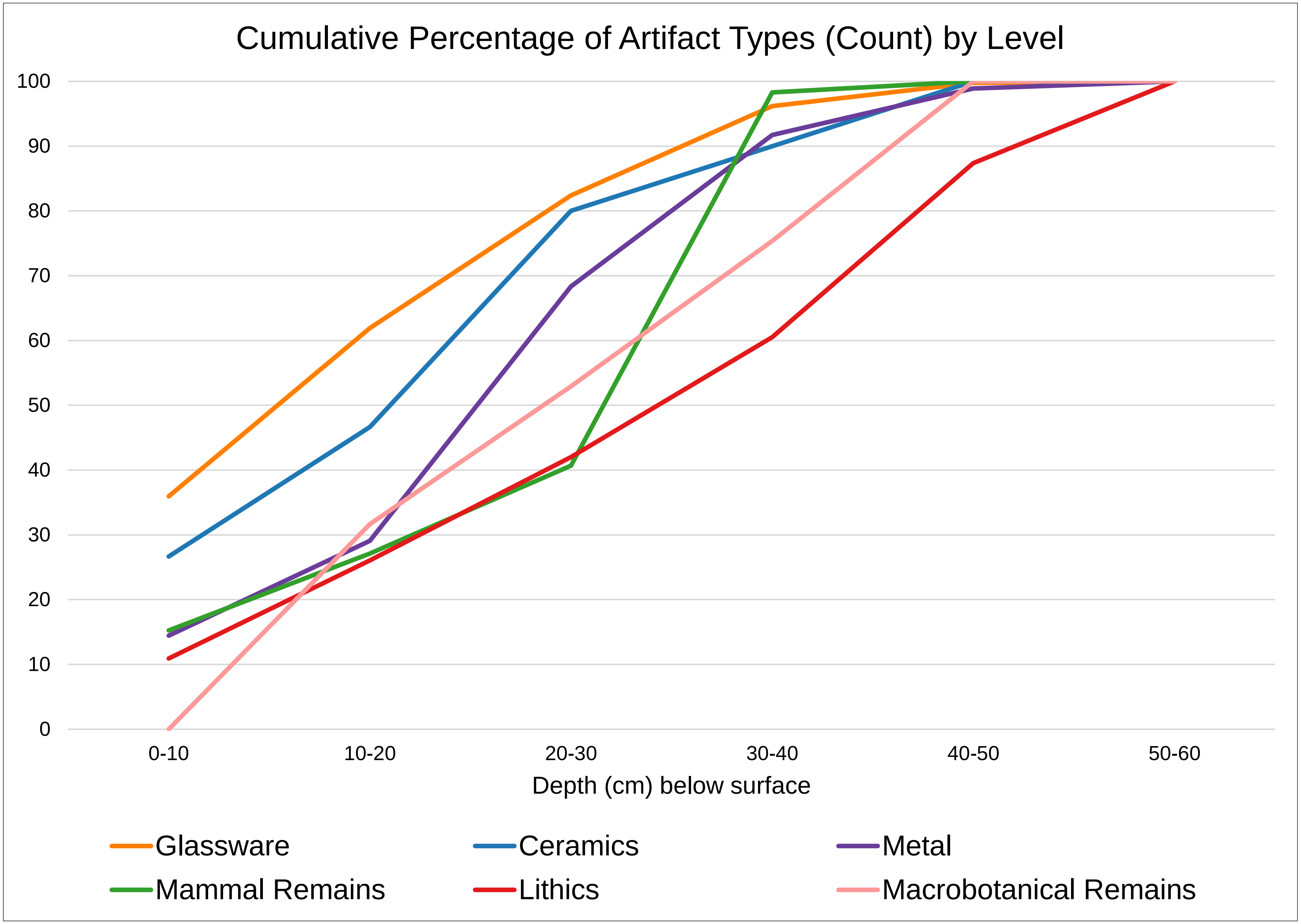

Figure 7.40 Distribution of artifacts (count) from excavation and surface collection units by level.

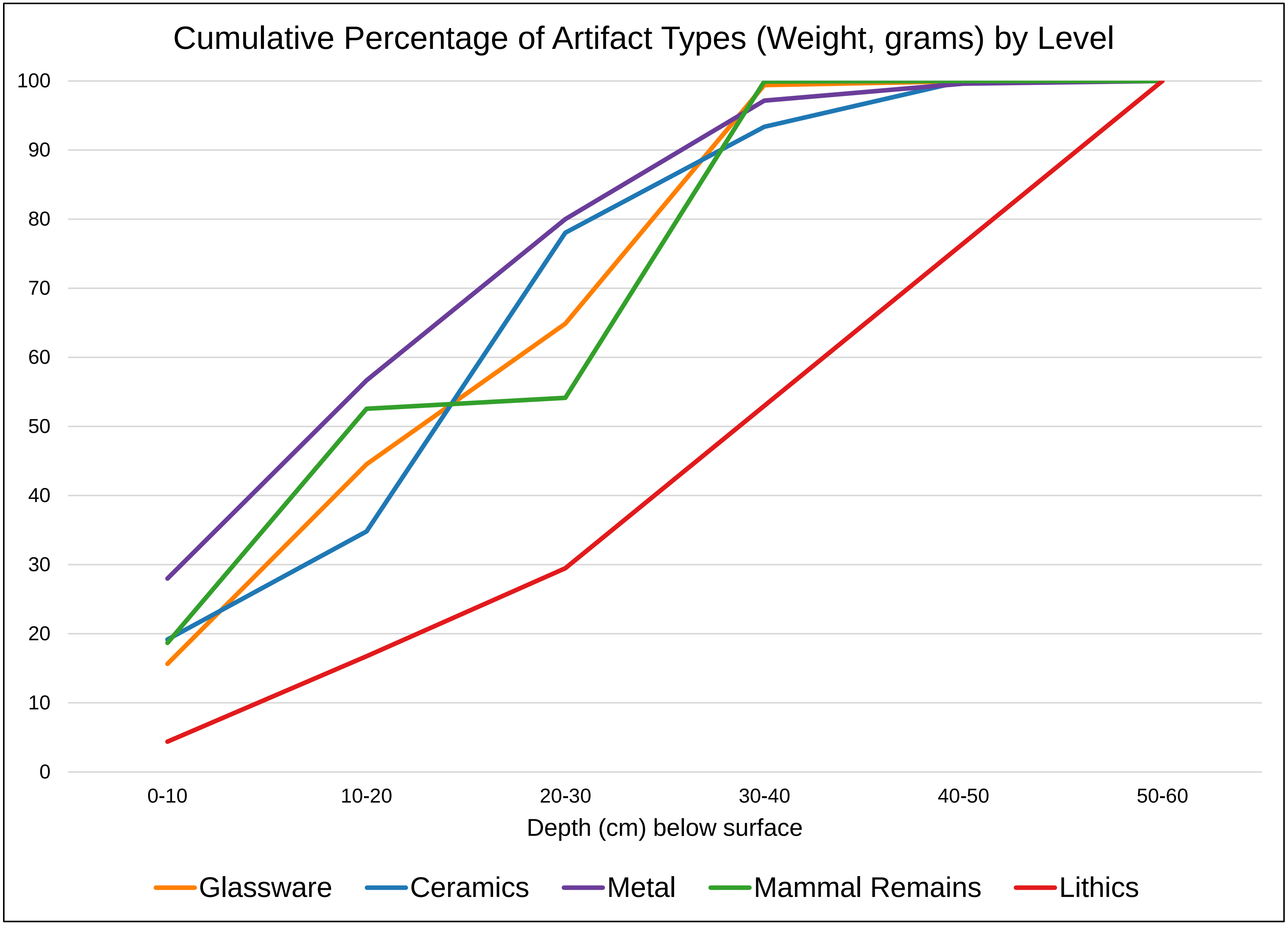

Figure 7.41 Distribution of artifacts (weight, grams) from excavation and surface collection units by level.

Conclusions and Recommendations for Future Research

The Molalla Encampment, as part of the Uyxat Powwow Grounds, is a landscape of historical and contemporary significance for the Grand Ronde community. In the years following removal, Molalla families and others took up temporary or semi-permanent residence along the banks of Cosper Creek. The property's proximity to Fort Yamhill and Valley Junction and the presence of fresh water, oak trees, and potentially other flora likely made it an attractive settlement location. They continued to harvest traditional plant resources and engage in lithic production while using the property raising crops and tending animals.

In 1889, the property became part of William Foster's 153-acre allotment. The 33-acre parcel straddling Cosper Creek was situated near other allottees with Chinookan ancestry; together, these parcels made up one of several clusters of extended kin and historical neighbors within the Hazen Map area and across the entire reservation (see Chapter 4). Archival records do not comment on Foster's use of the property, but since his allotment was divided between the reservation's population and agricultural core and the forested uplands to the south, he may have decided to situate farming activities and/or structures along Cosper Creek. Foster later sold the property to Joseph Teabo, perhaps to assist his friend and Joseph's brother Edward develop a local land base after being shut out of the allotment process. The Foster/Teabo families relied on a suite of mass-produced ceramic, glass, and metal goods. These objects' functionality and relative ease of acquisition may explain the apparent decline in lithic production during this period, though flaked glass, such as on the amethyst bottle glass fragment, indicates flaking continued into at least the 1870s. The site's macrobotanical assemblage also revealed that traditional plant foods and medicines remained important. Even if these plants did not constitute the bulk of the families' dietary intake—the small quantities of recovered floral and faunal remains makes interpretations beyond presence/absence challenging—their harvest, preparation, and consumption persisted and continually brought people into contact with storied landscapes and embodied knowledge.

In the 1920s, economic forces likely forced the Teabo's to sell the property to the first of several settler owners. These individuals may be responsible for some of the materials recovered by FMIA's investigations, but the absence of temporally relevant deposits leaves this an open question.

The property's return to tribal ownership in 2006 marked the beginning of a new era of cultural innovation. Since 2012, tribal members have gathered on the property to reflect on the challenges faced by their ancestors and to chart a path toward a vibrant tribal future (Figure 7.42). The powwow beads and tent stakes recovered by FMIA are modest material traces of these fundamentally important activities. The landscape also contains *Achaf-Hammi,* the tribal plank house. *Achaf-Hammi* is not only the first traditional structure built in Grand Ronde in over 150 years, but, true to the community's diversity and innovative spirit, combines design elements from homes historically built in both northwestern and southwestern Oregon. The house is an enduring manifestation of the unique history and identity of the Confederated Tribes of Grand Ronde.

Figure 7.42 The Uyxat Powwow Grounds dance arbor, completed in 2015.

At tribal gatherings, the history of this landscape remains ever present. During ceremonies at *Achaf-Hammi*, for example, tribal leaders emphasize that the history of the powwow grounds serves as a microcosm for the experiences of the Grand Ronde community. The land has borne witness to the hardships following removal, the surveillance of the community via Fort Yamhill, allotment and the forces that wrested the reservation from tribal ownership, and in the three decades since Grand Ronde's restoration the resurgence of cultural identity and practice. The legacies (and new manifestations) of settler colonialism continue to impact the tribe in myriad ways. But on the Uyxat Powwow Grounds, the hegemony of settler colonialism has given way to the enduring presence of the Grand Ronde community. Up the road, Fort Yamhill's blockhouse has disappeared. The fort site still provides a sweeping view of the surrounding landscape. During powwows, the land below is filled with the sounds and colors of cultural innovation, of relationship building, of teaching, learning, and looking to the future. It is a view of survivance.

FMIA's investigations at the Molalla Encampment enriched this story with new details while supporting contemporary practice. During fieldwork, I worked with HPO staff to tailor field activities to the needs of the wider community. Field teams backfilled all units and removed all equipment from the property before the start of Veteran's Powwow in July and concluded all fieldwork before Contest Powwow in August. Using low-impact field strategies, FMIA minimized the impact of archaeological investigation and in the summer of 2020 will begin to return artifacts to the property.

Future research can build on field results in three ways. First, additional archival research on chains of title for allotments within the powwow grounds (and at other locations) may reveal alternative turn of the century strategies employed by the Grand Ronde community to preserve Native ownership and relationships. Second, archaeological research, if deemed appropriate by HPO staff and the wider community, may offer additional information into the materials and activities that characterized daily life. Structures, whether residences, sweat houses, or mills, noted on historical maps and documents may prove particularly insightful. And though the landscape surrounding Fort Yamhill has been the subject of two previous archaeological surveys (Becker et al. 2008; Roulette et al. 2002), much of the powwow grounds remains unsurveyed. The stretch of Cosper Creek north of FMIA's investigations, for instance, may contain more direct evidence of the Molalla Encampment or subsequent activities (such as those noted on the Sketches of Agencies Map, see Figure 6.10). At minimum, however, future ground disturbance in the vicinity of the fort should include monitoring to identify and protect undetected material deposits.

DID HOUSEHOLD INTERIORS FOSTER RESIDENCE?

In Chapter 4, I use cartographic analysis of reservation land records to argue that the Grand Ronde community used settlement location and organization to reiterate long-important relationships between extended family members and historical neighbors. I read these settlement decisions as evidence of residence, or actions that established spaces of cultural belonging and familiarity on an unfamiliar, hostile landscape. Through these acts of residence, those at Grand Ronde enacted spatial self-determination.

In Chapter 5, I posed the question: did the interiors of Grand Ronde homes also encourage residence? Since information about household interiors was absent in the archival record, archaeology presented an alternative for complementing the story generated by the GRLTP. Unfortunately, fieldwork encountered little evidence of reservation households. At the Umpqua Encampment, field teams identified a sparse artifact scatter and no evidence of intact household features or construction elements The Molalla Encampment yielded a denser assemblage, including objects such as ceramic and glass vessels, food remains, and building materials associated with domestic habitation. Yet apart from an *in situ* early twentieth century water pipe in AA Unit 10, the cache of nails in AA Unit 14, and the toppled wooden fence in the southwestern corner of the property, field teams failed to identify intact features such as hearths, living surfaces, articulated construction elements, or dense artifact middens. Ample building material such as sawn wood, flat glass, and cut and wire nails were recovered, but they exhibited significant fragmentation and broad spatial dispersal. And most of the sawn wood, at least that within 10 cm of the surface, likely originated with tribal staff and routine grounds maintenance rather than the site's previous inhabitants. The area north of the shed thus does not comment on the interior organization of reservation homes.

These findings leave open three non-mutually exclusive possibilities. First, those living along Cosper Creek may have continued pre-reservation organizational principles in their homes, but evidence of these actions has not survived the passage of time. Not only would reservation homes have been vulnerable to post-depositional alteration, but the reservation's difficult living conditions may have made reuse of structural elements and interior trappings a necessity. The community's lack of access to material goods, especially during the reservation's early decades, may have rendered these practices archaeologically invisible long-term (Orser 2011). Second, activities with faint material traces such as song, dance, and storytelling may have been more important than the built environment in maintaining relationships and transferring cultural knowledge and histories. Indeed, if agents' annual inspections focused on the use of space in addition to material trappings, it may have been critical that families present homes that matched those of settlers in appearance and layout. In this case, perhaps the preservation of inter-group relationships via settlement location and organization, as documented by the GRLTP, was more important than homes themselves. Third, residence-related activities may have been confined to non-households. Agent and ethnographic reports described reservation dance and sweat houses on the reservation. It may have been more appropriate and feasible to locate culturally meaningful, small-scale activities within these spaces rather than in homes.

What Foods Comprised Grand Ronde Diets?

The final question guiding FMIA's fieldwork at the powwow grounds concerned the composition of reservation diets. At the Umpqua Encampment, one fragment of mammal bone was recovered, and macrobotanical analysis was not conducted. The faunal assemblage from the Molalla Encampment, though heavily fragmented, provides compelling evidence that residents relied on a diverse resource acquisition strategy comprised of wild and domesticated plants and domesticated animals. The macrobotanical assemblage in particular demonstrates that the community harvested traditionally important plants at places on and off the reservation. The small, charred remains of berries, tarweed, oak acorns, and other plants are manifestations of enduring connections with place and practice. The harvest, preparation, and consumption of these plants were nothing less than acts of transmotion, ways of moving and being in the world that reaffirmed communities' place within webs of connection and obligation while refusing the boundaries established by settler colonialism. These actions fostered spatial as well as temporal self-determination; they also refute agents' descriptions of the community as settled and assimilated.

Moreover, though my discussion of transmotion in Chapters 3 and 5 focuses on foodways, tribal members' continuation of lithic production may have held comparable salience. Like food, chipped and ground stone artifacts are produced by daily, routinized activities and entail engagement with discrete places and knowledge of proper harvest and use. Though they do not come with the same temporal considerations as food—the availability of raw material, for instance, changes little throughout the year—the acquisition, production, maintenance, and discard of stone artifacts nevertheless linked individuals to distinct ways of being in the world. Obsidian artifacts, if produced or recycled post-1856, are clear evidence of community movement across reservation boundaries despite the ostensible hegemony of federal control.

CONCLUSION

Archaeological research emphasizing historical, contemporary, and future Native presence led to unique field strategies and interpretations at the Umpqua and Molalla Encampments. Indeed, it is instructive to consider how investigators driven by archaeocentric historical inquiry, as outlined by Welch and Ferris (2014), would have approached and understood the histories of these properties, especially the Molalla Encampment. Investigators likely would have conducted similar archival research, though in the absence of the GRLTP and ongoing dialog with HPO staff, the issues with these sources and their representations of reservation life may have been missed. Field investigations would have proceeded along an accelerated timeline and relied on shovel probes and/or block excavations to maximize the recovery of material remains from the property. This approach would not only have significantly impacted the physical landscape, it may have interfered with contemporary cultural practice at powwow or other events. Field teams would have used 1/8-inch screens, neglected to wet screen the property's silt- and clay-rich sediment, and overlooked macrobotanical analysis, which remains uncommon in historical archaeology. These practices would have led to depressed counts of chipped stone artifacts, glass beads, and plant remains. Investigators would have identified, however, ample evidence of mass-produced household goods and construction materials. Even with full knowledge of the property's occupation history, these artifacts would have been placed in discrete temporal ("prehistoric" versus "historic") and cultural categories ("Native American" versus "Euro-American"). This classificatory scheme, which has long-been noted as an expression of archaeology's historical ties to settler colonialism (Lightfoot 1995; Lightfoot and Gonzalez 2018b; Silliman 2005), would have led investigators to conclude that the site's "prehistoric" components represent pre-reservation or early reservation occupation and are followed by more intensive activity by the property's owners at the turn of the century. Without macrobotanical remains and some/all obsidian artifacts, this transition would have appeared as a decline in pre-reservation relationships and practices and an attendant increase in assimilation.

FMIA's research presents a strikingly different picture of reservation daily life. Fieldwork did not employ dichotomies between material types or ostensible periods of use. Rather, HPO staff and I approached the two encampments as places of negotiation where residence and transmotion cut across settler colonial attempts to erase Native presence at Grand Ronde and throughout western Oregon. These competing historical processes intersected in myriad ways, requiring the Grand Ronde community to navigate complicated decision-making between the adaptation of existing practices, the creation of new practices linked to an emerging Grand Ronde identity, and engagement with the products and practices of settler colonialism as an economic and political necessities.

FMIA's fieldwork is not a definitive account of reservation life; like all forms of historical inquiry, it grappled with post-depositional impacts, material fragmentation, and preservation biases. If anything, it represents a proof of concept for systematic archaeological investigation embedded within a low-impact, Grand Ronde-centered research methodology. The project is itself a form of Grand Ronde survivance, a transformation of settler colonial scholarship into a form of capacity building and bringing the stories of the historical reservation community into the present for the benefit of future generations.

In this dissertation's concluding chapter, I reflect on the disciplinary relevance and applicability of these two elements: archaeology's inherent flexibility to be more than its settler colonial history and its potential as a vehicle for community-directed storytelling.

CHAPTER 8: ARCHAEOLOGY AS A DISCIPLINE OF NATIVE PRESENCE

Since its inception, a fundamental disparity has existed within US archaeology. For over two centuries, the vast majority of archaeological research has focused on Native material culture, lands, and bodies but has featured little to no contribution from Native communities and knowledge systems. Native presence has been undeniable in the artifactual record but has been denied in the research process. Native peoples' marginalization has been carried forward by archaeologists' inability and unwillingness to question their presumed right to study Native heritage and tell Native histories. These actions have drawn from and reproduced settler colonialism's "logic of elimination." As research subjects rather than research participants, Native peoples have been confined to the past tense.

This dissertation breaks from this history of "epistemic injustice." With the knowledge and insight of the Confederated Tribes of Grand Ronde, it forwards an example of archaeological research that privileges survivance—distinctive, unfailing Native presence—as a primary commitment. Centering survivance came with implications for scholarly interpretation and practice. It challenged me, in Rifkin's (2017:192) words, to "make visible the presence of other potential trajectories of Indigenous flourishing," free from restricting, dichotomous models of culture change. It demanded I work toward research outcomes that confronted settler colonialism's histories and contemporary manifestations. And it invited me to use research as an opportunity to walk alongside the Grand Ronde community on landscapes of "federated knowledge" populated by diverse ways of knowing and being. More than anything, survivance placed me into new webs of relationship. I joined HPO staff and tribal members to represent tribal history in ways that accurately reflected the lives and experiences of the past reservation community and contributed to contemporary cultural resurgence and self-determination. Rather than a self-appointed narrator of tribal history, I served as an active listener who, alongside many other listeners, helped tell these stories anew. By working to identify and celebrate Native presence, an archaeology of survivance at Grand Ronde did not just combat the pursuit of Native absence, it secured Native continuation.

Research at Grand Ronde, in other words, has been a form of ceremony. According to Wilson (2008:11), "The purpose of any ceremony is to build stronger relationships or bridge the distance between aspects of our cosmos and ourselves." This dissertation has placed me, FMIA students and volunteers, HPO staff, and the Grand Ronde community into new relationships with each other, the tribe's ancestral homelands, the practices of archaeology, historical belongings, and the people who survived and thrived on the Grand Ronde Reservation during the nineteenth and twentieth centuries. These relationships are complex: they have connected people, place, and practice in different ways and with different resonances. Yet all will prove lasting. Personally, the experience of completing this dissertation is similar to my visit to *Achaf-Hammi* in July 2016—I cannot return to a time in which in which I was not part of the web that surrounds Grand Ronde survivance stories, past and present.

Dissertation Overview

In this dissertation, I drew on cartographic, archaeological, and archival analyses to understand the lifeways of the Grand Ronde Reservation community from the founding of the reservation in 1856 into the present. I began in Chapter 1 by highlighting the importance of relationships and relational accountability in archaeological research. Conducting archaeological research means entering into new relationships with peoples, places, and practices, and it behooves scholars to approach these relationships as opportunities to transform research into products of social good.

In Chapter 2, I built on this discussion by forwarding an approach to historical inquiry rooted in the concept of survivance. I argued that if settler colonialism has pursued the political, cultural, and/or physical absence of Native peoples and if archaeologists intended to counter the legacies of these policies, then their research frameworks must privilege Native presence. Archaeologies of survivance depend, then, on grappling with the history of settler colonialism in the United States and how settler narratives and discourse inflected (and continue to inflect) archaeological research. As one example, for decades archaeologists' models of culture change have cast recent Native history as the terminus of "authentic" Native lifeways and thus as unworthy of scholarly examination. Even as indigenous and collaborative archaeologies have pushed scholars toward more nuanced analyses of colonialism as a series of long-term, dynamic encounters, conceptual models continue to present Native peoples as permanently altered by their interactions with settlers. Exceptions, such as persistence, articulation, and (in more specific contexts) ethnogenesis avoid many of these pitfalls, but they do not fully encapsulate the "sense of the struggle" inherent to Native-lived colonialisms.

