Northwest Anthropological Conference Proceedings 2023

Journal of Northwest Anthropology

Special Publication #8

Edited by Victoria M. Boozer and Darby C. Stapp

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Journal of Northwest Anthropology
Editors' Preface

Darby C. Stapp and Victoria M. Boozer

The *Journal of Northwest Anthropology* (*JONA*) is pleased to present the *2023 Northwest Anthropological Conference* (*NWAC*) *Proceedings*. *JONA*'s relationship with NWAC began in 1968 and has endured for decades to make available thousands of NWAC abstracts and dozens of NWAC student award winning papers in regular issues of the journal. This is the third year that *JONA* has partnered with the Northwest Anthropological Association to produce the *NWAC Proceedings*. We thank the presenters from the 76th NWAC who made the effort to prepare their presentations for inclusion in the proceedings. We are confident that their research will benefit from writing up their new ideas and early findings and making it available to others, especially those who did not attend the Spokane conference. We especially thank Tiffany Fulkerson and Christopher Noll for promoting the *2023 Proceedings* and for writing the introduction.

While not formally reviewed, the *NWAC Proceedings* present new ideas and cutting-edge research that allows a wider audience to engage with early findings. The increased exposure beyond the attendees of the annual conference broadens the audience that can engage with new findings and expands the membership of the anthropological community who can influence the direction of research in its early stages. Publishing the proceedings allows students, scholars, researchers, and Indigenous professionals to introduce new ideas, concepts, and research; spread information of ongoing research projects; present reviews of completed studies with new insights that inform future research; gain valuable feedback from a community of specialists; create research networks; hone research questions; increase professional stature; and engage with the publishing process. The *NWAC Proceedings* connects early stages of research with researchers. It is our hope that the NWAC, presenters, and proceedings will continue to mutually benefit from the increased access to the research presented at the annual conference included in the yearly publication. The spreading of information concerning otherwise unpublished research material is a primary interest of the journal. It is *JONA*'s mission to disseminate and stimulate anthropological research, and continuing the tradition of publishing the *NWAC Proceedings* can aid the journal toward achieving that undertaking.

As with the 2021 and 2022 *NWAC Proceedings*, the 2023 compilation will be available at no cost on our website (www.northwestanthropology.com/nwac-proceedings).

The 2024 NWAC will be co-hosted by Portland State University and Geovisions and held in Portland, Oregon, on March 6–9, 2024. We will be publishing the proceedings and invite those planning to give an oral or poster presentation to include their research. Our goal will be to exceed the 19 submittals included in the 2023 proceedings.

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Introduction

Return and Renewal in Northwest Anthropology: Insights and Trends from the 2023 Northwest Anthropological Conference and Its Proceedings

Tiffany J. Fulkerson and Christopher Noll

"Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next."
–Arundhati Roy, *Financial Times*, 2020.

"I want to sing, strong and hard, and stomp my feet with a hundred others so that the waters hum with our happiness. I want to dance for the renewal of the world."
–Robin Kimmerer, *Braiding Sweetgrass*, 2013.

Introduction

The 76th Annual Northwest Anthropological Conference (NWAC) occurred during an unprecedented time in Northwest anthropology. Amid the challenges and collective trauma of a global pandemic for which no one has gone unaffected, transformative themes of regeneration and renewal have begun to emerge in the discipline and in broader social discourse. In an April 2020 op-ed in the *Financial Times* by Indian activist and author Arundhati Roy, Roy observed that throughout history, pandemics have acted as gateways, or portals, through which humans have been able to imagine a world improved from the ruptures that have eroded it (Roy 2020). Reflecting on this notion of pandemics as portals, Anishinaabe environmentalist, activist, and economist Winona LaDuke recognized that COVID-19 has provided us with an opportunity to build a renewed relationship with each other and with the earth (LaDuke 2020).

The 2023 NWAC was envisioned through a similar lens of return and renewal. As described in the meeting program and expanded on below, the conference marked a return to face-to-face meetings after three years of distance due to the pandemic. It took place in Spokane, Washington, a city whose rivers and falls have served as a place of gathering for communities since time immemorial. The 2023 meeting reflected a growing awareness of, and concern for, the legacies of settler colonialism and inequities that continue to shape and permeate anthropology in the Northwest and across the discipline. Likewise, the meeting occurred during a period of deep reflection and a renewed commitment to equity, representation, and inclusion by the Northwest Anthropological Association (NWAA), which facilitates NWAC, and by other NWAC affiliated societies and associations.

Elements of return, renewal, and many other themes can be found in the research presented at the 2023 meeting and in the submitted works of this proceedings, the latter of which is itself a relatively new contribution to anthropology in the Northwest. Below, we provide highlights of the 76th Annual NWAC and a brief history of the *Northwest Anthropological Conference Proceedings* (*NWAC Proceedings*), followed by a review of the trends in this year's proceedings and a discussion of the key messages and

takeaways of these engaging works. It is our hope that the higher level of participation in the 2023 *NWAC Proceedings* represents a new tradition for the conference and publishing venue—one that encourages a wider dissemination of knowledge in Northwest anthropology and a multiplicity of voices for anthropologists across fields and stages of professional development.

76th Annual Northwest Anthropological Conference

The 2023 meeting was planned and held within a year, and that year was full of uncertainty about whether the meeting would be canceled due to another round of increased risk to public health. The 76th annual NWAC planning committee pressed ahead through the uncertainty and planned with the hope that we could safely meet in Spokane.

The 76th annual NWAC was strongly focused on the future of anthropology in the Pacific Northwest. The meeting was held as we were emerging from a period of isolation and virtual meetings. We were also addressing challenges surrounding who was available to do the work and how the practice of anthropology in its many forms will be conducted in the future. Within the theme of "renewal," NWAC hosted state organizations that met in person for the first time in years and saw new leaders take positions. People new to the field were presented with a two-day employment expo to see firsthand the career opportunities that exist for them in the region. At the same time, receptions offered everyone a chance to reconnect with people they may not have seen or spoken to in years.

In the meeting rooms at the Centennial Hotel, NWAC hosted 122 presentations. These presentations included 75 oral papers, 42 research posters, 2 forums, a panel, a workshop, and a special session. Attendance at the meeting exceeded our expectations with 373 people, including 117 students. The attendees represented over 100 different Tribes and First Nations, academic institutions, agencies, museums, and companies from throughout the Pacific Northwest. While both the number of presentations and number of attendees were lower in 2023 than in previous years, the enthusiasm and participation that we had for this meeting is a testament to NWAC's importance in the region.

NWAC Proceedings Background

Despite the importance of the NWAC, for 73 years, the only record of the research delivered at the meetings was in the form of the conference program and abstracts published in the *Journal of Northwest Anthropology* (*JONA*). The 2021 NWAC was the first time that an attempt to publish full NWAC presentations occurred.

The creation of a proceedings for NWAC is significant for multiple reasons. Many professional conferences (e.g., the American Anthropological Association Annual Meeting, the Southeastern Archaeological Conference, the Society for California Archaeology Annual Meeting, etc.) already possess venues (proceedings, bulletins, edited journals, etc.) dedicated to making presented works available to their discipline and the public. Although non-refereed publishing venues have been met with skepticism by some for their lack of a formal evaluation process, the studies published in them are certainly not without quality and rigor and their value should