Survivance charts a different path for thinking about colonial era Native experiences. As elaborated by Gerald Vizenor and others, survivance understands Native presence as a core element of communities' actions to live within and through settler colonialism. Through acts of presence, Native peoples survived and thrived despite attempted assimilation and extermination. Survivance celebrates Native continuation, presenting Native lifeways as creative, vibrant, and forward-thinking. Acts of survivance arise from a "gentle conversation" with tradition but are not always (or not only) explicit meditations on culture change. For archaeologists, examining and describing this complex mode of Native cultural production is a challenge. It is also an opportunity to tether (as much as possible) archaeological histories to the situated perspectives of those in the past. It is not enough to reconstruct the actions of a group without some sense of the motivations and meanings underlying those actions. To use Edwards and Thorsgard's words, Native history is composed of "verbs" in addition to "nouns," and the verbs of Native history may exist beyond scholars' ways of knowing and being in the world. Fully closing this cultural gap with past peoples is not possible, but it can be bridged through collaboration with descendant communities and the special knowledge they hold about their ancestors. Survivance, then, is about interpretation *and* practice. It challenges existing interpretative strategies and builds on trends within indigenous and collaborative archaeologies to see Native presence as a foundational commitment within all stages of the research process.

In Chapter 3, I outlined the development of an archaeology of survivance at Grand Ronde. I argued that operationalizing survivance within an archaeological research framework is a three-step process. The first step is winnowing the universe of possible survivance-related activities to those that emerged from the politicization of cultural practice. The second step is linking Native presence to the material remains of daily life via middle-range concepts. I identified residence and transmotion as two useful concepts with which to examine the ways the Grand Ronde community cultivated spatial and temporal self-determination with settlement patterns and foodways. The third step is working with Native communities to develop presence-based research projects, understanding that the specifics of these projects will vary by community and the time and place under consideration. With that diversity in mind, I traced the emergence of the GRLTP and FMIA, highlighting the interpersonal relationships and nuts-and-bolts of data collection inherent to each project.

The politics of land ownership and use were the focus of Chapter 4. I showed how the establishment of the Grand Ronde Reservation in the 1850s was the culmination of a decades-long effort to create a settler colony in Oregon. Dispossessive and exterminationist settler actions left Native peoples with few options but to remove to Grand Ronde. Settler colonialism's "logic of elimination" followed them there, as agents sought to supplant Native lifeways with those of settlers. This process proved easier said than done. During the second half of the nineteenth century, the reservation emerged as an arena of cultural contestation within which the community adapted pre-reservation settlement patterns (among other practices) to their new environment. The implementation of the Dawes Act provides a clear example. Extended families and historical neighbors subverted the policy's attempt to undermine Native lifeways by creating clusters of allotments that in aggregate refashioned Grand Ronde as a microcosm of pre-reservation western Oregon. This strategy later faltered as the government retooled allotment into a vehicle of dispossession and pursued deeply damaging termination policy. Nevertheless, the community persisted, securing the tribe's restoration and setting in motion cultural resurgence that continues to this day.

In Chapters 5 through 7, I turned to Grand Ronde's archaeological record. I began with the three research questions guiding fieldwork. First, what objects characterize the Grand Ronde archaeological record? With this question, fieldwork sought to expand HPO staff's knowledge of reservation deposits and the types of materials that comprised quotidian activities. This information will assist HPO staff in the protection of tribal heritage on and off reservation. This question, in other words, focused on expanding the capacity of the HPO by conducting fieldwork on properties and periods of interest to the community. The second and third questions—did household interiors foster residence and what foods comprised Grand Ronde diets—addressed gaps in the reservation's archival record. The GRLTP showed that settlement location and organization held cultural salience in resisting assimilationist policies. Fieldwork explored whether similar practices occurred within reservation homes; that is, whether the construction of interior hearths and/or sub-floor storage areas also cultivated a sense of spatial belonging and continuation. Finally, while food practices have received significant attention in archaeologies of colonialism, scholars generally understand plants and animals as constituent elements of socially meaningful practice rather than nonhuman communities. For Grand Ronde, hunting, gathering, and fishing was as much about food as it was about maintaining links to storied homelands and the nonhumans that inhabit them. These actions were about travel and relationality. Fieldwork explored which plants and animals made up reservation diets and what this reveals about community attempts to foster spatial and temporal self-determination.

I then summarized FMIA's fieldwork at the Umpqua and Molalla Encampments, with an emphasis on the implementation of the low-impact methodology I presented in Chapter 3. Field teams identified material deposits at both sites, though in differing quantities. Few artifacts were recovered at the Umpqua Encampment. The site contains evidence of Native presence but few lasting, material expressions of survivance with which to answer fieldwork's guiding questions. Similarly, at the Molalla Encampment the absence of articulated construction elements and household features left me unable to comment on the interior of reservation dwellings. It is thus unclear at this time whether home organization, in addition to location, constituted acts of residence. And while few faunal remains were identified at the site, the presence of traditional plant foods (and non-local obsidian) speaks to tribal members' travel and relationship building on and off the reservation. These practices were acts of transmotion whereby Native peoples inhabited spatial and temporal frames separate to and predating those imposed by settler colonialism.

SURVIVANCE AND ARCHAEOLOGICAL FUTURES

In developing an archaeology of survivance, the overarching goal of this dissertation has been to enhance the capacity of the Grand Ronde Historic Preservation Office to identify and celebrate tribal heritage on its own terms. This position comes with several implications for archaeology as a discipline.

For archaeologies of colonialism, growing use of holistic, diachronic, and multi-scalar research methodologies represents concrete progress for understanding Native-lived colonialisms across time and space. Even so, traces of acculturationist thinking persists, as evidenced by scholars continuing emphasis on the decades immediately following contact. Archaeologists must be cognizant of the temporal frames they employ. They must consider the centuries and/or millennia of experiences that inform Native traditions at a given time and place *as well as* how those actions laid a foundation for their descendants. Within a survivance-based approach, settler colonialism must be understood as a structure, not an event, with legacies that continue to impact Native communities. Research on nineteenth and twentieth century Native histories are primed to make these connections between settler colonialism past and present. They also hold potential for fully tracing settler colonialism's local expressions and Native strategies of resistance, refusal, and adaptation (Gonzalez and Lightfoot 2018a:8).

Moreover, by developing archaeologies of survivance, archaeologists build transdisciplinary bridges with Indigenous Studies. Archaeologists' increasingly identify survivance as an antidote to the issues within existing interpretive models (e.g. Beaudoin 2017; Rubertone 2017; Silliman 2014), but without engaging the term's intellectual foundation (by Vizenor and others), they will fail to realize its full potential. Beyond survivance, Indigenous Studies houses a substantial corpus on the legacies of external and settler colonialism within Native societies. These studies extend the purview of Native experiences beyond archaeology to non-material practices, knowledge systems, and contemporary politics. Closing the distance between archaeology and Indigenous Studies will lead to more insightful discussions of settler colonialism, Native histories, and what scholars' roles can and should be in research on Native lands and heritage.

Critically, archaeologies of survivance (and engagement with Indigenous Studies generally) restructure scholarly interpretation and practice. This dissertation contributes to discussions about the on-the-ground details of project development, collaboration, fieldwork, and results dissemination so often missing in archaeological reports and publications (Gonzalez et al. 2018; Silliman 2018). As a result of archaeology's exclusionary history, the actions and values needed to develop collaborative, Native presence-centered research projects are not standard parts of archaeological curricula, graduate programs, or institutional structures. To encourage additional collaborative research within the discipline, scholars working with, by, and for Native communities must be prepared to publish and otherwise discuss the relationships that made their work possible.

My discussion of scholarly practice included an overview of the Grand Ronde HPO, in addition to the development of the GRLTP and FMIA. The HPO's holistic understanding of tribal heritage not only contextualizes the work of the GRLTP and FMIA, it exemplifies the inventive and often transformative work of Tribal Historic Preservation Offices. While the literature on indigenous and collaborative archaeologies focuses primarily on academic projects, the number of these projects pales in comparison to the hundreds of undertakings THPOs participate in each year. Despite a host of capacity related challenges, THPOs have forwarded community-specific archaeologies that reimagine key elements of archaeological practice (e.g. Backhouse et al. 2017; Edwards and Thorsgard 2012; Hunn et al. 2015; Kuwanwisiwma et al. 2018; Thompson 2011). These archaeologies are themselves survivance stories, examples of Native communities creatively repurposing a settler colonial practice for the benefit and continuation of their people and nations. For non-Indigenous scholars reflecting on archaeology's potential as a source of social good (e.g. Atalay et al. 2014), THPOs can and must be part of this conversation. Development projects impact Native heritage on a scale vastly exceeding that of academic research; THPOs are on the front lines in protecting Native heritage (and the archaeological record) and, at the same time, creating communities invested in Native presence.

The work of the Grand Ronde Historic Preservation Office offers is a fitting example. As part of "meaningful consultation," HPO staff build relationships with their agency partners, relationships that live beyond individual projects and foster trust, respect, and cooperation. These relationships facilitate the creation of creative mitigation solutions such as the sculpture and public display in the Lake Oswego-Tigard Water Partnership. In their work, the HPO disputes boundaries between cultural and natural resources, tangible and intangible heritage, prehistory and history. Staff challenge the archaeocentric nature of the historic preservation industry, offering an approach that cuts closer to the original intent of historic preservation legislation: valuing the relationships through which people understand places and objects as heritage (King 2003).

Finally, survivance's emphasis on emerging theories of settler colonialism (e.g. Veracini 2011, 2014) are particularly relevant to Oregon and the Pacific Northwest. The region holds a unique place in US history. During the first half of the nineteenth century, Oregon territory, which originally encompassed the entire Pacific Northwest, was a canvas upon which the nation projected numerous aspirations. Oregon was a laboratory for exploration and scientific study, a source of economic opportunity, a stage for proselytization, a rallying cry for the nation's manifest destiny of coast-to-coast territorial control, and a proving ground for policies such as reservations. This constellation of ideas came together to form a settler colony, one in which the removal and/or extermination of Native peoples was a given. Research on the material expressions of this history, especially Native peoples' moves within and beyond settler colonialism, will complement existing historical and anthropological studies and together advance scholarly understanding not only of a critical moment in US history, but one that remains near the surface in the region's contemporary politics and historical narratives (e.g. Lewis 2014).

Enduring Grand Ronde Presence

In this dissertation's introduction, I discussed recent efforts by the Grand Ronde community to reaffirm ties with salmon and Willamette Falls. Joining the community in celebrating the establishment of the ceremonial fishery at the falls demonstrated the power of relationship building as a strategy for continuation. Just as the historical Grand Ronde community acted with purpose and

Figure 9.1 Grand Ronde fishers on the tribe's ceremonial fishing platform at Willamette Falls, October 2018 (The Confederated Tribes of Grand Ronde 2018).

resilience in passing down information and ties to the falls, the contemporary community is laying the foundation for future relationships and opportunities for people within and beyond the tribe.

For me, the evening proved instrumental in thinking through how archaeologists can and should act as listeners in learning about Native history. For the tribe, their efforts at Willamette Falls continue to bear fruit. In the fall of 2018, the tribe received approval to build a temporary fishing platform at the falls (Figure 9.1). From the platform, tribal fishers will be able to harvest salmon at culturally appropriate times of year rather than from exposed rocks late in the season. At a celebration commemorating the construction of the platform, Tribal Council Secretary Jon George said: "What a beautiful day this is. To be able to stand there, look across the river and see that beautiful site, everything that led up to this and everything that was against us, I think of how proud our ancestors would be now" (Frost 2018). Tribal Council member Steve Bobb Sr. added: "To be able to have this today for future generations, to fish in the spirit of our ancestors, is pretty cool" (Frost 2018). For Grand Ronde, relationship building between people, place, practice, and nonhuman communities is inspired by the survivance of past generations and secures tribal continuation.

This dissertation focused on a small period in the millennia-long history of western Oregon's Native peoples. As it concludes, it is my hope that the ties between belongings, people, and places it created not only prove lasting but create opportunities for future generations of tribal members to come to know their history in ways they recognize as meaningful and valuable. It is my hope that this project contributes to the cultural resurgence and thriving of the Confederated Tribes of Grand Ronde and the composition of new survivance stories. And it is my hope that this dissertation, itself a product of hundreds of hours of effort and commitment by students, scholars, tribal members, and HPO staff, inspires you to reflect on your relationships with Native lands, heritage, and peoples—and to ensure that the stories you help tell are themselves stories of Native presence.

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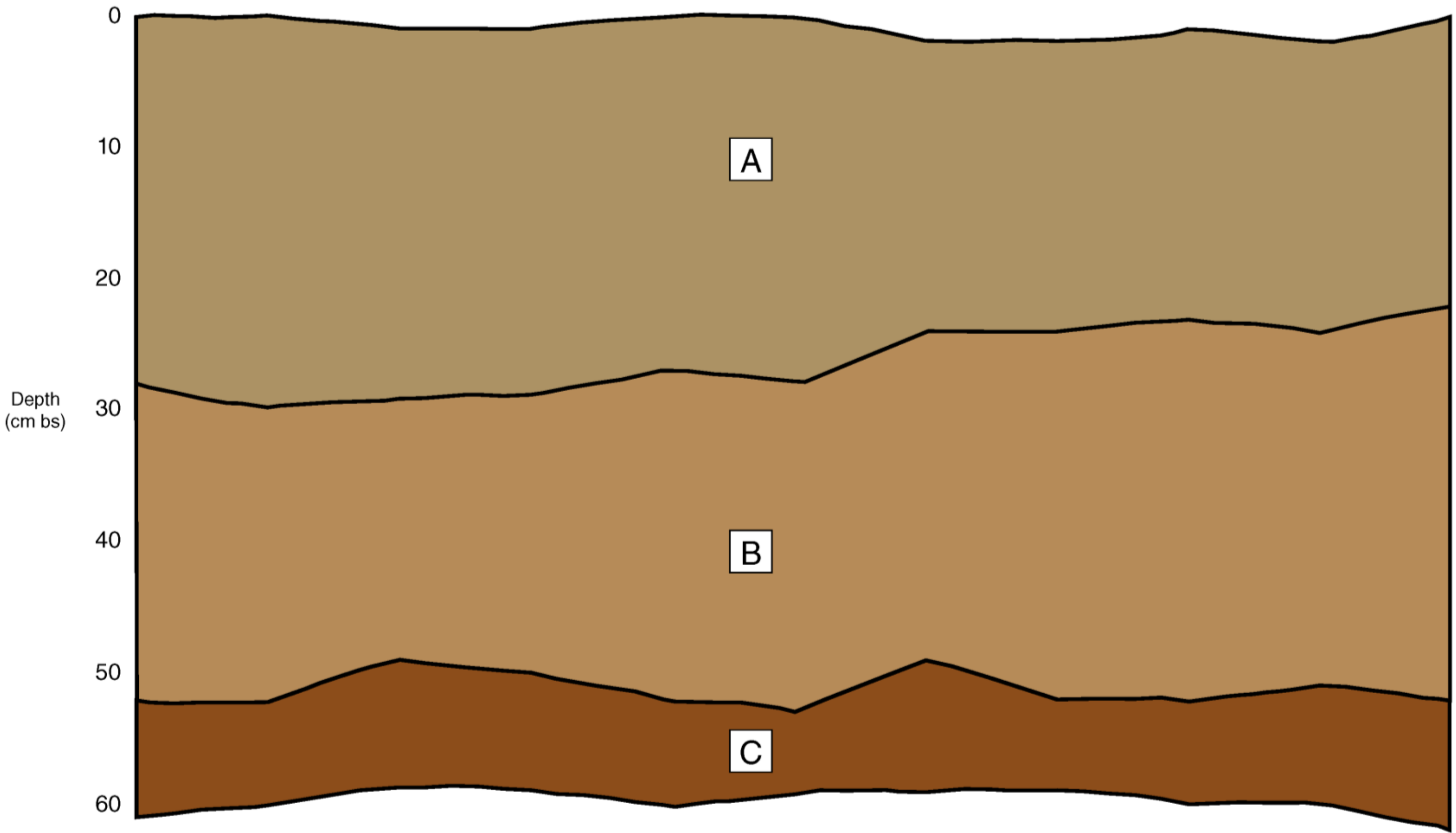
APPENDIX A:

EXCAVATION UNIT
STRATIGRAPHIC PROFILES

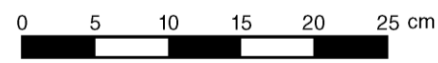
FD Unit 03: North Wall



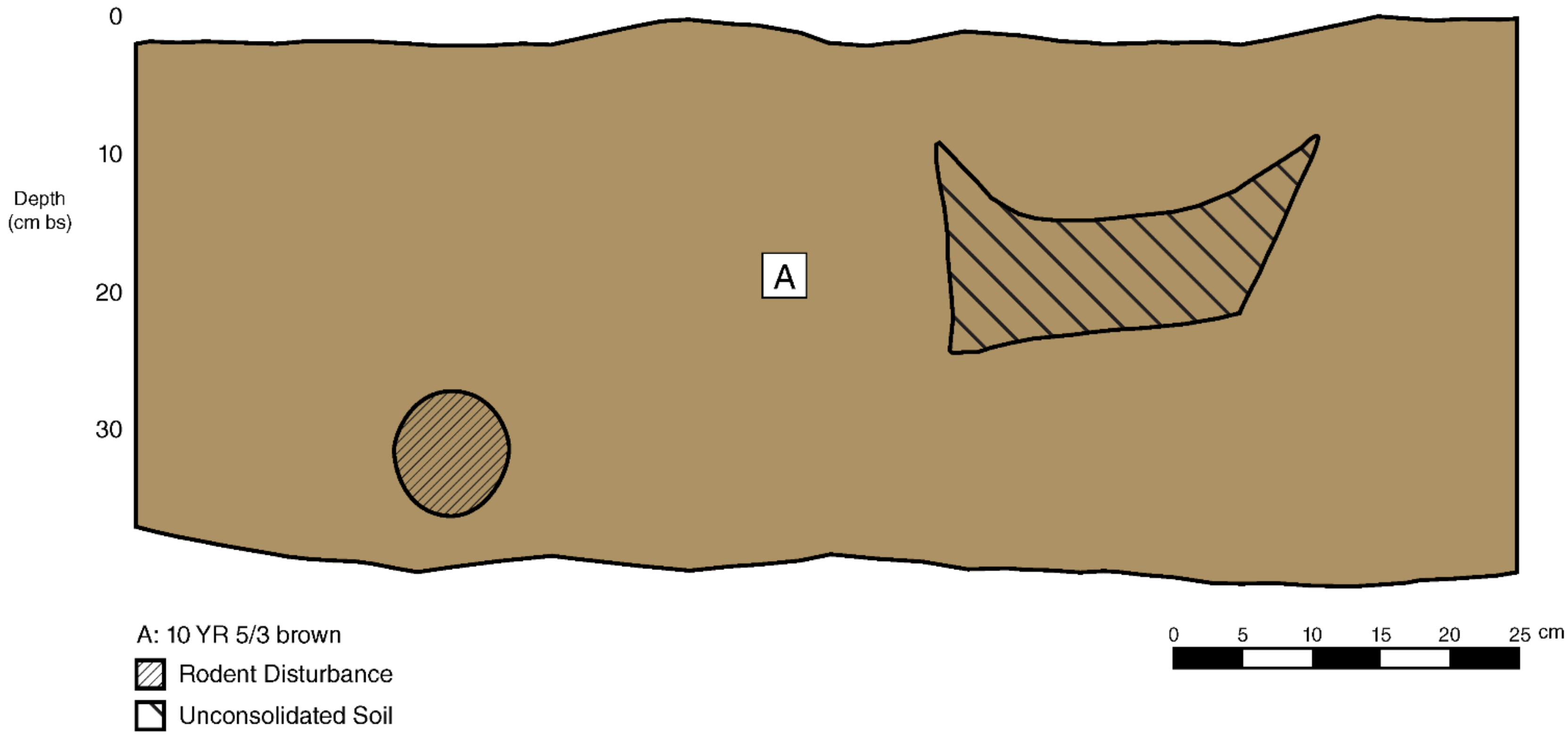
A: 10 YR 5/3 brown

B: 10 YR 5/4 yellowish brown

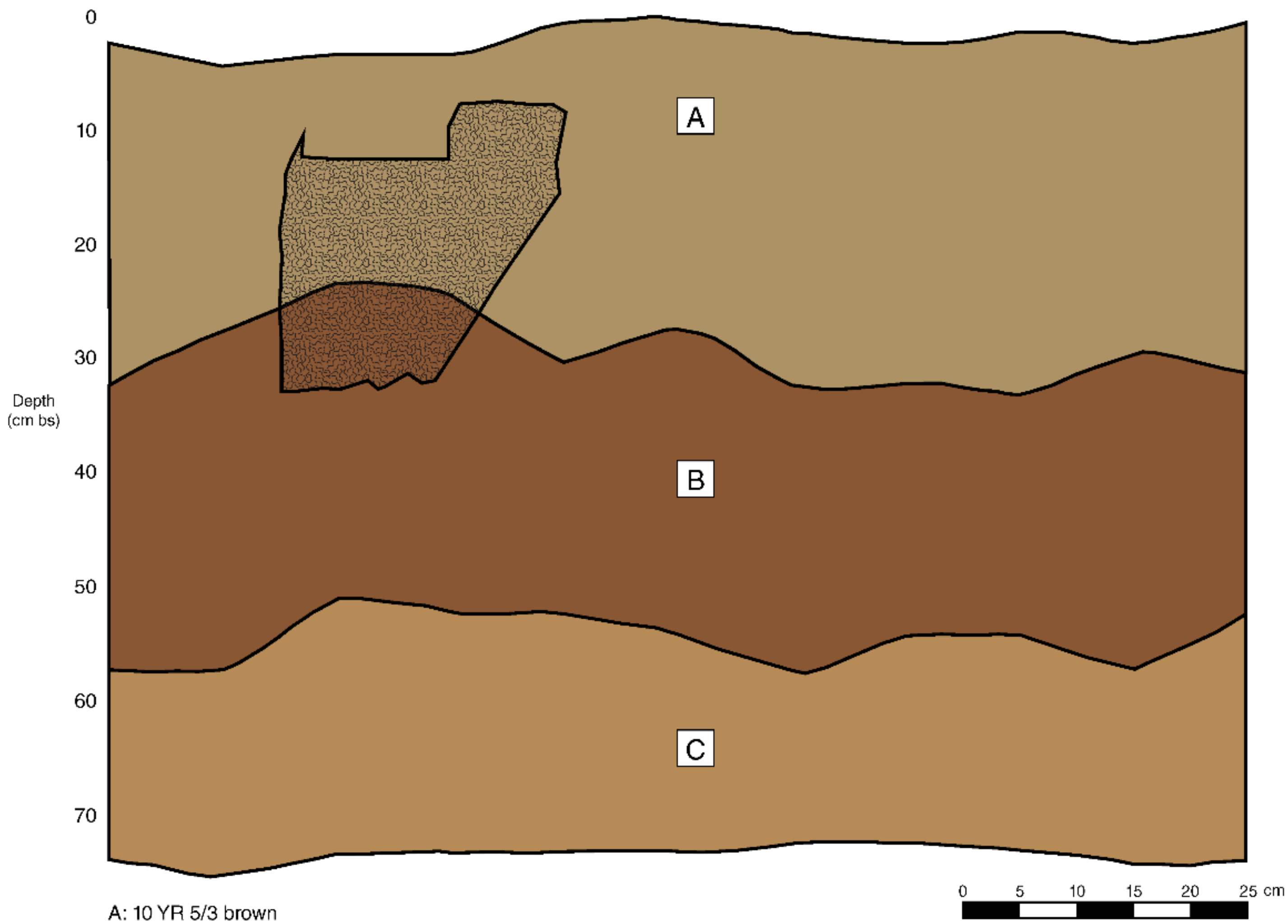
C: 10 YR 4/4 dark yellowish brown



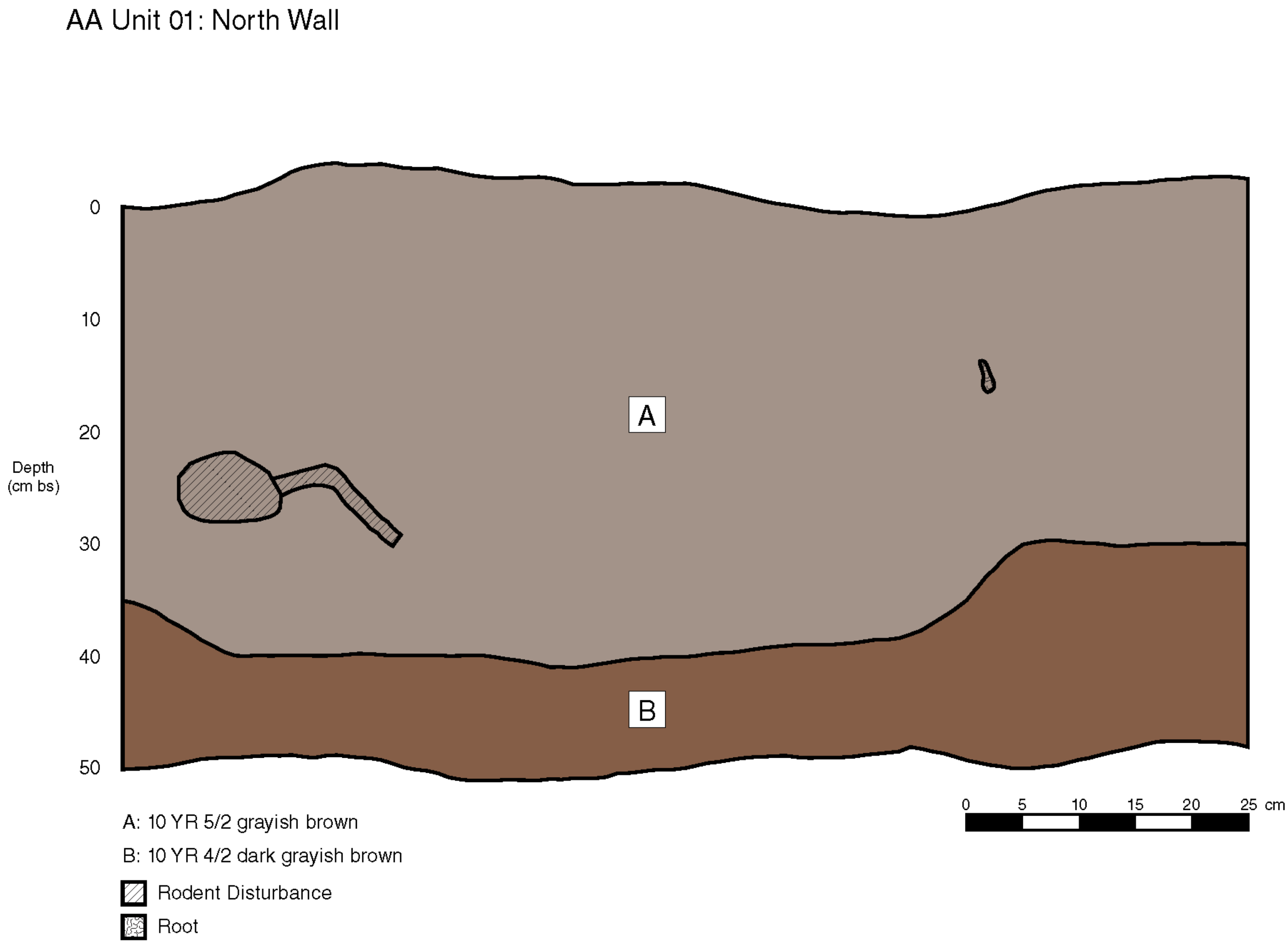
FD Unit 04: North Wall



FD Unit 05: North Wall

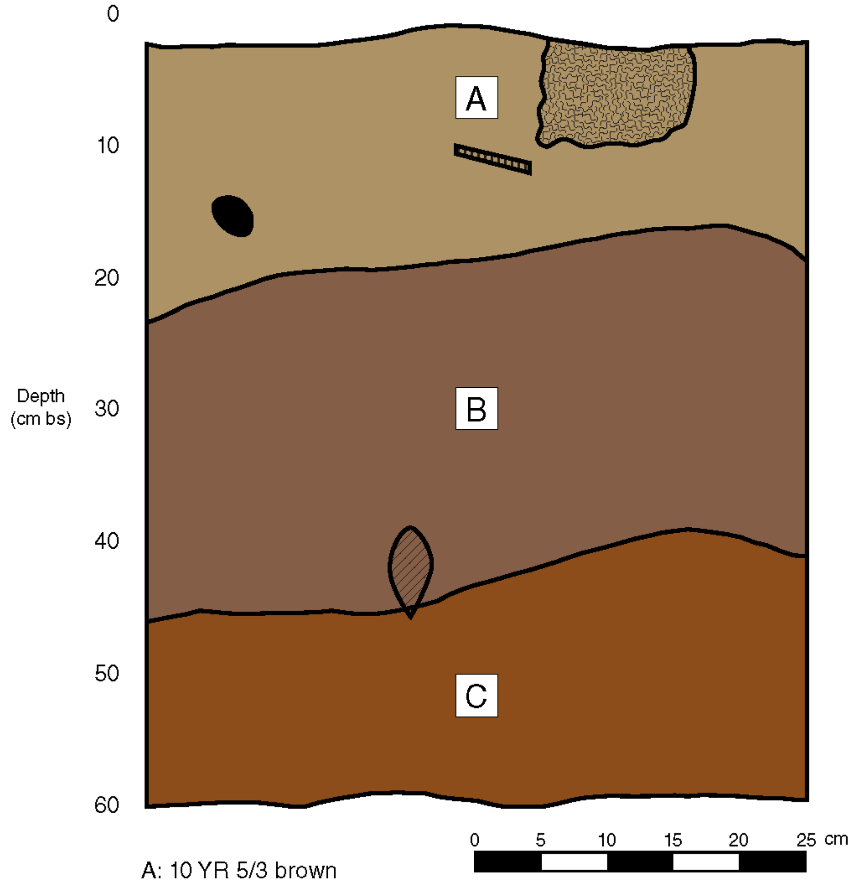


A: 10 YR 5/3 brown
B: 10 YR 4/3 brown
C: 10 YR 5/4 yellowish brown
Root Disturbance



AA Unit 01: North Wall
Depth
(cm bs)
0
10
20
30
40
50
A
B
0
5
10
15
20
25
cm
A: 10 YR 5/2 grayish brown
B: 10 YR 4/2 dark grayish brown
Rodent Disturbance
Root

AA Unit 02: West Wall



A: 10 YR 5/3 brown

B: 10 YR 4/2 dark grayish brown

C: 10 YR 4/4 dark yellowish brown

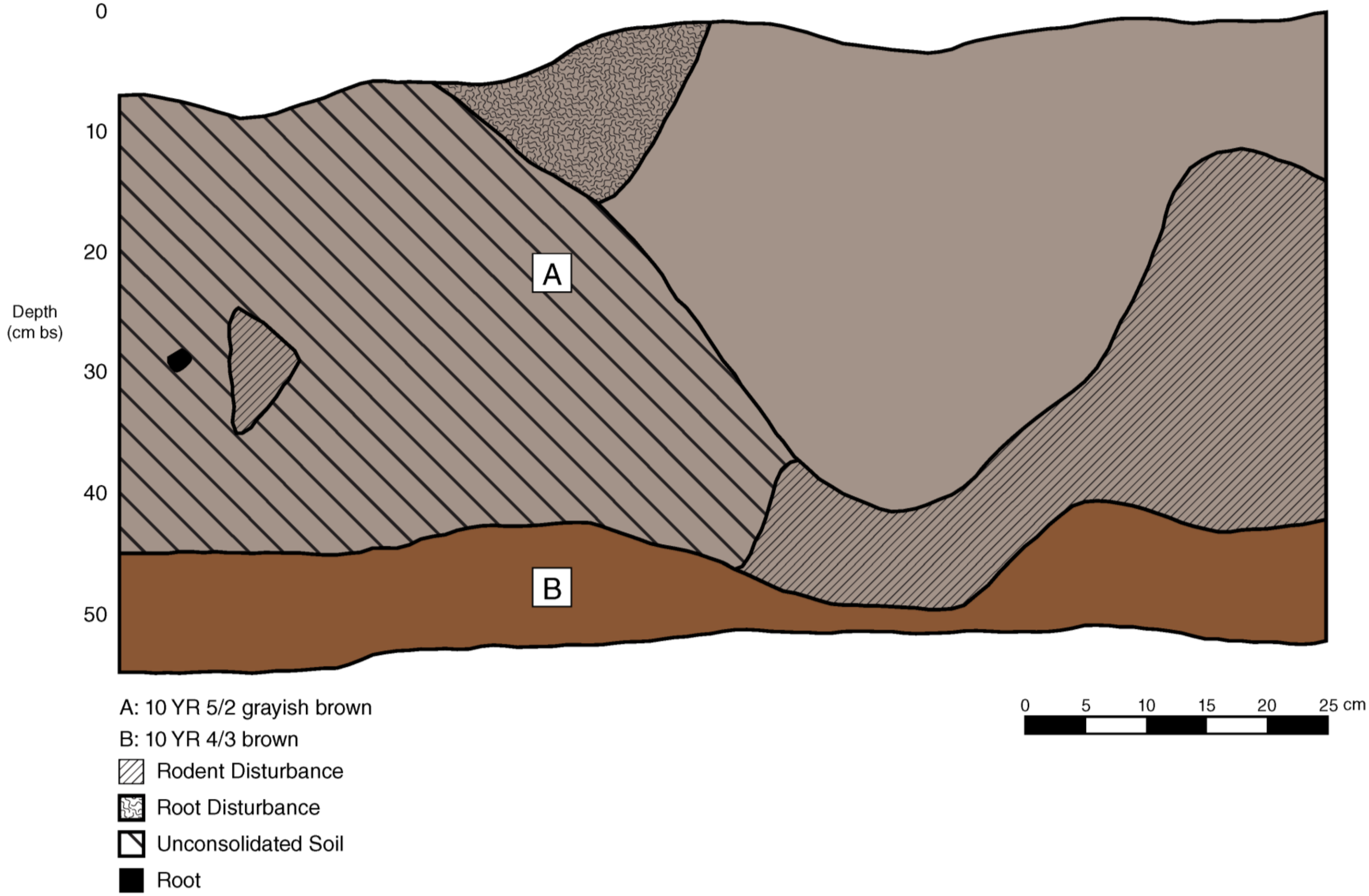
Rodent Disturbance

Nail

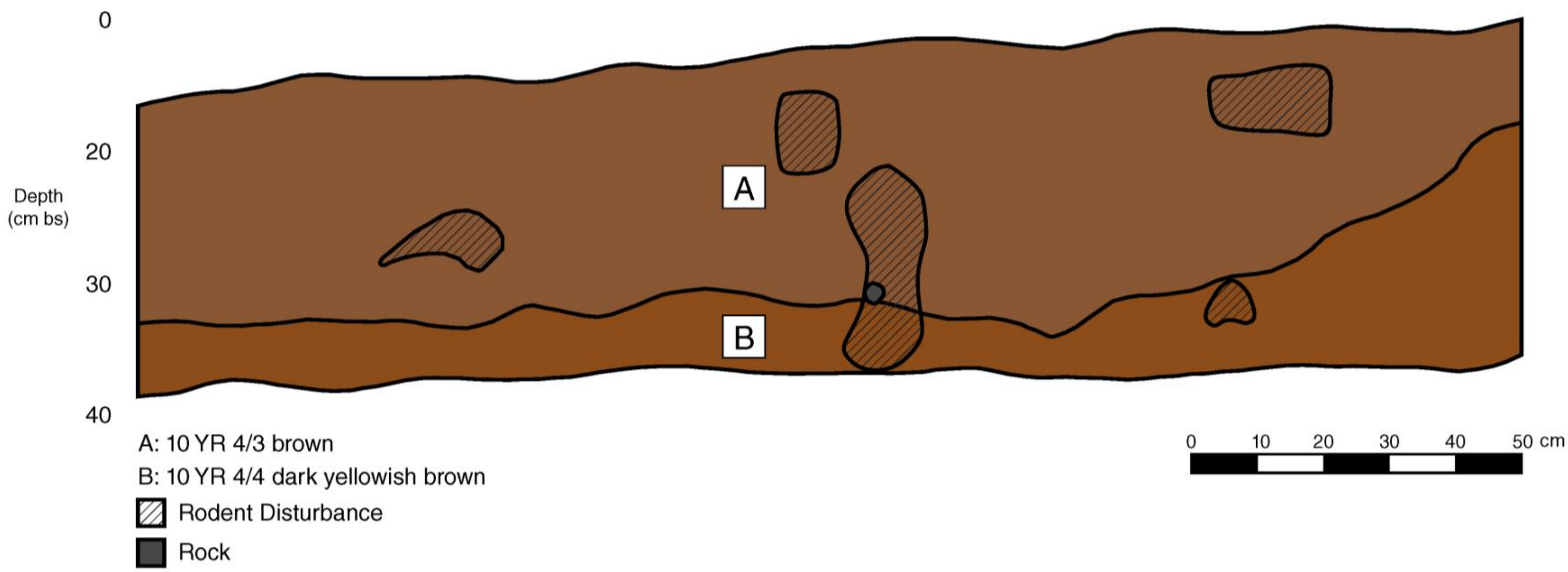
Root Disturbance

Cage

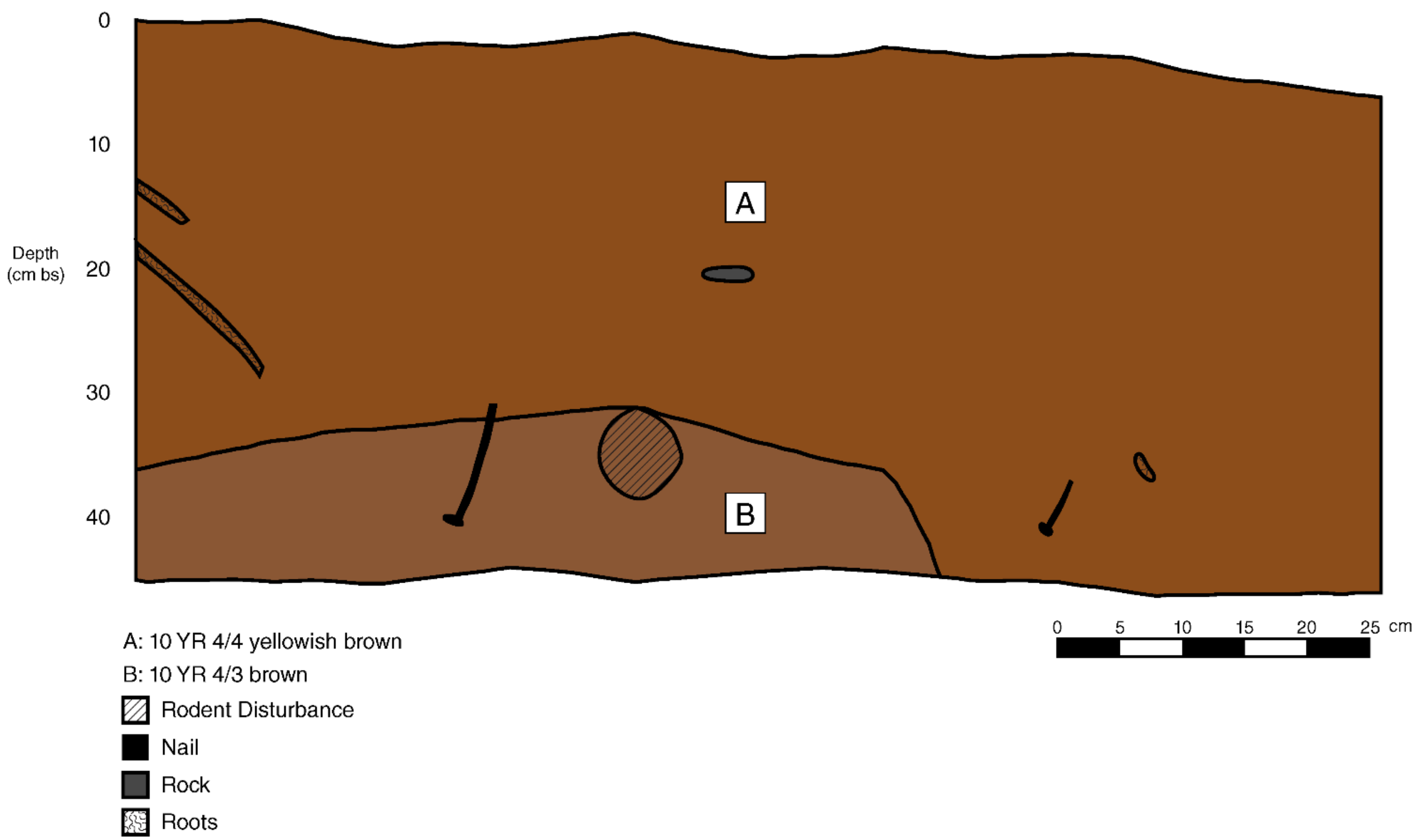
AA Unit 03: North Wall



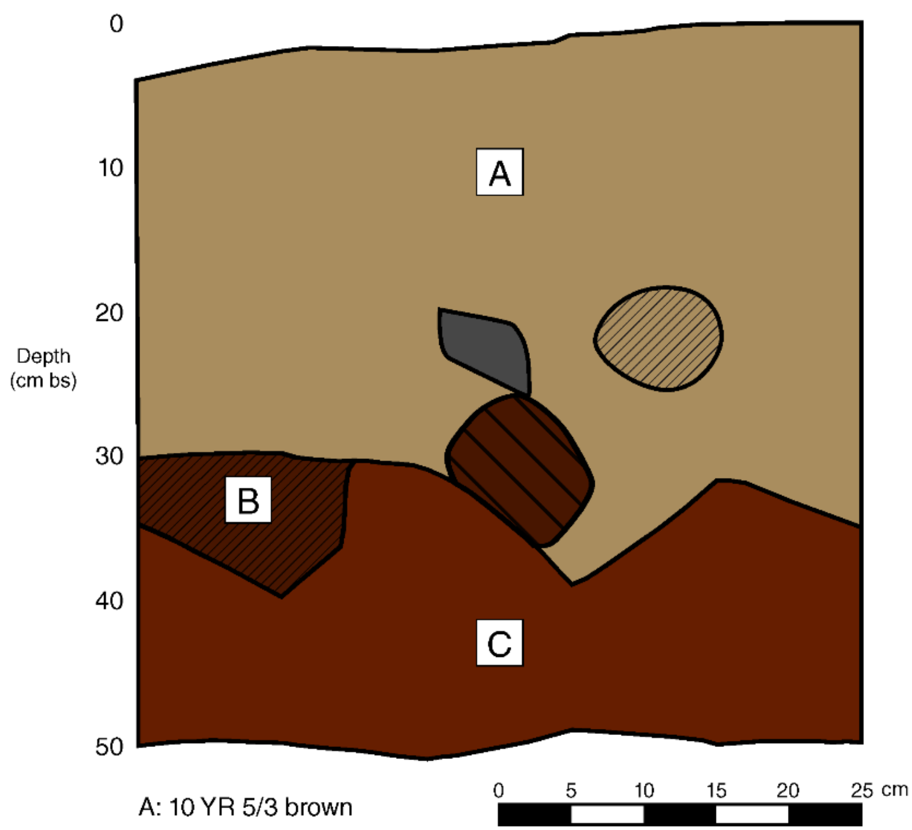
AA Units 04 and 07: North Wall



AA Unit 05: South Wall



AA Unit 06: North Wall



A: 10 YR 5/3 brown

B: 10 YR 3/3 dark brown

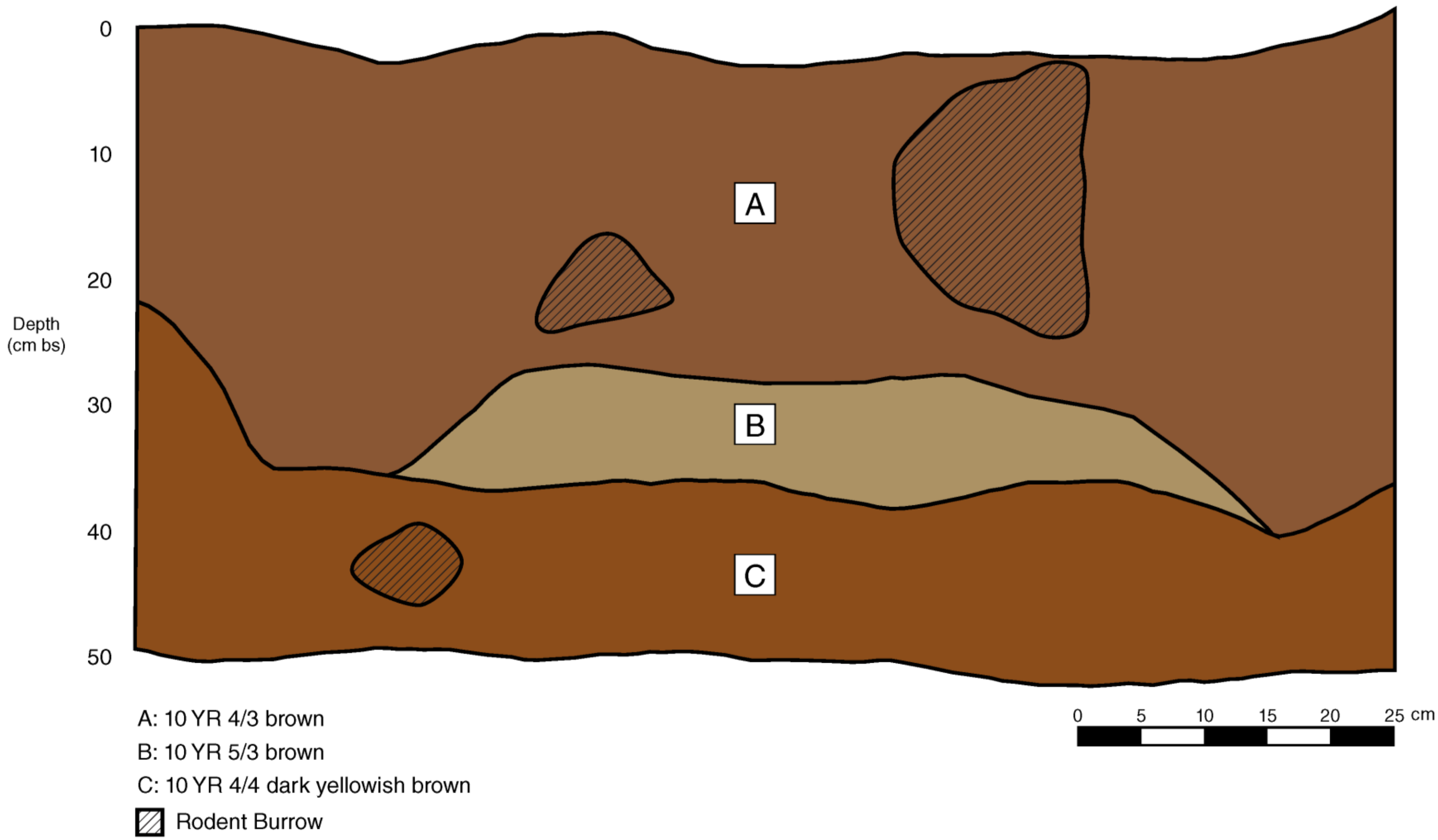
C: 10 YR 3/4 dark yellowish brown

Rodent Disturbance

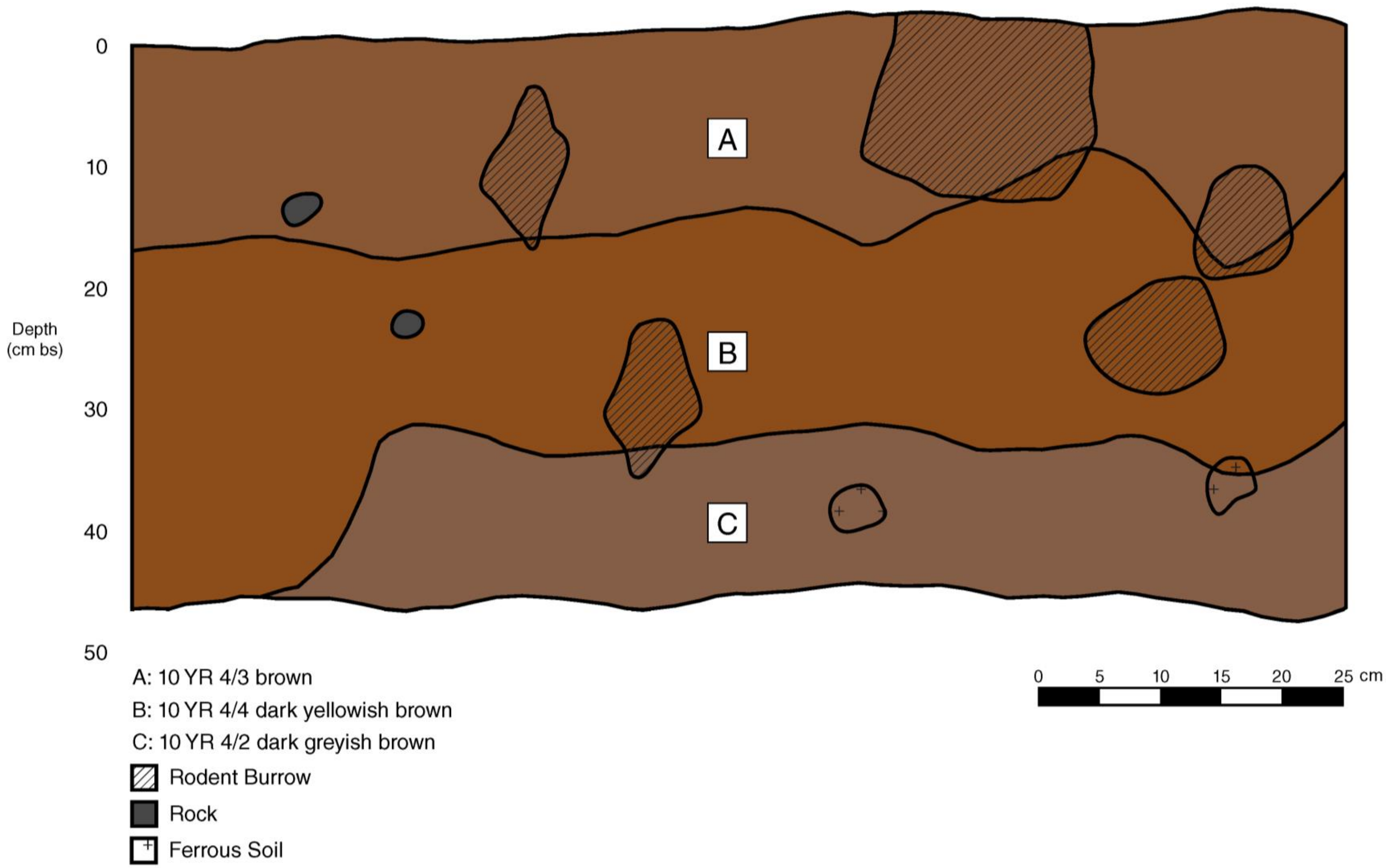
Unconsolidated Soil

Rock

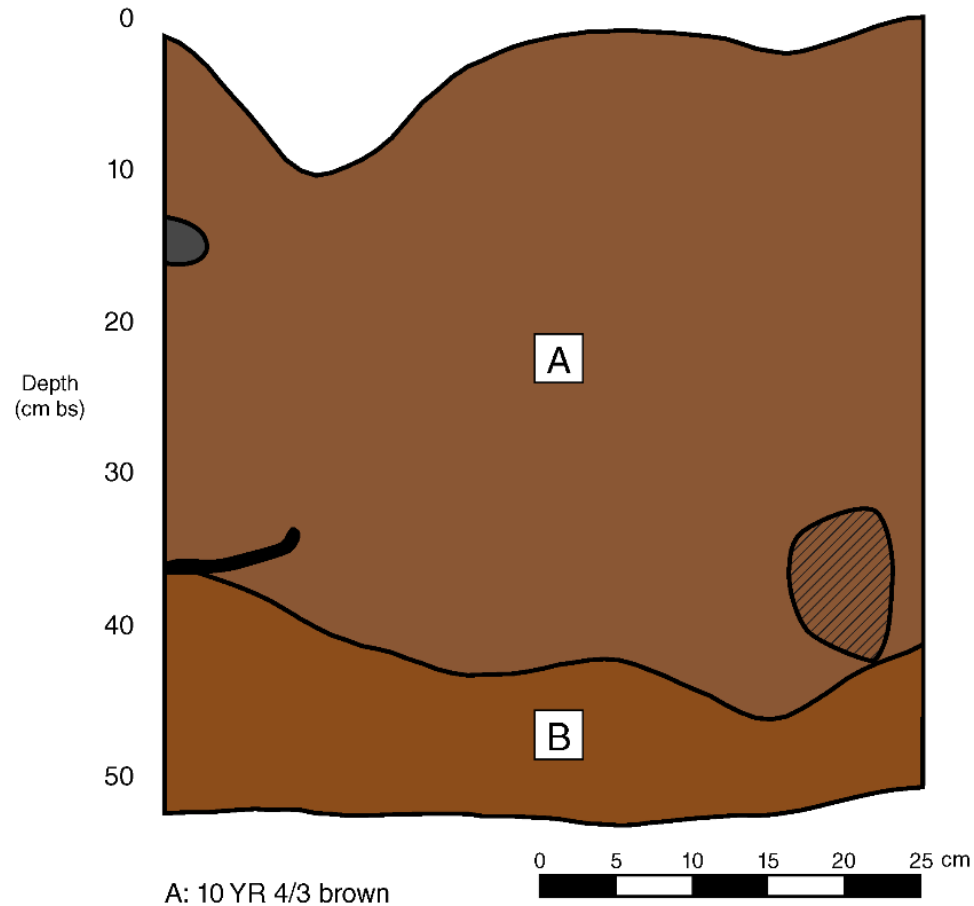
AA Unit 07: East Wall



AA Unit 08: North Wall



AA Unit 09: West Wall



A: 10 YR 4/3 brown

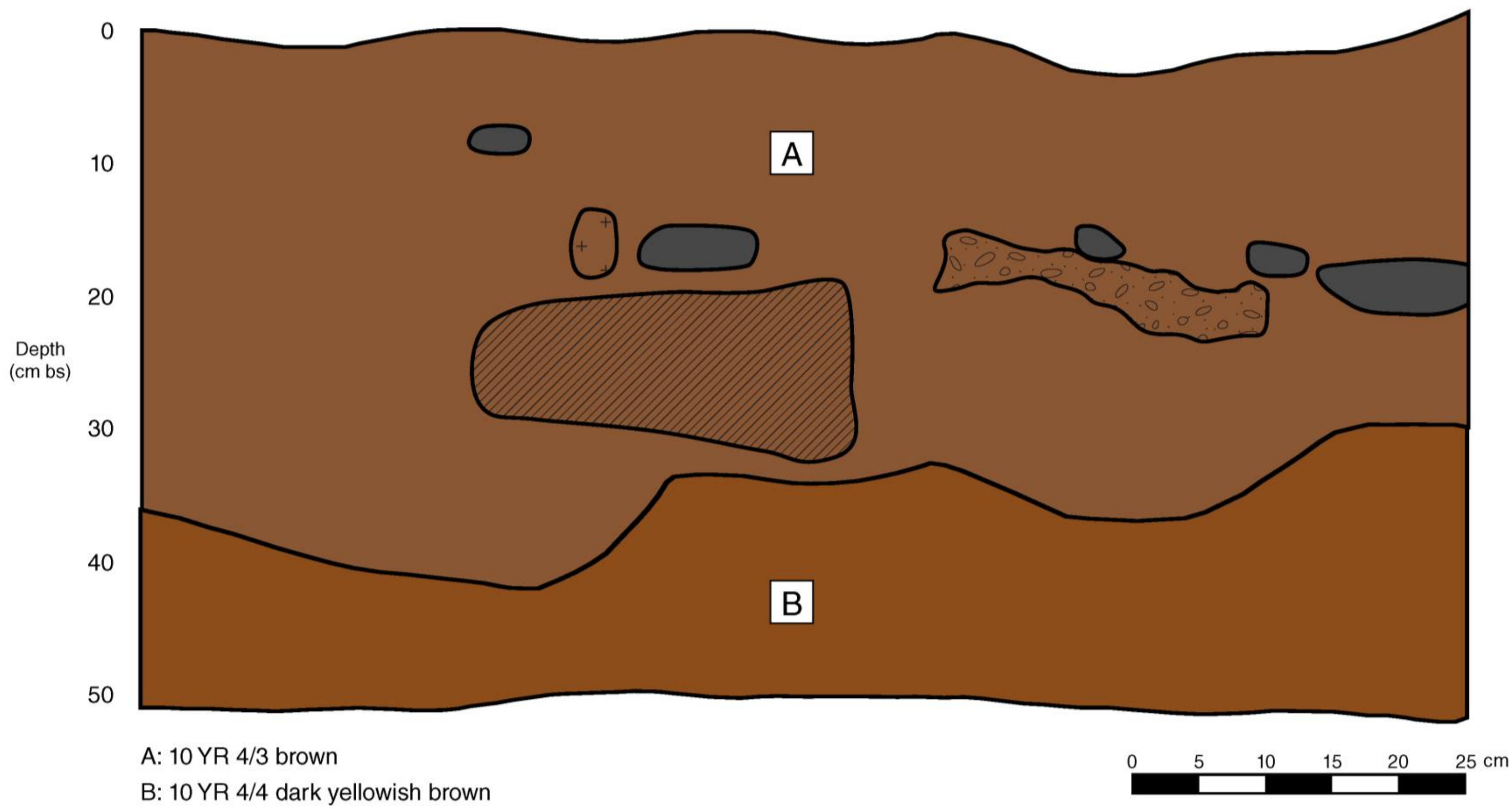
B: 10 YR 4/4 dark yellowish brown

Rodent Burrow

Rock

Paper

AA Unit 10: East Wall



A: 10 YR 4/3 brown

B: 10 YR 4/4 dark yellowish brown

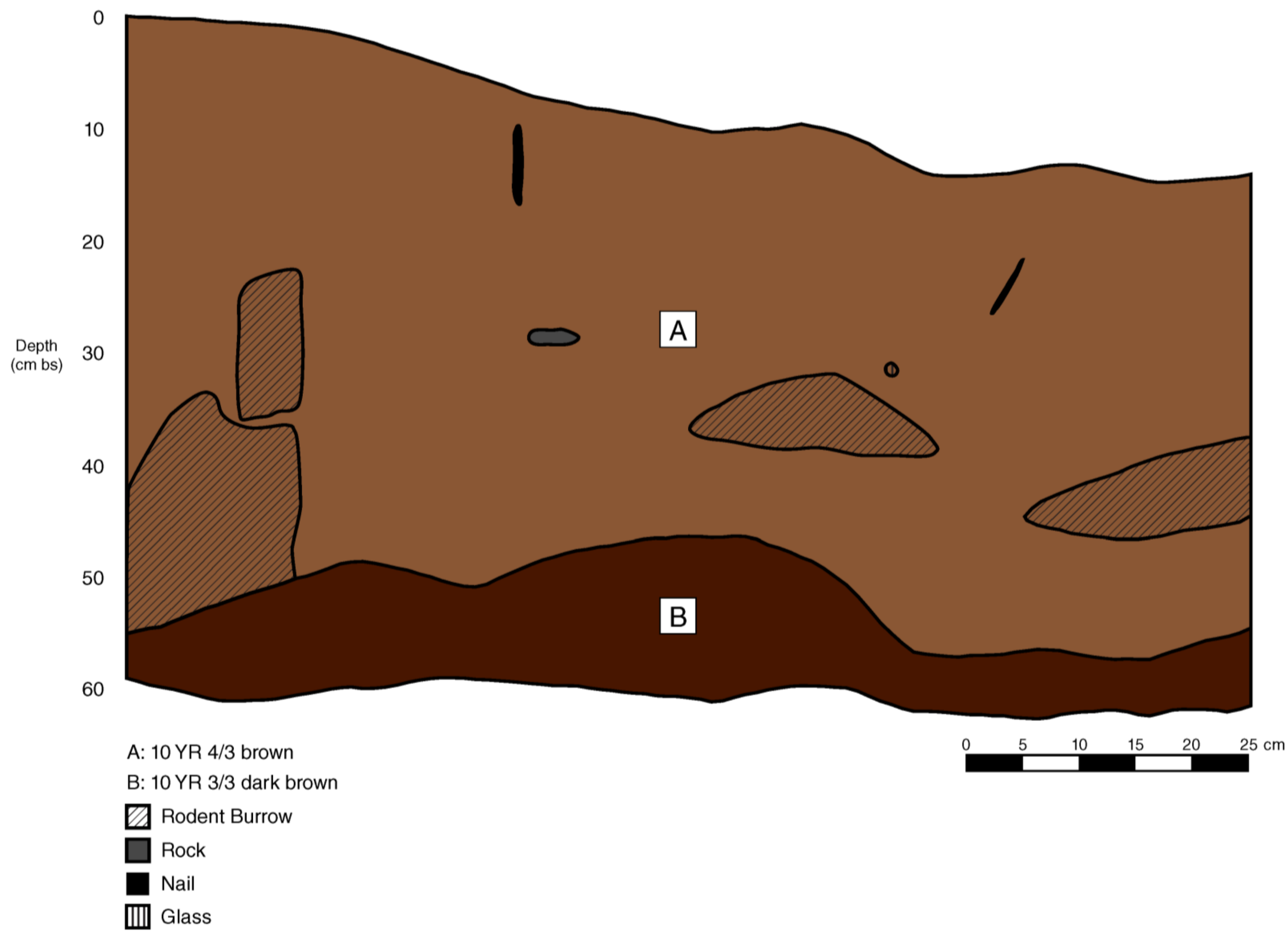
Rodent Burrow

Rock

Ferrous Soil

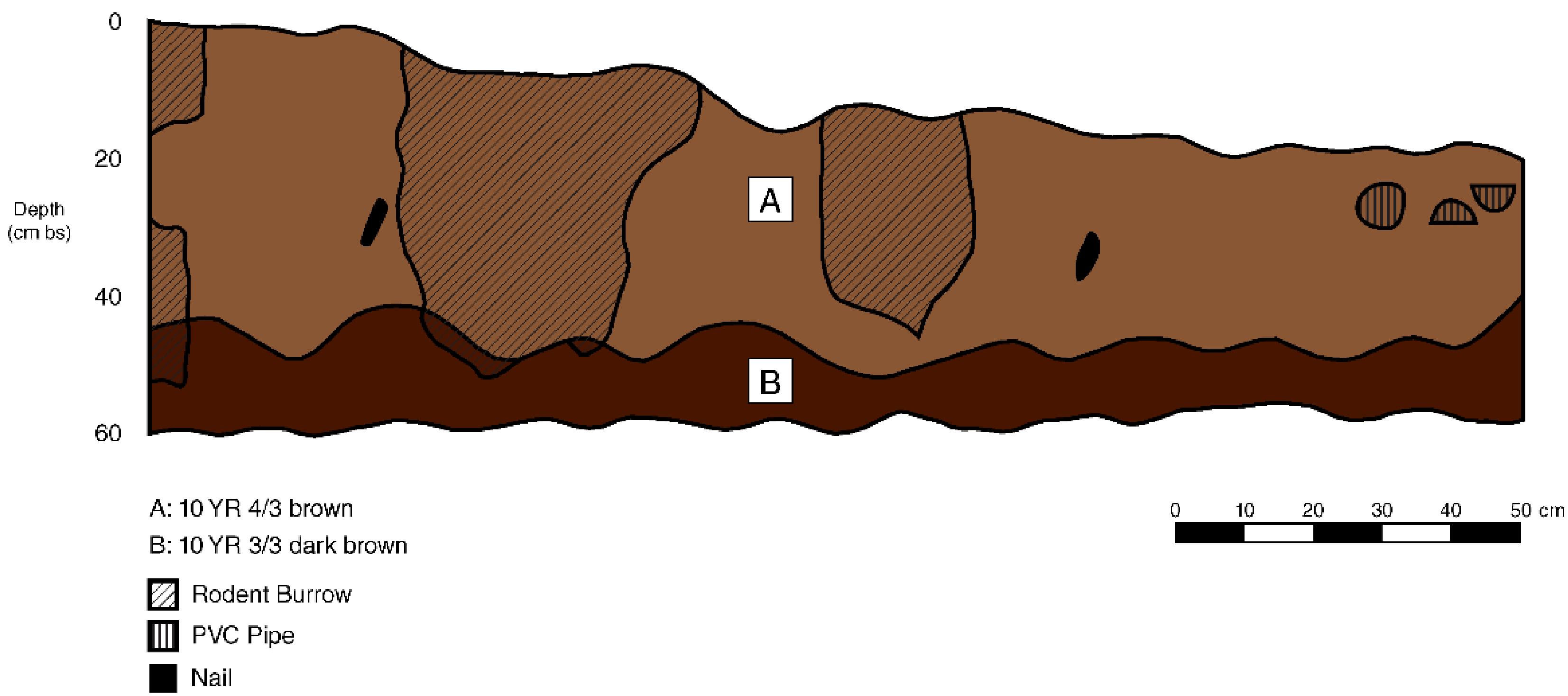
Rock Matrix

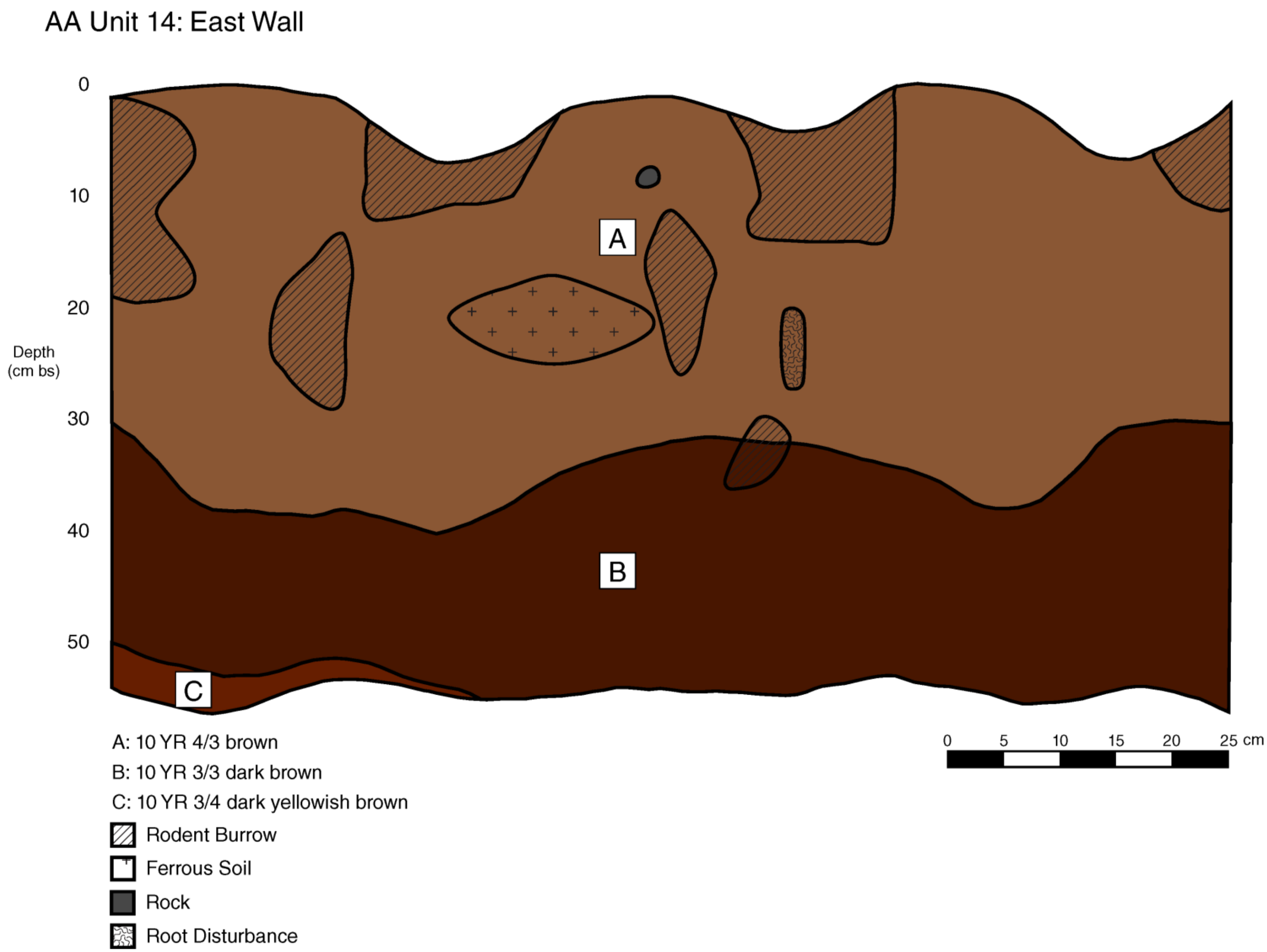
AA Unit 11: East Wall



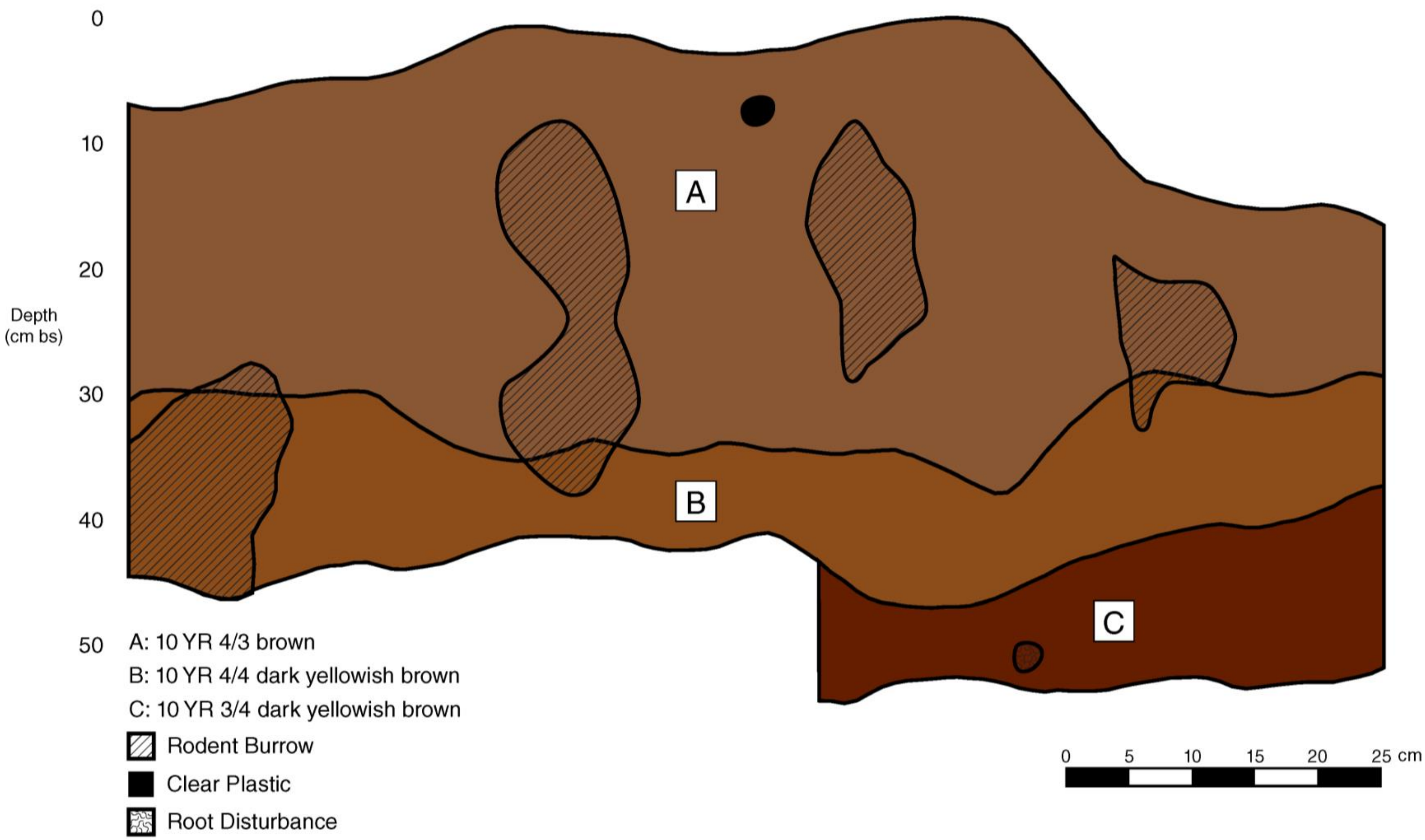
AA Unit 12 and 13: East Wall

AA Unit 12 and 13: West Wall

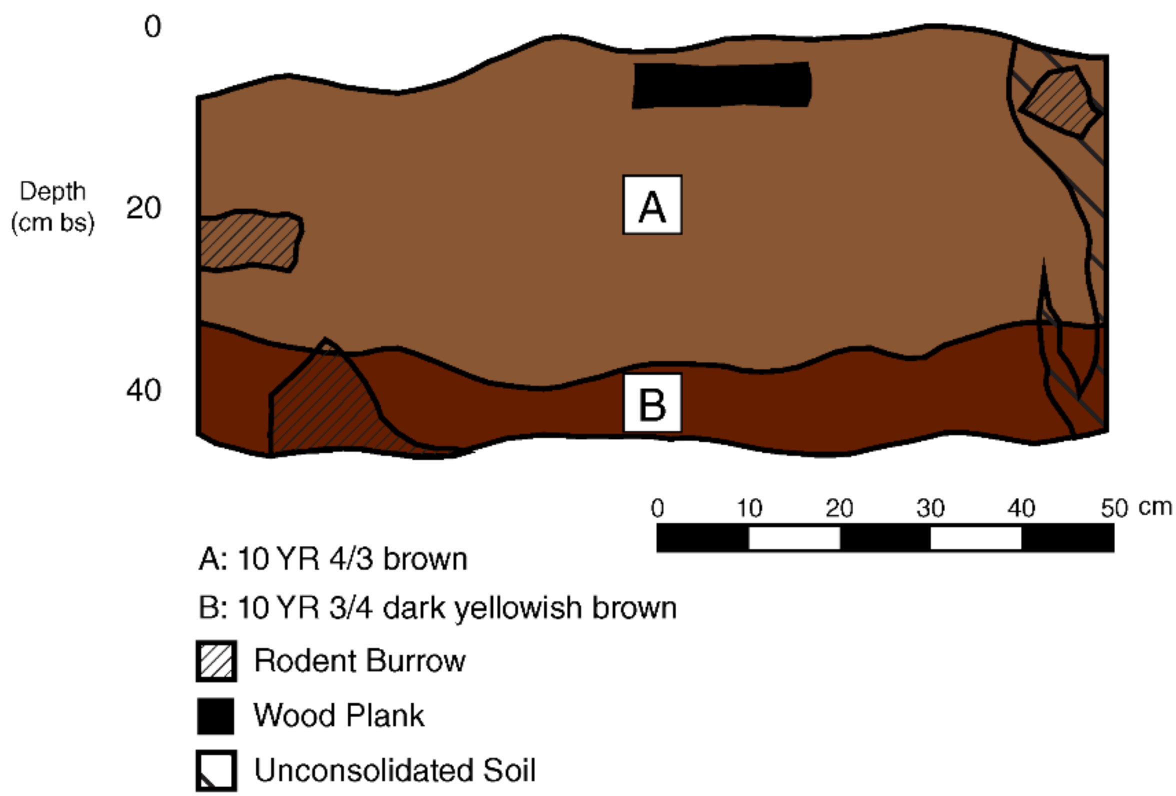



AA Unit 14: East Wall
0
10
20
30
40
50
Depth
(cm bs)
A
B
C
A: 10 YR 4/3 brown
B: 10 YR 3/3 dark brown
C: 10 YR 3/4 dark yellowish brown
Rodent Burrow
Ferrous Soil
Rock
Root Disturbance
0
5
10
15
20
25 cm

AA Unit 14: North Wall

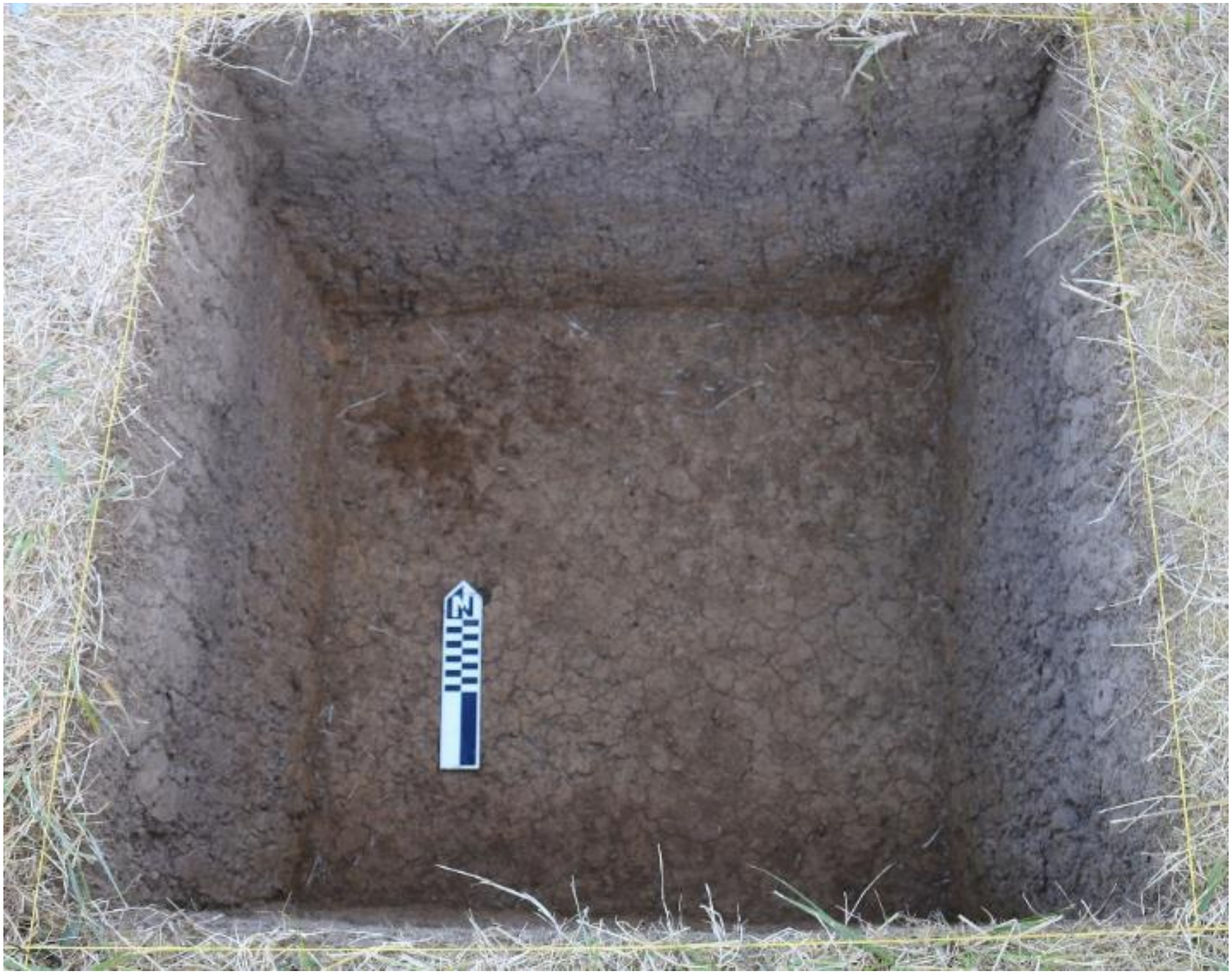


AA Unit 15: East Wall



APPENDIX B:

EXCAVATION UNIT PHOTOS



AB.1 FD Unit 03.

AB.2 FD Unit 04.

AB.3 FD AA Unit 05.

AB.4 AA Unit 01.

AB.5 AA Unit 02.

AB.6 AA Unit 03.

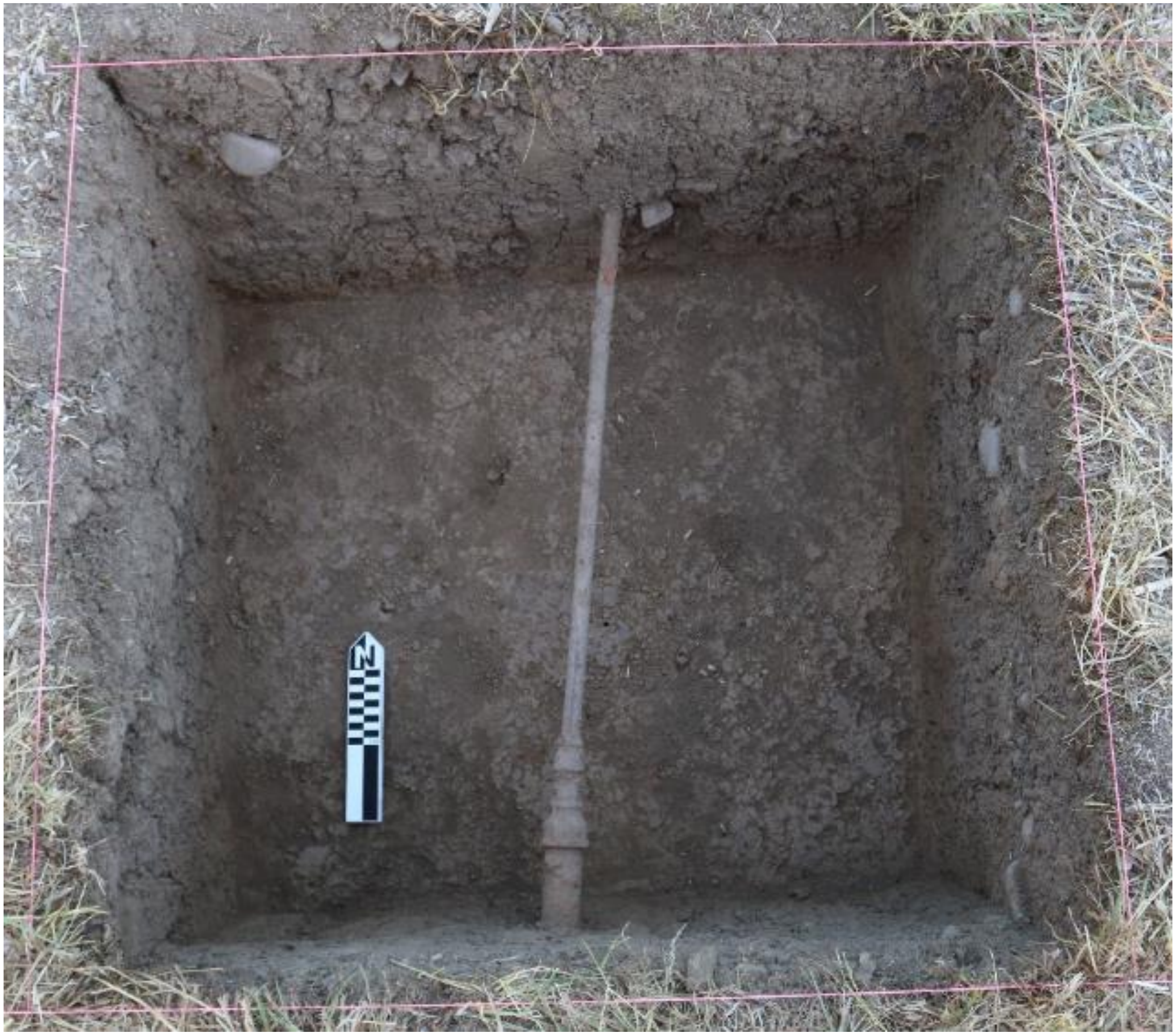
AB.7 AA Unit 04.

AB.8 AA Unit 05.

AB.9 AA Unit 06.

AB.10 AA Unit 07.

AB.11 AA Unit 08.



AB.12 AA Unit 10.

AB.13 AA Unit 11.

AB.14 AA Unit 12.


AB.15 AA Unit 13.

AB.16 AA Unit 14, level 6.

AB.17 AA Unit 14, level 6.

AB.18 AA Unit 15.

APPENDIX C:

ARTIFACT CODES

Basic Group: Lithics (LI)
Material Category:

LF = lithic, flaked stone

Artifact Class:

CORE: CO = core; CF = core fragment

SHATTER: SH

FLAKE: CP = Complete Flake, PX = Proximal Flake, FF = Flake Fragment

FORMAL TOOLS: PF = Projectile Point Fragment

LG = lithic, ground stone

Artifact Class:

BC = Battered cobble

LO = lithic, other

Artifact Class:

FCR = Fire Cracked Rock

OT = Other (can't place into specific lithic artifact class)

Raw Material Species:

BA = Basalt

CCS = Cryptocrystalline Silicate

OB = Obsidian

Basic Group: Faunal Remains (FA)
Material Categories:

MA = Mammal

MO = Mollusk

OT = Other

Basic Group: Ethnobotanical Materials (EB)
Material Categories:

WO = Sawn Wood

CH = Charcoal

SE = Seeds

Basic Group: Other Materials (OT)
Material Categories:

OT = Other / Unidentifiable

Basic Groups: European-American Artifacts (EA)
Material Categories:

- HC = Historical Ceramics
  - Artifact Class:
    - VS = Vessel
    - UT = Utilitarian
    - OT = Other
      - Artifact Group:
        - RW = Red Ware
        - YW = Yellow Ware
        - SW = Stone Ware
        - SV = Semi-Vitrified White Earthenware
        - PO = Porcelain
        - NV = Non-Vitrified White Earthenware
          - Ware Type:
            - CW = Creamware
            - PW = Pearlware
            - WW = Whiteware
- GL = Glass
  - Artifact Class:
    - VG = Vessel Glass
    - FG = Flat Glass
    - LG = Lamp Glass
    - BE = Beads
    - OT = Other
- ME = Metal
  - Artifact Class:
    - FE = Ferrous
    - OT = Non-Ferrous
- BU = Building Materials
  - Artifact Classes:
    - BR = Brick
    - MR = Mortar
    - CMP = Composite Material
    - CE = Concrete
    - PR = Plaster
    - IN = Insulation
- OH = Other Historical Materials
  - Artifact Class:
    - PL = Plastic
    - ST = String / Cordage
    - RU = Rubber
    - CK = Chalk
    - OT = Other

APPENDIX D:

OBSIDIAN GEOCHEMICAL SOURCING REPORT
ALEX J. NYERS
NORTHWEST RESEARCH OBSIDIAN STUDIES LABORATORY

X-Ray Fluorescence Analysis of Obsidian Artifacts from Uyxat Powwow Grounds, Grand Ronde, Polk County, Oregon

Alex J. Nyers
Northwest Research Obsidian Studies Laboratory

Three artifacts from Uyxat Powwow Grounds, Grand Ronde, Polk County, Oregon, were submitted for energy dispersive X-ray fluorescence trace element provenance analysis. The samples were prepared and analyzed at the Northwest Research Obsidian Studies Laboratory under the accession number 2018-87.

Analytical Methods

X-Ray Fluorescence Analysis. Nondestructive trace element analysis of the samples was completed using a Thermo NORAN QuanX-EC energy dispersive X-ray fluorescence (EDXRF) spectrometer. The analyzer uses an X-ray tube excitation source and a solid-state detector to provide spectroscopic analysis of elements ranging from sodium to uranium (atomic numbers 11 to 92) and in concentrations ranging from a few parts per million to 100 percent. The system is equipped with a Peltier-cooled Si(Li) detector and an air-cooled X-ray tube with a rhodium target and a 76 micron Be window. The tube is driven by a 50 kV 2mA high voltage power supply, providing a voltage range of 4 to 50 kV. During operation, the tube current is automatically adjusted to an optimal 50% dead time, a variable that is significantly influenced by the varying physical sizes of the different analyzed samples. Small specimens are mounted in 32 mm-diameter sample cups with mylar windows on a 20-position sample tray while larger samples are fastened directly to the surface of the tray.

For the elements that are reported in Table A-1, we analyzed the collection with a 3.5 mm as well as an 8.8 mm beam collimator installed with tube voltage and count times adjusted for optimum results. Instrument control and data analysis are performed using WinTrace software (version 7) running under the Windows 7 operating system.

The diagnostic trace element values used to characterize the samples are compared directly to those for known obsidian and fine-grained volcanic (FGV) sources reported in the literature and with unpublished trace element data collected through analysis of geologic source samples (Northwest Research 2018a). Artifacts are correlated to a parent obsidian, FGV, or basalt source (or geochemical source group) if diagnostic trace element values fall within about two standard deviations of the analytical uncertainty of the known upper and lower limits of chemical variability recorded for the source. Occasionally, visual attributes are used to corroborate the source assignments although sources are never assigned solely on the basis of megascopic characteristics.

Results of Analysis

X-Ray Fluorescence Analysis. The obsidian artifacts analyzed by X-ray fluorescence methods were correlated with the Inman Creek A source. The location of the site and identified source are shown in Figure 1. Analytical results are presented in Table A-1 in the Appendix and are summarized in Table 1 and Figure 2.

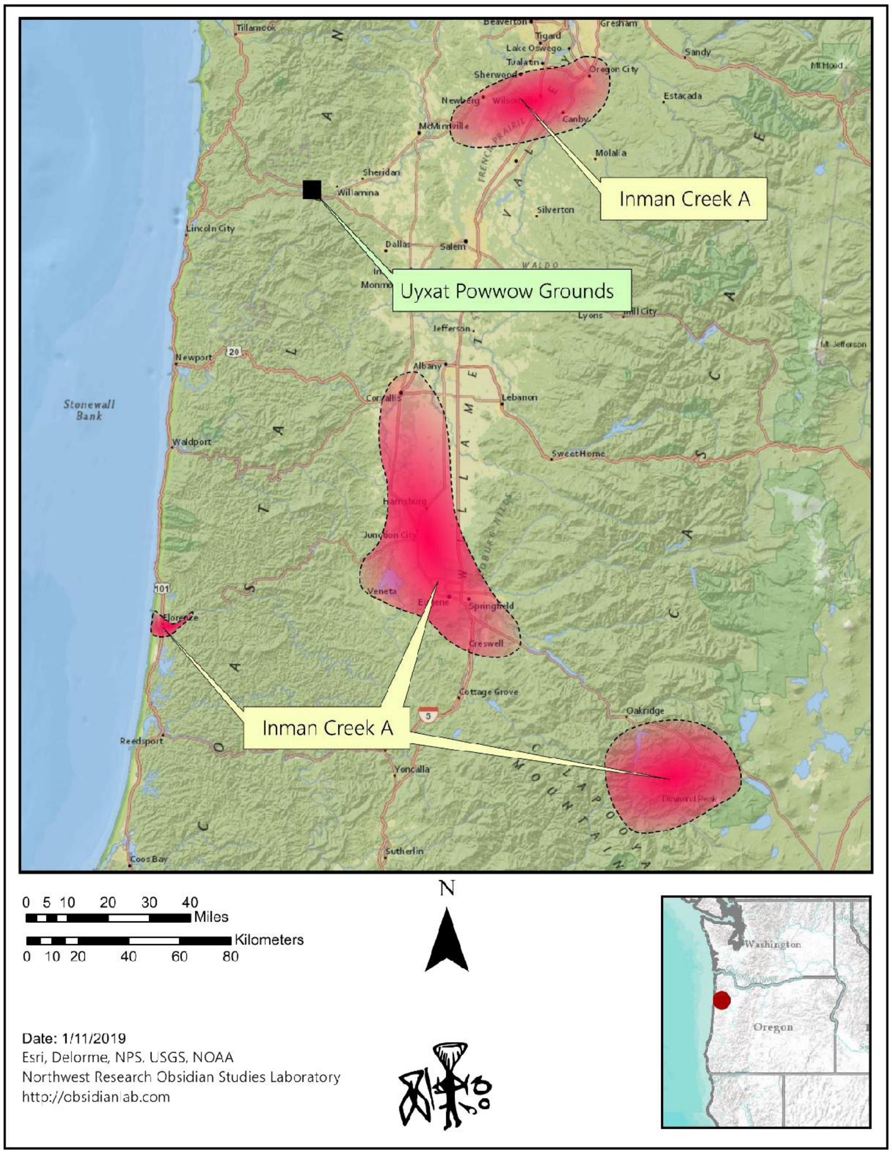


Figure 1. Locations of the project site and source of the analyzed obsidian artifacts.

Table 1. Summary of results of trace element analysis of the project specimens.

GEOCHEMICAL SOURCE	N=
Inman Creek A	3
TOTAL	**3**

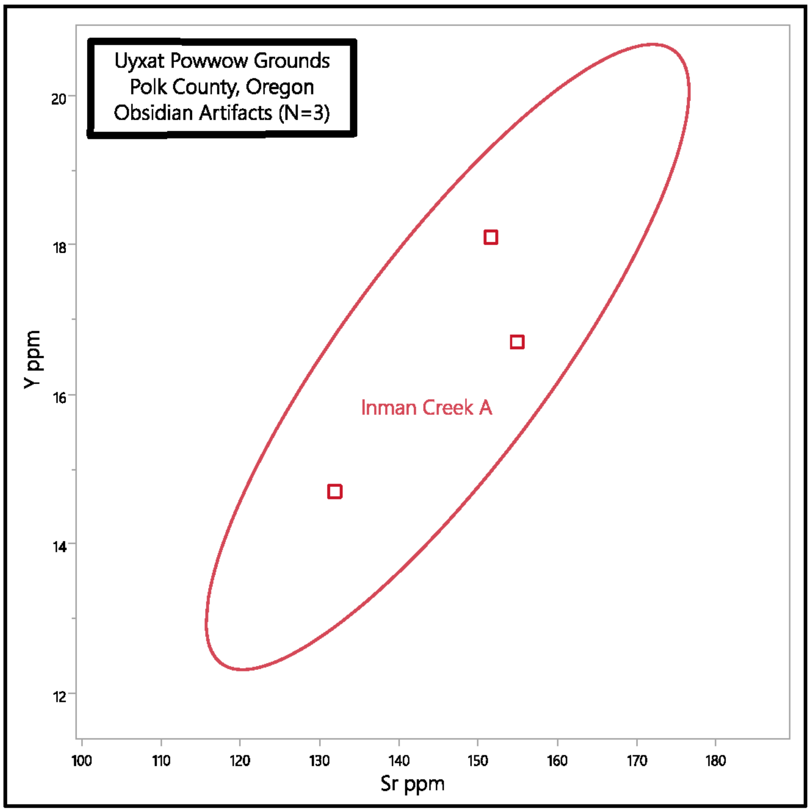


Figure 2 - Scatterplot of strontium (Sr) plotted versus yttrium (Y) for analyzed artifacts.

Information concerning the location, geologic setting, and prehistoric use of obsidian sources identified in the current investigation may be found at www.sourcecatalog.com (Northwest Research 2018b).

References Cited

Northwest Research Obsidian Studies Laboratory
2018a Northwest Research Obsidian Studies Laboratory World Wide Web Site (www.obsidianlab.com).

2018b Northwest Research U. S. Obsidian Source Catalog (www.sourcecatalog.com).

Appendix

Results of X-Ray Fluorescence Analysis

Northwest Research Obsidian Studies Laboratory

Table A-1. Results of XRF Studies: Uyxat Powwow Grounds, Grand Ronde, Polk County, Oregon

			Trace Element Concentrations									Ratios		
Site	Specimen No.	Catalog No.	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	Fe^2O^{3T}	Fe:Mn	Fe:Ti	Geochemical Source
Uyxat Powwow Grounds	2	07182017-064	81	155	17	99	6	NM	NM	NM	NM	NM	NM	Inman Creek A *
			± 3	3	2	3	2	NM	NM	NM	NM			
Uyxat Powwow Grounds	3	07272016-026	88	152	18	95	10	NM	NM	NM	NM	NM	NM	Inman Creek A *
			± 5	4	2	4	3	NM	NM	NM	NM			
Uyxat Powwow Grounds	4	07282017-100	61	132	15	84	9	NM	NM	NM	NM	NM	NM	Inman Creek A? *
			± 4	4	2	3	3	NM	NM	NM	NM			
NA	RGM-1	RGM-1	153	110	28	230	13	NM	NM	NM	NM	NM	NM	RGM-1 Reference Standard
			± 4	3	2	3	2	NM	NM	NM	NM			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured; * = Small sample; FGV = Fine-grained volcanic specimen.

APPENDIX E:

OBSIDIAN HYDRATION ANALYSIS REPORT
JENNIFER J. THATCHER
WILLAMETTE ANALYTICS

Obsidian Hydration Analysis of Obsidian Artifacts from the Uyxat Powwow Grounds, Grand Ronde, Polk County, Oregon

Jennifer J. Thatcher
Willamette Analytics Report 2018-87
Prepared for Ian Kretzler, University of Washington,
Seattle, Washington,
June 27, 2019

Willamette Analytics, LLC
1141 SW Sunset Drive
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www.willanalytics.com

Willamette Analytics Report 2018-87

Obsidian Hydration Analysis of Obsidian Artifacts from the Uyxat Powwow Grounds, Grand Ronde, Polk County, Oregon

Jennifer J. Thatcher
Willamette Analytics, LLC

Introduction

Two obsidian artifacts from the Uyxat Powwow Grounds, Grand Ronde, Polk County, Oregon, were submitted for obsidian hydration analysis. The samples were prepared and analyzed at Willamette Analytics, LLC in Corvallis, Oregon under the accession number 2018-87.

Analytical Methods

An appropriate section of each artifact is selected for hydration slide preparation. The location of the section is determined by the morphology and the perceived potential of the location to yield information on the manufacture, use, and discard of the artifact. Two parallel cuts are made into the edge of the artifact using a lapidary saw equipped with 100 millimeter diameter diamond-impregnated .100 millimeter thick blades. These cuts produce a cross section of the artifact approximately one millimeter thick which is removed from the artifact and mounted on a petrographic microscope slide with Lakeside thermoplastic cement. The mounted specimen slide is ground in a slurry of 600 grade optical-quality corundum abrasive on a plate glass lap. This initial grinding of the specimen reduces its thickness by approximately one half and removes any nicks from the edge of the specimen produced during cutting. The specimen is then inverted and ground to a final thickness of 30-50 microns, removing nicks from the other side of the specimen. The result is a thin cross-section of the surfaces of the artifact.

The prepared slide is measured using an Olympus BHT petrographic microscope fitted with a video micrometer unit and a digital imaging video camera. When a clearly defined hydration rim is identified, the section is centered in the field of view to minimize parallax effects. Four rim measurements are typically recorded for each artifact or examined surface. Narrow rims (under approximately two microns) are usually examined under a higher magnification. Hydration rims smaller than one micron often cannot be resolved by optical microscopy.

Hydration rims are reported to the nearest 0.1 micron and represent the mean value for all readings. Standard deviation values for each measured surface indicate the variability for hydration rim measurements recorded for each specimen. It is important to note that these values reflect only the reading uncertainty of the rim values and do not take into account the resolution limitations of the microscope or other sources of uncertainty that enter into the formation of hydration rims (Meighan 1981, 1983; Liritzis 2015). Any attempts to convert rim measurements to absolute dates should be approached with great care and considerable skepticism, particularly when rates are borrowed from existing literature sources. When considered through temporal periods, the variables affecting the development of hydration rims are complex (Anovitz et al. 1999; Skinner 1995; Rogers 2008, 2010; Liritzis and Laskaris 2011, Stevenson et al. 2019), and there is no assurance that artifacts recovered from similar provenances or locales have shared thermal and cultural histories.

Results

The two obsidian artifacts that were prepared for obsidian hydration analysis were also submitted for X-ray fluorescence (XRF) trace element analysis at Northwest Research Obsidian Studies Laboratory in Corvallis, Oregon (Nyers 2018). The results of that study are summarized in Table 1, and are presented in Table A-1 in the Appendix. The locations of the site and the geochemical obsidian source are shown in Figure 1.

Table 1. Summary of results of hydration analysis of the obsidian artifacts from the project site.

OBSIDIAN SOURCE	HYDRATION RIM MEASUREMENTS (MICRONS)	TOTAL
Inman Creek A	1.0, 1.2	**2**
TOTAL	--	**2**

Hydration rims were successfully identified and measured on both of the obsidian artifacts that were submitted for hydration analysis. Cortex was observed on the dorsal margin of specimen number 4 (catalog number 07282017-100).

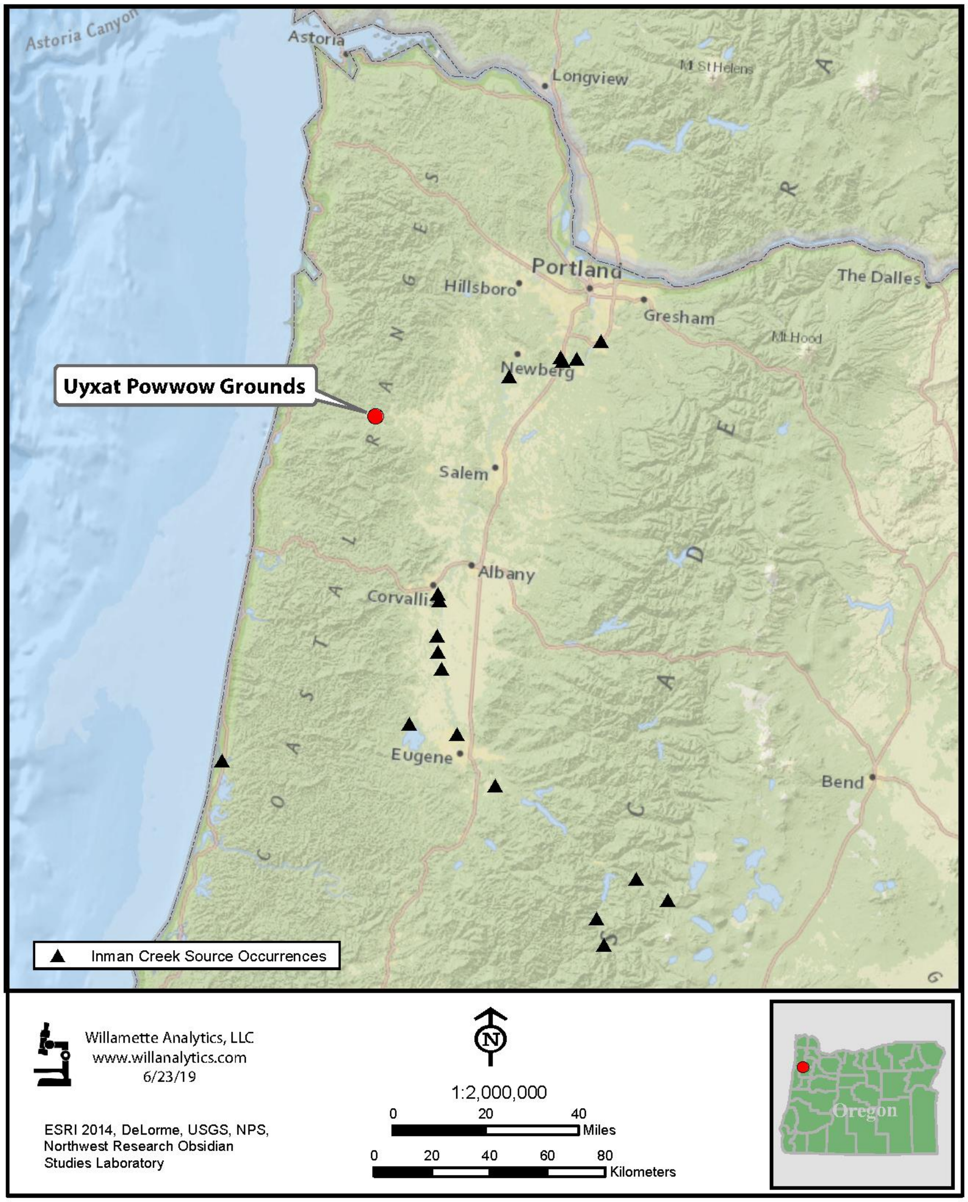

Figure 1. Locations of the project site and the obsidian source identified in the current study.

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Appendix

Results of Obsidian Hydration Analysis

Willamette Analytics, LLC

Table A-1. Obsidian Hydration Results and Sample Provenience: Artifacts from Uyxat Powwow Grounds, Polk County, Oregon

Site	Specimen No.	Catalog No.	Unit	Depth	Artifact Type [A]	Artifact Source [B]	Hydration Rims Rim 1	Hydration Rims Rim 2	Comments [C]
Uyxat Powwow Grounds	3	07272016-026	1062N 1009E	Surface	DEB	Inman Creek A *	1.2 ± 0.1	NM ± NM	BEV, DFV
Uyxat Powwow Grounds	4	07282017-100	Auger Area 3	Level 4	DEB	Inman Creek A? *	1.0 ± 0.0	NM ± NM	Cortex on DM

[A] DEB = Debitage
[B] Obsidian Source Data: Northwest Research Obsidian Studies Laboratory
[C] See text for explanation of comment abbreviations
NA = Not Available; NM = Not Measured; * = Small XRF sample

Abbreviations and Definitions

BEV - (BEVeled). Artifact morphology or cut configuration resulted in a beveled thin section edge.

BRE - (BREak). The thin section cut was made across a broken edge of the artifact. Resulting hydration measurements may reveal when the artifact was broken, relative to its time of manufacture.

DES - (DEStroyed). The artifact or flake was destroyed in the process of thin section preparation. This sometimes occurs during the preparation of extremely small items, such as pressure flakes.

D/V - (Dorsal/Ventral). In most cases both the dorsal and ventral surfaces of an artifact are measured for hydration rim values. The D/V designation is used in some cases to specify rim locations. Likewise, "**DS**", "**DM**" or "**VS**", "**VM**" may be used indicate the dorsal or ventral surfaces or margins.

DFV - (Diffusion Front Vague). The diffusion front, or the visual boundary between hydrated and unhydrated portions of the specimen, are poorly defined. This can result in less precise measurements than can be obtained from sharply demarcated diffusion fronts. The technician must often estimate the hydration boundary because a vague diffusion front often appears as a relatively thick, dark line or a gradation in color or brightness between hydrated and unhydrated layers.

DIS - (DIScontinuous). A discontinuous or interrupted hydration rim was observed on the thin section.

HV - (Highly Variable). The hydration rim exhibits variable thickness along continuous surfaces. This variability can occur with very well- defined bands as well as those with irregular or vague diffusion fronts.

IF - (Internal Fracture). In some cases, especially with weathered samples, rim measurements are taken from internal fractures or cracks. See also **SF** (Step Fracture).

IRR - (IRRegular). The surfaces of the thin section (the outer surfaces of the artifact) are uneven and measurement is difficult.

NOT - (NOT obsidian). Petrographic characteristics of the artifact or obsidian specimen indicate that the specimen is not obsidian.

NVH - (No Visible Hydration). No hydration rim was observed on one or more surfaces of the specimen. This does not mean that hydration is absent, only that hydration was not observed. Hydration rims smaller than one micron often are not birefringent and thus cannot be seen by optical microscopy. "NVH" may be reported for the manufacture surface of a tool while a hydration measurement is reported for another surface, e.g. a remnant ventral flake surface.

OPA - (OPAque). The specimen is too opaque for measurement and cannot be further reduced in thickness.

PAT - (PATinated). This description is usually noted when there is a problem in measuring the thickness of the hydration rim, and refers to the unmagnified surface characteristics of the artifact, possibly indicating the source of the measurement problem. Only extreme patination is normally noted.

REC - (RECut). More than one thin section was prepared from an archaeological specimen. Multiple thin sections are made if preparation quality on the initial specimen is suspect or obviously poor. Additional thin sections may also be prepared if it is perceived that more information concerning an artifact's manufacture or use can be obtained.

R1, R2, R3 - (Rim 1, Rim 2, Rim 3). Often used when multiple cut locations are specified.

RVS - (Remnant Ventral Scar).

SF - (Step Fracture). In some cases, especially with weathered samples, rim measurements are taken from step fractures. See also **IF** (Internal Fracture).

UNR - (UNReadable). The optical quality of the hydration rim is so poor that accurate measurement is not possible. Poor thin section preparation is not a cause.

WEA - (WEAthered). The artifact surface appears to be damaged by wind erosion or other mechanical action.

APPENDIX F:

MACROBOTANICAL REMAINS
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MACROBOTANICAL ANALYSIS OF THE MOLALLA ENCAMPMENT

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Introduction

This report details the analysis of carbonized plant remains from sediment samples collected from the Molalla Encampment, on the Grand Ronde Indian Reservation in Oregon State, on a portion of the Uyxat Powwow Grounds, adjacent to Cosper Creek.

The site is located at an ecotone where the western hemlock zone of the southern Coast Range meets the eastern edge of Oregon white oak woodlands characteristic of the Willamette Valley. Characteristic vegetation of this temperate zone includes Oregon white oak (*Quercus garryana*), western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*), big leaf maple (*Acer macrophyllum*), beaked hazelnut (*Corylus cornuta*), and ironwood (*Holodiscus discolor*) (Franklin & Dyrness 1988).

Ian Kretzler submitted 29 sediment samples from the Molalla Encampment for water flotation and macrobotanical analysis. The sediment samples range from 7.3 to 11.12 litres in volume, and were taken from seven units at levels ranging from 0-10 to 40-50 centimeters below surface (cmbs). Plant remains were extracted from a total of 269 litres of soil.

Kretzler's research investigates the utility of archaeological techniques to better understand identity negotiation of reservation residents from the 1850's through the 1950's. Material remains are examined through the lenses of reservation settlement patterns, and foodways as connections to place and practice. With respect to foodways, Kretzler hypothesizes that traditional plant and animal resources comprised either substantial, or minor portions of Grand Ronde diets.

Methods

Plant survey and collection: A survey of the plants growing in the immediate vicinity of the Molalla Encampment was undertaken beginning July 2016. Additional plants from the broader reservation landscape were added to the list during the 2017 and 2018 field seasons, for a current total of 52 plants. 75% of the plants surveyed are native species, all of which have documented cultural uses. The majority of the plants documented grow on the edges of the grass field where excavations took place, and can be described as a "food forest." Food forests are anthropogenic landscapes that include a diversity of culturally significant plants from the canopy layer to the forest floor. In addition to the plant surveys, fruiting plants were collected in order to develop a comparative collection to be used to identify unfamiliar seeds in the macrobotanical samples.

Engagement with the Grand Ronde community: During each of the visits to Grand Ronde during field seasons from 2016-2019, time was spent speaking with tribal members and staff to learn more about plants of cultural significance to the Grand Ronde community, and current efforts to restore culturally significant plants on the reservation landscape and beyond, as well as efforts to revitalize tribal members relationships' with plants that are integral to Grand Ronde identity and well-being. These visits were invaluable in providing broader context to the significance to the community of the macrobotanical analysis specifically, and the Molalla Encampment project more generally.

Macrobotanical analysis: Macrobotanical analysis is one of a suite of archaeobotanical techniques used to infer past plant use and ecological conditions in archaeological contexts.

Macrobotanical remains, or macroremains, comprise all plant parts that can be seen with the naked eye and identified at low magnification (typically 50x or less), such as seeds, roots, fruits, and wood. Water flotation uses differences in density of organic and inorganic materials to separate macroremains (light fraction) and high density remains (heavy fraction) from the soil matrix.

Manual water flotation entails agitating the soil sample in a flotation tank. The tank is filled with water, and a 1mm mesh screen is attached to the top of the tank. A continuous flow of water enters the tank below the screen, and flows out through a spout at the top of the tank. The sample is placed in the tank above the screen and manually agitated. The soil matrix falls through the screen, and the high density remains are caught in the 1µm chiffon mesh. The light fraction flows out the spout, and is caught in a bucket lined with 1µm chiffon mesh. The water then flows out of a hose attached to the bottom of the bucket.

Each sample was checked in, and ~100ml of the sample was reserved for possible future analysis. The volume and mass of the reserved portion of the sample, and the portion to be floated were recorded. Due to their high clay content, the flotation samples were pre-treated by soaking them in a deflocculent solution of 10% NaPo3 for approximately 30 minutes (Pearsall 61). The treated samples were then floated manually. After flotation, the low and high density materials were hung to dry at ambient temperature and humidity. Mass and volume were recorded for both the light and heavy fractions once dried. The heavy fractions were set aside in the lab for future analysis.

The light fractions were passed through 4.0 mm, 2.0 mm, 1.0 mm, .5 mm, and .3mm sieves. One-hundred percent of all 2mm and 4mm sample fractions were analyzed. Sieve fractions less than 2mm were judgementally sub-sampled at proportions of 12.5% - 100%, based on the time constraints of the project. For each taxonomic category, the number of specimens from sub-sampled size fractions was standardized via multiplying by the inverse of the sub-sample proportion to estimate total number of the specimen in the sample (Cuthrell 2015).

Once sieved, carbonized remains (excluding wood) were separated from the low-density portion of the sample using a dissecting microscope at 10x magnification. Charred macrobotanicals were then quantified and identified to the lowest taxonomic level possible using 30 – 50x magnification. The Pacific Northwest Archaeology lab's seed reference collection at the University of Washington, and reference texts were used for seed identification.botanical materials pulled from the light fraction were recorded and quantified by count.

Results

Carbonized specimen standardized counts and densities are presented by unit and depth in Tables 1 & 2, and on Figure 1. Amongst other variables, density is a useful ratio for comparing intensity of use between levels, units, and sites (Miller 1988). Densities were calculated by dividing taxon counts by sample volume. Specimen density is as high as 56 seeds or other plant parts per liter of soil, to as low as five per liter. High densities are attributable mainly to the unidentified and unidentifiable seeds in the samples. Maximum density of identified taxa is seven seeds/l. (*Rumex sp.* in AU04, 10-20cm); however most identified taxa have a density of less than one seed or plant part/l. per sample.

Specimen density decreases as unit distance from Cosper Creek increases. As shown on Figure 1, unit 1079N 1021E is the lowest density unit, with density decreasing with depth. This unit is considered to be off-site. Units eight, ten, and fifteen are also relatively low density units and are further from the creek. Density also decreases with depth in units eight and ten. Unit five is higher in density overall than units eight and ten, and exhibits a bimodal distribution, with higher densities at 10-20, and at 30-40cmbs. Units one and four are closest to Cosper Creek, and have the highest overall density of the six units analyzed. Unit four exhibits a bimodal distribution similar to unit five. Density increases with depth in units one and unit 15.

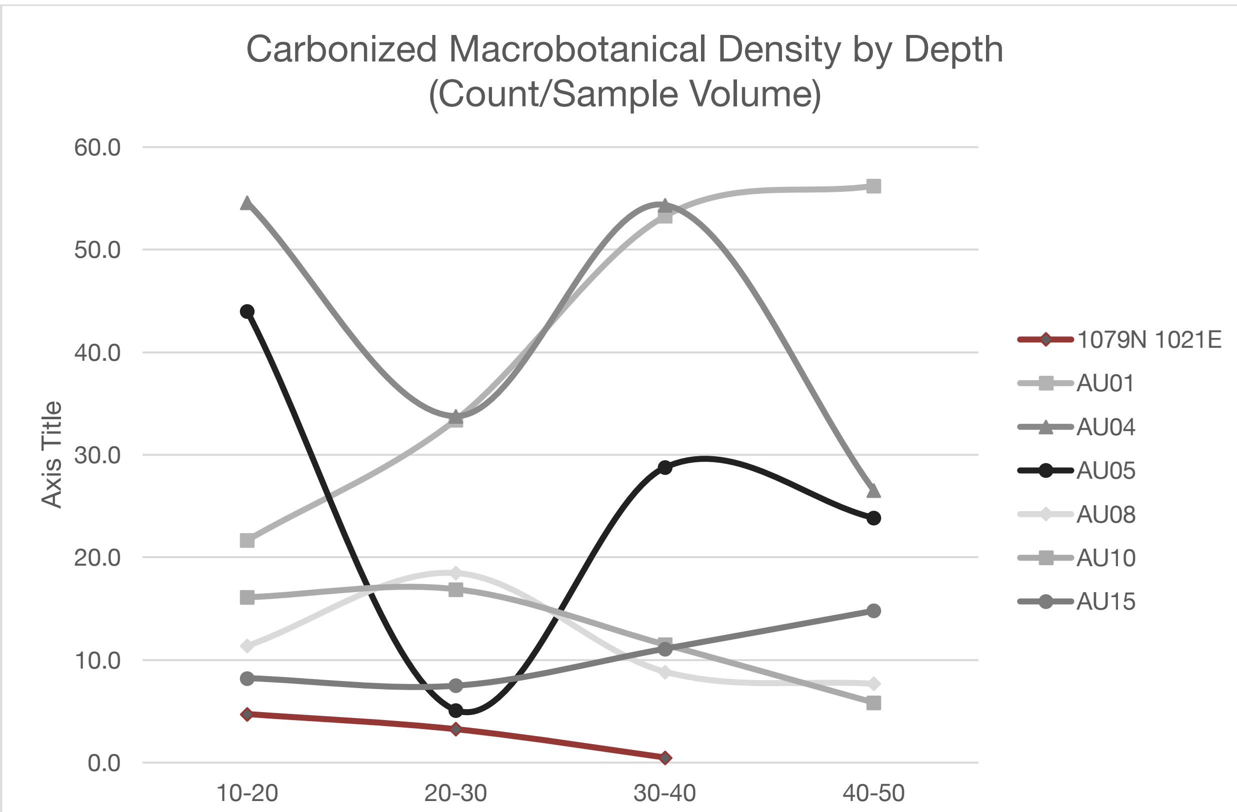

Figure 1: Carbonized macrobotanical density by depth

Table 1: Summary table of all macrobotanicals at Molalla Encampment

Unit	1079N 1021E			AU01				AU04				AU05				AU08					AU10				AU15			
Level	2	3	4	2	3	4	5	2	3	4	5	2	3	4	5	2	3	4	5	6	2	3	4	5	2	3	4	5
Depth	10-20	20-30	30-40	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50	10-20	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50
ID	17-054	17-057	17-061	17-050	17-052	17-059	17-074	17-106	17-108	17-110	17-112	17-115	17-117	17-119	17-121	18-034	18-036	18-040	18-042	18-049	18-045	18-051	18-058	18-070	18-111	18-113	18-115	18-117
TYPE																												
Seeds																												
Amaranthaceae					8	12		3	12					4											4			
Apiaceae					8					4											4							
Asteraceae																					4							
Caryophyllaceae								4											1			4						
Cyperaceae								4																				
Fabaceae																							8					
Galium aparine					4	2	9	5	8	22	4	28	8	14	67	1		1	9	5		2	12	18	4	6	16	4
Hypericum perfoliatum	1	1				4		1											1									
Madia sp.									5				2															
Myosotis sp.	2																				8				16			
Plantago lanceolata															4							2				8		
Poaceae										4																		8
Polygonaceae															2													
Rubus spp.				8	2	4		4	4			5	2	8	1	8		3		1					4		4	
Rumex spp.						1		68	36	12				2	2						8	8	6			2	14	
Sambucus caerulea															5													
Stellaria sp.	19	7	1		4		4								8			1	1								4	
Triticum spp.									1	10		4		2	1													
Unidentified seeds	16	10	4	176	296	155	149	397	225	163	102	55	10	61	87	116	42	144	24	24	82	77	16	10	24	18	57	36
Unidentifiable fragments	6	11	0	24	17	367	319	47	39	282	146	258	10	108	31	24	17	21	41	30	56	93	86	32	24	30	12	76
Seed total	44	29	5	208	339	545	481	533	330	497	252	350	32	199	208	149	59	170	77	60	162	186	128	60	72	64	107	124
Other plant parts																												
Fruits																												
Amelanchier alnifolia													2															
Unidentified fruit frags		1					1	13		8		37	6	4	9	2												8
Rumex spp.						1																						
Leaves																												
Pinaceae	1					8				4	**4**		3	2	4		4				4	5						
Unidentified leaf; ovate, leathery													4	4	2	8									8	2		
Nuts																												
Quercus garryana							1		1	2	4	1		1	2				1					2				
Misc plant parts					2		23					17			4													1
Sample Totals	45	30	5 0	208	341	554	506 0	546	331	511	260	405	47	210	229	159	63	170	78	60	166	191	128	62	80	66	107	133

Table 2: Density table for all macrobotanicals at Molalla Encampment

Unit	1079N 1021E			AU1				AU4				AU5				AU8					AU10				AU15			
Level	2	3	4	2	3	4	5	2	3	4	5	2	3	4	5	2	3	4	5	6	2	3	4	5	2	3	4	5
Depth	10-20	20-30	30-40	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50	10-20	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50	10-20	20-30	30-40	40-50
ID	17-54	17-57	17-61	17-50	17-52	17-59	17-74	17-16	17-18	17-11	17-112	17-115	17-117	17-119	17-121	18-34	18-36	18-4	18-42	18-49	18-45	18-51	18-58	18-7	18-111	18-113	18-115	18-117
TYPE																												
Seeds																												
Amaranthaceae					0.78	1.15		0.36	1.28					0.42											0.39			
Apiaceae					0.78					0.48											0.39							
Asteraceae																					0.39							
Caryophyllaceae								0.48											0.11			0.35						
Cyperaceae								0.48																				
Fabaceae																							0.72					
Galium aparine					0.39	0.19	1.00	0.51	0.85	2.24	0.43	3.43	1.96	1.46	6.31	0.10		0.19	1.23	0.64		0.18	1.79	1.70	0.39	0.68	1.65	0.43
Hypericum perfoliatum	0.15	0.19				0.38		0.12											0.11									
Madia sp.									0.53				0.27															
Myosotis sp.	0.22																				0.78				1.57			
Plantago lanceolata															0.38							0.18				0.91		
Poaceae										0.48																		0.87
Polygonaceae															0.19													
Rubus spp.				0.83	0.20	0.38		0.48	0.43			0.54	0.27	0.83	0.94	0.80		0.33		0.13					0.39		0.41	
Rumex spp.						0.96		6.94	3.83	1.22				0.28	0.19						0.78	0.78	0.54			0.23	1.44	
Sambucus caerulea															0.47													
Stellaria sp.	2.00	0.77	1.00		0.39		0.44								0.75			0.19	0.11								0.41	
Triticum spp.									0.16	1.25		0.43		0.28	0.94													
Unidentified seeds	1.68	1.09	0.40	18.33	29.02	14.90	16.56	40.51	23.94	16.63	11.09	5.98	1.37	6.35	8.20	11.60	4.57	15.65	2.73	3.08	7.26	6.81	1.43	0.94	2.35	2.05	5.88	3.91
Unidentifiable fragments	0.63	1.20	0.00	2.50	1.67	35.29	35.44	4.80	4.15	28.78	15.87	28.04	1.37	11.25	2.92	2.40	1.85	2.28	4.66	3.85	4.96	8.23	7.68	3.02	2.35	3.41	1.24	8.26
Seed total	4.68	3.24	1.40	21.67	33.24	53.27	53.44	54.69	35.16	51.09	27.39	38.43	5.25	20.88	21.30	14.90	6.41	18.64	8.95	7.69	14.54	16.53	12.16	5.66				
Other plant parts																												
Fruits																												
Amelanchier alnifolia													0.27															
Unidentified fruit frags		0.19					0.11	1.33		0.82		4.22	0.82	0.42	0.85	0.20												0.87
Rumex spp.						0.96																						
Leaves																												
Pinaceae	0.15					0.77				0.48	**0.43**		0.42	0.28	0.38		0.43				0.39	0.44						
Unidentified leaf; ovate, leathery													0.55	0.42	0.19	0.80									0.78	0.23		
Nuts																												
Quercus garryana							0.11		0.16	0.25	0.43	0.19		0.14	0.19				0.11					0.19				
Misc plant parts					0.20		2.56					1.85			0.38													0.11
Grand total	4.84	3.43	1.40	21.67	33.43	55.00	56.22	56.01	35.33	52.64	28.26	44.69	7.31	22.14	23.28	15.90	6.85	18.64	9.07	7.69	14.93	16.97	12.16	5.85	8.24	7.50	11.03	14.46

The calculated total of carbonized macroremains was 5691, of which 748 (13%) were identified at least to family. The relatively low proportion of identified seeds can be attributed in part to the high standardized count of unidentified (2576, or 45% of the total assemblage) and unidentifiable fragments (2207, or 39% of the total assemblage).

Charred macroremains included 21 identified taxa. Of these, nine taxa were identified to family, and 12 to genus or species level. Six edible taxa were identified. Five of the six edible taxa identified are native, and one is an introduced cultigen (wheat) (Table 3).

Table 3: Summary of all identified taxa at Molalla Emcampment

Taxon	Common Name	Food plant	Nativity*
Amaranthaceae	Amaranth fam.		N & I
Asteraceae	Aster fam.		N & I
Sambucus caerulea	Blue elderberry	X	N
Rubus spp.	Brambles	X	N & I
Polygonaceae	Buckwheat fam.		N & I
Stellaria sp.	Chickweed		N & I
Galium aparine	Cleavers		N
Rumex spp.	Dock		N & I
Myosotis sp.	Forget-me-not		N & I
Poaceae	Grass fam.		N & I
Quercus garryana	Oregon white oak	X	N
Apiaceae	Parsley fam.		N & I
Fabaceae	Pea family		N & I
Pinaceae	Pine fam.		N & I
Caryophyllaceae	Pinks family		N & I
Plantago lanceolata cf.	Plantain		I
Amelanchier alnifolia	Saskatoon	X	N
Cyperaceae	Sedge fam.		N & I
Hypericum perfoliatum	St. John's Wort		I
Madia sp.	Tarweed	X	N
Triticum spp.	Wheat	X	I & C
* Nativity: N = Native I = Introduced C = Cultigen			

Proportions of the 15 most abundant taxa by standardized counts are presented in Figure 2. These taxa represent 90% of the identified portion of the assemblage, with dock (*Rumex spp.*) and cleavers (*Galium aparine*) representing 57.3% of the 15 most abundant taxa.

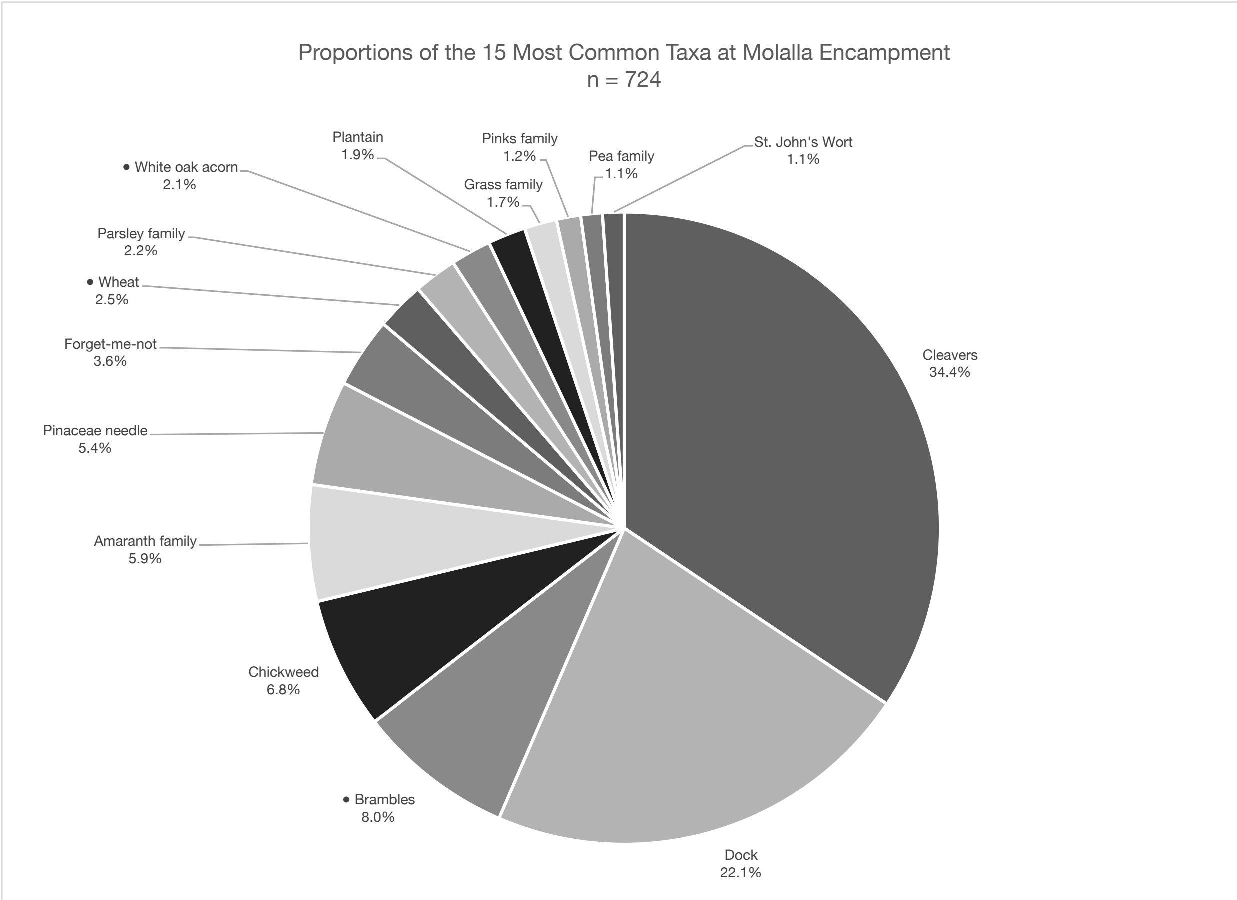

Figure 2: Proportions of the 15 most common taxa at Molalla Encampment

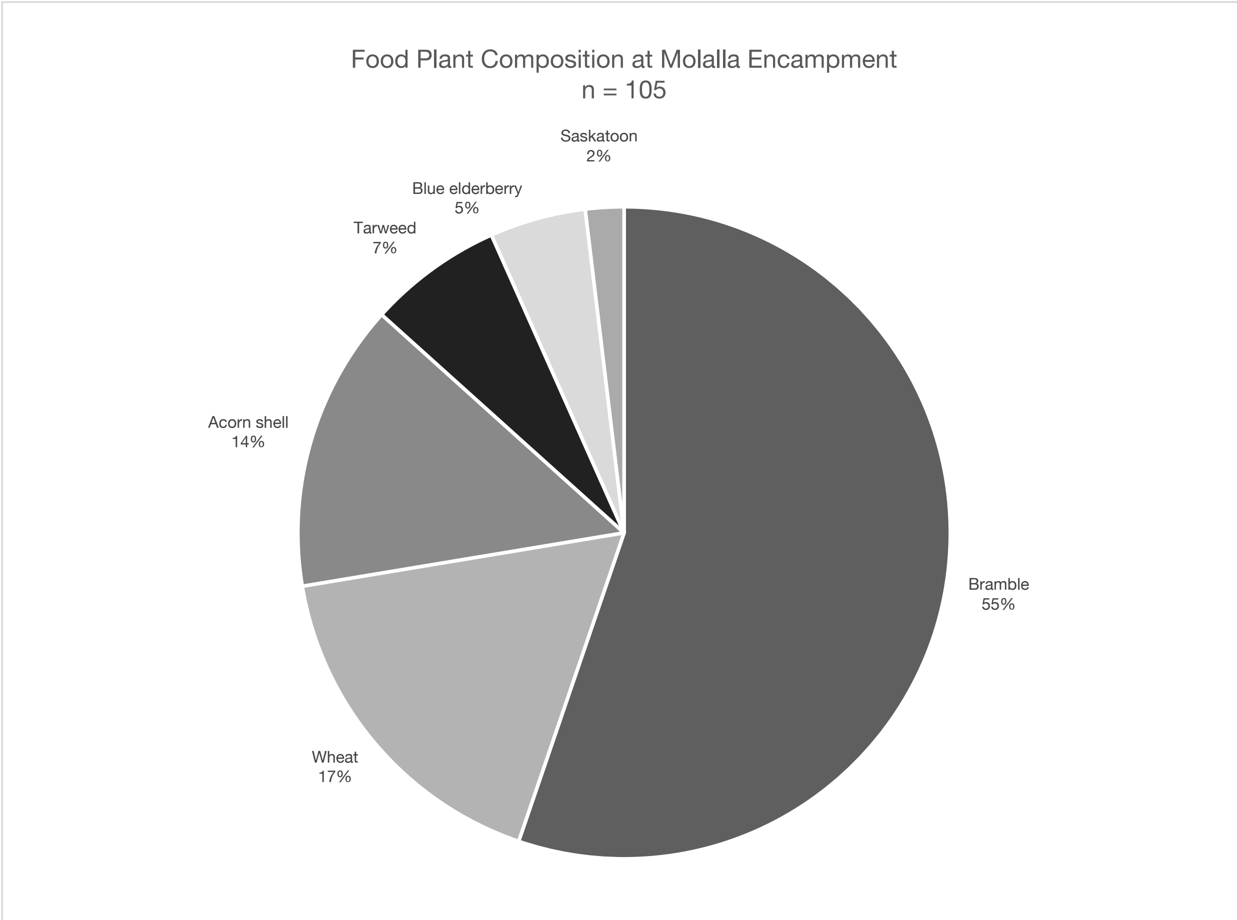

Figure 3: Food plant composition at Molalla Encampment

Proportions by standardized count of the six taxa that are food plants are presented in Figure 3. The edible taxa in the assemblage comprise 15% of all identified specimens in the samples. Brambles represent 55% of the food plant portion of the assemblage.

Ubiquity, or presence analysis, assumes that due to preservation and other factors, standardized counts do not provide an accurate representation of the relative importance of specific taxa identified in an archaeobotanical assemblage (Popper 1988). Alternatively, measures of ubiquity treat each taxon as independent. Taxa are given a score of 1 for each sample within which it appears in a group of samples. The total score (frequency) is then divided by the total number of samples. As shown on Table 4, below, the three most ubiquitous taxa (cleavers, bramble, and dock) also represent the three taxa with the highest proportion of seeds in the samples.

Table 4: Ubiquity of all identified taxa at Molalla Encampment

Ubiquity of all Identified Taxa at Molalla Encampment (Frequency/# samples)			
Taxon	Common Name	Frequency	Ubiquity
Galium aparine	Cleavers	25	0.86
Rubus spp.	Brambles	15	0.52
Rumex spp.	Dock	11	0.38
Pinaceae	Conifer needle	10	0.34
Stellaria sp.	Chickweed	9	0.31
Quercus garryana	White oak acorn	9	0.31
Amaranthaceae	Amaranth family	7	0.24
Triticum spp.	Wheat	5	0.17
Hypericum perfoliatum	St. John's Wort	5	0.17
Plantago lanceolata cf.	Plantain	3	0.10
Caryophyllaceae	Pinks family	3	0.10
Apiaceae	Parsley family	3	0.10
Sambucus caerulea	Blue elderberry	2	0.07
Poaceae	Grass family	2	0.07
Myosotis sp.	Forget-me-not	2	0.07
Madia sp.	Tarweed	2	0.07
Rumex fruit	Dock fruit	1	0.03
Polygonaceae	Buckwheat family	1	0.03
Fabaceae	Pea family	1	0.03
Cyperaceae	Sedge family	1	0.03
Asteraceae	Aster family	1	0.03
Amelanchier	Saskatoon	1	0.03

Edible Plants

K'anawi-taqwəla; Oregon white oak (*Quercus garryana* Dougl.) Fagaceae Oregon white oaks are deciduous, long-lived trees that grow in prairie habitats and the foothills of the west side of the Cascade Mountains, and on the Coast Range, from Vancouver Island to northern California. They are the dominant native deciduous tree species in the Willamette Valley. The pattern of oak dominant gallery forests on the slopes of the foothills surrounding the Willamette Valley was maintained by annual anthropogenic fires (Cheatham 1984). Burning the oak understory killed diseases and pests, and made it easier to pick the acorns up off the ground (Boyd 1976:33). Oregon white oak acorns mature in late summer. They are roughly one-inch long, and borne singly in a cuplike, scaly involucre (Hitchcock). They are an energy dense food that is high in carbohydrates, protein, omega-6 fatty acids, vitamins, and minerals (Trieu-Gahr 2013). The unshelled nuts are leached using active and passive methods to remove tannins from them before they are consumed (Mathews 2009, Minor & Pickett n.d., Noel et al 2014).

Acorn shells are readily differentiated from other nutshells by the striations that run perpendicular to the length of the acorn shell. We identified 15 carbonized acorn nutshell fragments across nine of the 29 analyzed samples. Archaeological and ethnographic evidence of Oregon white oak acorn use for food and as a trade item is widespread along the Oregon coast and in the Willamette Valley, in the Chinookan area of the Columbia River in Oregon and Washington, and in southwestern Washington (Mathews 2009, Minor & Pickett n.d., Norton 1979, Phillips 2016, Stenholm 1994, Trieu-Gahr 2013, Zenk 1976). Intensive acorn production is documented at the Sunken Village site along the Lower Columbia River, although the historical importance of Oregon white-oak acorns to the diets of Indigenous peoples of this area remains unclear (Mathews 2009, Trieu-Gahr 2013). The wood of Oregon white oak is also used, for firewood and the fashioning of bows and other technologies (French 1965, Trieu-Gahr 2013, Zenk 1976).

<u>Hayash-temtem stik; Blue elderberry (*Sambucus cerulea* Raf.) Caprifoliaceae</u> Blue elderberry are large deciduous shrubs with pinnately compound leaves. Clusters of small white flowers are borne in a flattened raceme in June-July, followed by small, pale powdery blue fruits from August to September, each containing 3-5 seeds (Hitchcock). Five blue elderberry seeds were identified in one sample (AU05-05). Blue elderberry is widespread but uncommon on dry to moist, relatively open sites on the Northwest Coast from Vancouver Island to northern California (Pojar and Mackinnon). The berries are eaten fresh, dried, and canned for winter use. Blue elderberry flowers are used as a febrifuge (to break fevers), and the bark is used as an emetic (to promote vomiting) (Moerman 1998).

<u>Brambles (*Rubus spp.*) Rosaceae</u> "Brambles" includes species of the genera *Rubus;* shrubs and vines whose aggregate fruits are comprised of a cluster of single-seeded berries called drupelets. Bramble leaves are ternately or palmately compound, and their branches are often covered with prickly spines or thorns. All of the four native species of *Rubus* that are common in the Coast ranges of Oregon and Washington are harvested for immediate consumption and/or are preserved for later use. These include, in order of their ripening, salmonberry (*Rubus spectabilis* Pursh), trailing blackberry (*R. ursinus* Cham. & Schlecht), blackcaps (*R. leucodermis* Dougl.), and thimbleberry (*R. parviflorus* Nutt.). Three common introduced species that are also common in the coast range are also eaten fresh and harvested for later use. These include red raspberry (*R. idaeus* L.), Himalayan blackberry (*R. armeniacus*), and evergreen blackberry (*R. laciniatus* Willd.). Brambles are the most common taxon identified in the samples. 58 whole carbonized *Rubus* seeds or fragments were identified in 15 samples. There were also hundreds of non-carbonized *Rubus* seeds in many of the samples. *Rubus* seeds are difficult to identify to species, but there is sufficient morphological difference between those identified to say that there are at least two species represented in the samples.

<u>Temstiyu; Western serviceberry *(Amelanchier alnifolia* Nutt.*)* Rosaceae</u> Western serviceberries are deciduous large shrubs or small trees that grow from low to mid-elevations on both sides of the Cascade and Rocky mountains, from British Columbia and Alberta in the north, south to New Mexico and Arizona (Hitchcock 1996). Their ovate leaves are blue-green with obtuse, often serrate tips. The racemose, white flowers have five long, narrow petals and bloom in late spring. The soft, red to purple fruit matures in mid-summer, and resembles a tiny apple. We identified one carbonized serviceberry fruit in the samples (sample 05-03). Western serviceberry appears to have been harvested mostly opportunistically, and either eaten fresh or dried with other berries for winter use in the Willamette Valley (Cardwell 1906, Clark 1960, French 1965, Minor and Pickett 1982). Gunther (1973:38) states that the Lower Chinook “relish the fruit.” The Chinook word Temstiyu also means “arrow wood” (CTGR 2012), which probably references use of young, straight shoots to fashion arrows. Serviceberry has high tensile strength, and is also used to fashion digging sticks (Minor and Pickett 1982).

Limulo-saplil; Tarweed (*Madia* spp.) Asteraceae Seven Asteraceae seeds present in two samples (04-03, 05-03) were tentatively identified as Tarweed. Tarweeds are annual herbs that grow to 20-100cm in height. Their lanceolate leaves and their stems are covered with hairs and strongly scented, sticky resin glands. The small, daisy-like yellow flowers bloom June- July. The fruits are achenes that contain oily seeds and mature in August – September. Chilean tarweed (*Madia sativa*) is common on the Grand Ronde reservation. This tarweed species grows on dry, disturbed sites on the west side of the Cascade mountains, from northern Washington to California, and in Chile (Hitchcock 1996). Tarweed seeds were an important food for ancestral Kalapuya and Takelma people, who cultivated it in the Willamette Valley using prescribed fire from late summer - fall. Burning removed the copious resins and parched the achenes, both of which facilitated gathering (Boyd 1999:113, Zenk 1976). Once the seeds were gathered, they might be parched again before they were ground into a meal, which was stored for winter, sometimes after being mixed with hazelnuts and camas (Boyd 1999).

Wheat (*Triticum* spp.) Poaceae Wheat is an introduced agricultural crop, and is the only cultigen identified in the macrobotanical samples. During the early reservation period, Indian agents encouraged Native residents to cultivate wheat and other agricultural crops as a mode of hastening assimilation. Wheat continued to be cultivated on the reservation until the mid-20th century, although never with great success, given the climate and soil composition (Kretzler 2019). Wheat seeds were identified in five samples taken from auger units four and five (04-03 & 04-04; 05-02, 05-04, 05-05), and appear to represent at least two varieties. After brambles, wheat represents the second highest proportion of the edible plants present in the samples (19%).

Non-food plants

Fifteen taxa identified at least to family are not unambiguously food plants (Table 3). Described below in order of their proportions are the five taxon where their proportions are greater than 5% as represented on Figure 2: Proportions of the 15 most common taxa at Molalla Encampment, and their ubiquity rating is greater than 20% (Table 4)

Cleavers (*Galium aparine* L.) Rubiaceae Cleavers are an herbaceous perennial that is ubiquitous in moist to dry early seral forests throughout the Pacific Northwest. It has square, lax stems up to 10dm long. Hooks located on the angles of the stem facilitate cleavers' ability to climb onto other vegetation for support. The hirsute leaves have a pointed tip, and are arranged in whorls around the stem, typically in eights. The small, four-parted white-greenish flowers are arranged in short cymes in the leaf axils. The dry, indehiscent fruits are 2-4mm long and covered with hooked hairs, which facilitate dissemination by animals when it catches on fur and clothing (Hitchcock 1996, Burke Museum Herbarium). Cleavers is the most commonly identified species in the Molalla Encampment samples. It comprises 34.4% of the 15% most commonly identified species by count, and is present in 86% of the samples. Cleavers use is not documented in any of the texts reviewed specifically for the project area. However, Gunther (1973) notes that Cowlitz people of southwest Washington used the plants as a love medicine, and Turner (2010), who classifies cleavers as a plant of minor cultural significance in British Columbia, writes that the Cowichan people of southeastern Vancouver Island used it to wipe pitch from their hands, and its dried stems as a fire tinder.

Dock (*Rumex* spp.) Polygonaceae Dock is the second most commonly identified species in the Molalla Encampment samples. It comprises 22.6% of the 15% most commonly identified species by count, and is present in 36% of the samples. There are 15 species of *Rumex* that grow on the central Northwest Coast. Their three-sided seeds are difficult to identify to species without additional context, and it is likely that two or more species of dock are present in the samples. As is the case with each of the five “non-food” plants described here, a single dock plant produces large quantities of seed. Dock is an herbaceous, ruderal taxon that readily colonizes disturbed sites. Its leaves contain oxalic acid, which gives them their sour flavor. Most *Rumex* species that grow on the Northwest Coast are introduced, including kitchen sorrel (*Rumex acetosa* L.). Gunther (1973) mentions that Chehalis people prepare the green stalks of *Rumex* on hot rocks, though she does not mention the particular species used. It is probably western dock (*Rumex occidentalis* S. Watson). Klallam, Saanich and other Northwest Coast Native peoples refer to this native species as “Indian rhubarb” (Gunther 1927, Sutttles 1974, Turner 2010), and prepare it using hot rock cookery.

Chickweed (*Cerastium* spp.) Caryophylaceae Chickweed comprises 7.1% of the 15% most commonly identified species by count, and is present in 32% of the samples. There are 13 species of chickweed that grow on the central Northwest Coast, four of which are native. *Cerastium* is a fast growing herbaceous annual or perennial plant that colonizes disturbed sites. Each plant may produce hundreds of seeds. No cultural uses of chickweed were identified in the literature search for this project, or for the Northwest Coast. There are several Indigenous medicinal uses for chickweed in North America more broadly (Moerman 1998).

Amaranth family (Amaranthaceae) There are many native and introduced members of this herbaceous family of plants that grow on, and in the vicinity of, the Grand Ronde reservation. Amaranthaceae seeds comprise 6.2% of the macrobotanicals identified, and have a ubiquity rating of .24. The identified seeds were likely either goosefoot (Chenopodium) or amaranth (Amaranth). Both are also referred to as pigweed. Both are also edible and are known to have been cultivated in other parts of North America (Moerman 1998). There are many accounts of Chenopodium seeds being processed for food elsewhere, including pitseed goosefoot (C. berlandieri moq.), which is common throughout North America, including the Northwest Coast. This species is the progenitor of all domesticated Chenopodiums. It was cultivated as a cereal crop in the northeastern US prior to Euro-American colonization, and is also valued for its leafy greens. Strawberry spinach (C. capitatum) grows everywhere in North America except the southeastern US. The seeds and leaves are used for food, and the bright red, fresh fruits of this plant are used for medicine, dye and body adornment throughout its range, including on the Northwest Coast (Moerman, Turner et al 1990). Redroot amaranth (Amaranthus retroflexus L.) is widely documented as a culturally significant plant in the southeast and southwestern US, where its leaves and seeds are used primarily as a food, and its leaves are also used as a medicine. No documented cultural uses of redroot amaranth on the Northwest Coast were identified. Amaranthaceae seeds of one or more of these species are common in archaeological sites on the Northwest Coast (LeCompte 2014, Lepofsky and Lyons 2013). Both C. berlandieri and C. capitatum, as well as Amaranthus retroflexus are ruderal species that are among the first to colonize sites after disturbance. A single plant of any one of these species may produce thousands of seeds.

Pine family (Pinaceae) The pine family includes several coniferous tree species common to the study area, including Pines (*Pinus* spp.), true firs (*Abies* spp.), western hemlock (*Tsuga heterophylla* (Raf.) Sarg.), and Douglas-fir (*Pseudotsuga menziesii* (Mirbel) Franco). Tips of one of these species were found in 34% of the samples. The wood of all of these species are used for firewood, and their pitch is used for a variety of technological and medicinal applications.

Douglas-fir is ubiquitous on the Grand Ronde reservation and surrounding vicinity. A single tree produces a nearly infinite number of needles, and it is probable that the needles in the samples are this species.

Discussion

The presence of five edible plants with documented cultural uses by ancestral Grand Ronde tribal members supports the hypothesis that Molalla Encampment inhabitants continued to harvest and consume culturally significant plant foods after relocating to the Grand Ronde reservation. Concentrations of macrobotanical remains of Oregon white oak shells, brambles, western serviceberry, blue elderberry, tarweed, and unidentified fruit fragments are especially concentrated in auger units four and five, along with wheat (Tables 1 & 2). These are the only units in which western serviceberry, blue elderberry, tarweed, unidentified fruit fragments, and wheat were identified, while brambles were also present in auger units one, eight, and fifteen, and Oregon white oak shells were present in auger units one, eight, and ten. This suggests a potential concentration of food related activities in units four and five. The presence of wheat in only these units leaves open the question of whether wheat production on the site represents a purely economic activity, or whether wheat being produced elsewhere on the reservation was processed on site for immediate consumption.

Although there are documented uses for the “non-food” plants described above, none were identified in texts or discussions specifically related to Grand Ronde plant uses. Cleavers is the most abundant and ubiquitous macrobotanical identified at the site (although interestingly, it is absent from the null unit 1079N 1023E), which is most likely a reflection of historic open, disturbed site conditions, and cleavers’ capacity to move itself around by attaching to animals. In fact, all of the “non-food” plants are more likely related to their life histories (ie., they produce copious quantities of seeds, and/or needles), and historic site conditions. Additional analysis using multivariate analysis would further illuminate the relationships between plants and units at the site.

The unidentified seeds in the samples have been documented using written descriptions and photographs. Assuming that at least some portion of the the unidentified seeds are also culturally significant and/or are the remains of introduced foods, further identification and analysis of these seeds would further clarify Kretzler’s hypotheses with respect to the relative proportion of Native foods consumed in the early reservation period at Grand Ronde.

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Table 5: Molalla Encampment Plant Survey List (FY 2016-2018)

LF	CODE	BOTANICAL NAME	ENGLISH NAME	CHINUK WAWA	NOTES	Native
2	ACCI	Acer circinatum	Vine maple			1
1	AMAL	Amelanchier alnifolia	Serviceberry/Saskatoon	Temstiyu		1
3	AQFO	Aquilegia formosa	Red columbine			1
3	BADE	Balsamhoriza deltoidea	Puget balsamroot		? Lvs more oblanceolate than deltoid; Key when in flower	1
3	BRSP	Brodiaea sp.	Cluster lily			1
3	CALE	Camassia leichtlinii	Great Camas		Jeremy Ojua says this is growing in wet areas under oaks near MolCamp	1
3	CLDO	Clinopodium douglasii	Yerba buena		Growing in oak understory near Grand Ronde DNR	1
2	COST	Cornus stolonifera	Red-osier dogwood			1
1	CRDO	Crataegus douglasii	Black hawthorn			1
1	CRMO	Crataegus monogyna	European hawthorn			0
2	CYSP	Cytisus scoparius	Scotch broom			0
3	DACA	Daucus carota	Queen Anne's lace			0
3	DISY	Dipsacus sylvestris	Teasel			0
1	FRLA	Fraxinus latifolius	Oregon ash			1
1	FRPU	Frangula purshiana	Cascara			1
3	GAAP	Galium aparine	Cleavers			1
3	HELA	Heracleum lanatum	Cow parsnip			1
3	HYPE	Hypericum perfoliatum	St. Johnswort			0
3	LEVU	Leucanthemum vulgare	Oxeye daisy			0
3	LODI	Lomatium dissectum	Fern leafed desert parsley		Growing in oak understory near Grand Ronde DNR	1
3	LONU	Lomatium nudicaule	Pestle parsnip		Jeremy Ojua says this is growing in meadow east and south of Molcamp	1
1	MAFU	Malus fuscus	Western crabapple			1

LF	CODE	BOTANICAL NAME	ENGLISH NAME	CHINUK WAWA	NOTES	Native
6	MAOR	Marah oreganus	Manroot			1
3	MASP	Madia sativa	Coast tarweed	Limulo-saplil		1
3	MEAR	Mentha arvensis	Field mint			1
3	ONAC	Onopordum acanthium	Scotch thistle			0
2	PHCA	Physocarpos capitata	Pacific ninebark			1
1	PICO	Pinus contorta	Shore pine			1
1	PIPO	Pinus ponderosa	Ponderosa pine			1
3	PLLA	Plantago lanceolata	Plantain			0
1	POTR	Populus tremuloides	Quaking aspen			1
1	PREM	Prunus emarginata	Bitter cherry			1
1	PSME	Pseudotsuga menziesii	Douglas-fir			1
1	PYCO	Pyrus communis	Pear			0
1	QUGA	Quercus garryana	Garry oak	K'anawai-taqwəla (acorns)		1
1	RHPU	Rhamnus purshiana	Cascara			1
2	RIDI	Ribes divaricatum	Black gooseberry			1
2	RONU	Rosa nutkana	Nootka rose			1
2	ROPI	Rosa pisocarpa	Clustered wild rose			1
3	RUAC	Rumex acetosella	Sheep sorrel			1
2	RUAR	Rubus armeniacus	Himalayan blackberry			0
3	RUCR	Rumex crispus	Yellow dock			1
2	RUUR	Rubus ursinus	Trailing blackberry			1
2	SACA	Sambucus caerulea	Blue elderberry	Hayash-temtem stik		1
2	SARA	Sambucus racemosa	Red elderberry			1
2	SASP	Salix sp.	Willow sp.			1
2	SPDO	Spiraea douglasii	Douglas' spiraea			1
2	SYAL	Symphoricarpos albus	Snowberry			1

LF	CODE	BOTANICAL NAME	ENGLISH NAME	CHINUK WAWA	NOTES	Native
3	SYOF	Symphytum officinalis	Common comfrey			0
7	USSP	Usnea sp.	"Old man's beard."			1
3	VISP	Vicia spp	Vetch		2-3 varieties	0
TOTAL						39
% native spp by presence/absence (not including grasses)						0.75

Table 6: Molalla Encampment Sample Log

ID	Field Catalog Number	Unit Coordinates	Level	Level (cm's)	Description	Vol. (L)	Mass (g)	Soil Sample preserved (g)	LF Vol. (ml)	LF Mass (g)	HF Vol. (ml)	HF Mass (g)	St Ct (All flora)	Processed sample observations
17-054	FMIA-MolCamp-07172017-054	1079 N 1021 E	2	10-20	Flot Sample - 5 Bags	9.5	8049.1	118.8	300	11.1	100	155.5	45	Sample primarily grass roots & small stems. <.05 charcoal (wood); uncharred Galium, Daucus, Rumex, "Amaranth familys"
17-057	FMIA-MolCamp-07172017-057	1079 N 1021 E	3	20-30	Flot Sample - 5 Bags	9.2	8303.5	105.3	300	6.9	100	143.1	30	4mm: Grass stems & roots, Daucus carota fruits (U); <.01 charred. 1mm: Uncharred Fabaceae (likely Vicia), c"Amaranth family"; <.01 charred twigs
17-061	FMIA-MolCamp-07182017-061	1079 N 1021 E	4	30-40	Flot Sample - 5 Bags	10.1	9091.5	99.7	300	5.64	400	130	6	2 & 4mm: <.01 charred; grass & other herbaceous stems & roots. 1mm: 1ea - uncharred "Amaranth family," Rubus, small chunk charred wood.

17-050	FMIA-MolCamp-07172017-050	Auger Unit 01	2	10-20	Flot Sample - 5 Bags	9.6	6975.5	77.7	1400	170.1	800	1325.9	208	Every sieve size contains high proportion (>90%) uncharred wood
17-052	FMIA-MolCamp-07172017-052	Auger Unit 01	3	20-30	Flot Sample - 5 Bags	10.2	8367.1	116.4	500	53.9	600	773.8	341	1mm: <.1charcoal; uncharred Rubus
17-059	FMIA-MolCamp-07182017-059	Auger Unit 01	4	30-40	Flot Sample - 5 Bags	10.4	9015.3	106.2	400	31.2	150	191.4	554	4mm: >.25 charcoal; herbaceous wood and stems; some uncharred Heracleum
17-074	FMIA-MolCamp-07192017-074	Auger Unit 01	5	40-50	Flot Sample - 5 Bags	9	9536.7	103.5	100	20.3	25	80.2	506	4mm: >.25 charred wood, herbaceous stems. 1mm: >.15 wood, herbaceous stems, some charcoal
17-106	FMIA-MolCamp-08012017-106	Auger Unit 04	2	10-20	Flot Sample - 5 Bags	9.8	8871.7	90.7	400	84.7	200	339	547	2mm: ~.5 charred wood. 1mm: uncharred Sambucus, Chenopodium, Rubus. 1mm: high diversity of charred seed
17-108	FMIA-MolCamp-08022017-108	Auger Unit 04	3	20-30	Flot Sample - 5 Bags	9.4	8224.2	80	400	85.2	25	34.1	367	Variety of seeds sprouting in sample. Uncharred Sambucus, Rubus, Rumex, etc. .25-

														.50 charred material in sample
17-110	FMIA-MolCamp-08022017-110	Auger Unit 04	4	30-40	Flot Sample - 5 Bags	9.8	9262.8	73	175	20.8	150	202	582	~.5 charred material, mostly wood, some appears cut. Some uncharred Stellaria seed. 2mm sample has fungal growth
17-112	FMIA-MolCamp-08032017-112	Auger Unit 04	5	40-50	Flot Sample - 5 Bags	9.2	9126.8	87.4	100	19.6	10	20.4	268	No comments
17-115	FMIA-MolCamp-09072017-115	Auger Unit 05	2	10-20	Flot Sample - 5 Bags	9.2	8019.9	92.5	1600	169.5	200	406.6	410	4mm: Uncharred Heracleum, Rubus, Physocarpus, thorns; >.95 uncharred. 1mm: >.75 uncharred. High proportion of uncharred Rubus, some Physocarpus, thorns.
17-117	FMIA-MolCamp-09072017-117	Auger Unit 05	3	20-30	Flot Sample - 5 Bags	7.3	7039.4	104.5	200	40.8	400	562.3	52	4mm: Mostly uncharred, some moss, and a few sprouted seeds. Rubus & Heracleum.
17-119	FMIA-MolCamp-09072017-119	Auger Unit 05	4	30-40	Flot Sample - 5 Bags	9.6	8923.2	120.3	300	41.2	800	1448.3	239	4mm: Wood particles, few charred; Sm. amt of roots, lots of

														small strands off-white synthetic fibre. 1mm: 100's of uncharred Rubus seed, ~.5 of sample; also uncharred Sambucus, Physocarpus
17-121	FMIA-MolCamp-09072017-121	Auger Unit 05	5	40-50	Flot Sample - 5 Bags	10.61	9753.7	132.6	100	21.9	400	614.2	247	Mostly uncharred wood w/some charred (<.1); uncharred roots and herbaceous stems. 1mm ~.5 uncharred Rubus, some Sambucus, Hypericum. .3mm: Small amt med. blue plastic fibre.
18-038	FMIA-MolCamp-07122018-038	Auger Unit 07	5	40-50	Flot Sample - 5 Bags	10.5	9126.1	130.7	400	5.2	25	35.3	159	1mm: >.5 charred wood, much ~cut pieces. Few Rubus seed (uncharred), Sambucus, other ubiquitous uncharred lenticular seed w/acute tip & verrucose surface.
18-034	FMIA-MolCamp-07112018-034	Auger Unit 08	2	10-20	Flot Sample - 5 Bags	10	8616.5	100.9	400	33.4	600	893.5	159	2mm: high concentration of ant remains. .3mm & Pan: high concentration of

														insect eggs. Low concentration on charred material in this sample.
18-036	FMIA-Molcamp-07122018-036	Auger Unit 08	3	10-20	Flot Sample - 5 Bags	9.2	8022.8	100.1	400	68.2	225	471.1	65	.5mm: Very small amt, mostly grass.
18-040	FMIA-Molcamp-07132018-040	Auger Unit 08	4	20-30	Flot Sample - 5 Bags	9.2	7829.2	106.3	225	26.7	150	243.6	170	4mm: <.05 charred; >.5 roots & stems; ~.2 uncharred wood. 2mm: Few uncharred Rubus, Galium, Unidid' seed described in 18-038. Grey flake observed in heavy fraction and bagged
18-042	FMIA-Molcamp-07162018-042	Auger Unit 08	5	30-40	Flot Sample - 5 Bags	8.8	7782.5	118.1	75	9	100	195.8	78	Obsidian flake observed in heavy fraction and bagged
18-049	FMIA-MolCamp-07172018-049	Auger Unit 08	6	40-50	Flot Sample - 5 Bags	7.8	8000	139.2	75	6.5	<25	22.6	60	4mm: <.05 charred material, mostly grass & other forbs, roots, and stems. 1mm: .8 charred material, mostly wood, high proportion of uncharred Rubus seeds

18-045	FMIA-Mocamp-07162018-045	Auger Unit 10	2	10-20	Flot Sample - 5 Bags	10.3	8730.7	117.2	700	63.6	800	1200.1	166	4mm: <.01 charred material. 1mm: Many uncharred Rubus, Chenopodium, some Sambucus, unid'd described in 18-038. .5mm: Many Chenopodium, Myosotis
18-051	FMIA-MolCamp-07172018-051	Auger Unit 10	3	20-30	Flot Sample - 5 Bags	11.3	10154	100.1	400	23.8	800	1061.7	191	4mm: Herbaceous grass & stems; <20% uncharred wood. Brown chert in heavy fraction and bagged
18-058	FMIA-Molcamp-07192018-058	Auger Unit 10	4	30-40	Flot Sample - 5 Bags	11.12	9761.9	110.3	300	14.2	150	269.9	128	4mm: ~.75 uncharred grasses & herbaceous stems. 1mm: ~.75 uncharred grasses & seed (Sambucus, Rubus, etc.); ~.25 charred, mostly wood. .3mm: Higher quantity of insect remains.
18-070	FMIA-MolCamp-07242018-070	Auger Unit 10	5	40-50	Flot Sample - 5 Bags	10.6	9429.1	104.3	150	3.9	25	52.8	62	4mm: >.75 herbaceous stems; <.15 uncharred wood.
18-111	FMIA-MolCamp-	Auger Unit 15	2	20-30	Flot Sample - 5 Bags	10.2	8171.1	106.2	1300	137.6	275	308.9	84	4mm: High proportion of

	08062018-111													uncharred herbaceous stems, grasses, & wood. <10% charred. Entire sample very large
18-113	FMIA-MolCamp-08072018-113	Auger Unit 15	3	30-40	Flot Sample - 5 Bags	8.8	7712.7	No	400	36	150	169.6	66	4mm: Mostly herbaceous stems; <10% charred wood
18-115	FMIA-MolCamp-08072018-115	Auger Unit 15	4	40-50	Flot Sample - 5 Bags	9.7	8612	No	300	23.1	100	119.7	108	4mm: Herbaceous roots and stems; <10% charred wood. 2mm: small uncharred bone frag. 1mm: ~20% charred wood & seeds. High proportion ~40% uncharred wood & seeds
18-117	FMIA-MolCamp-08072018-117	Auger Unit 15	5	50-60	Flot Sample - 5 Bags	9.2	8571.9	No	325	87.4	75	75.5	136	4mm: herbaceous roots & stems; <5% charred wood; 1mm ~20 - 25% charred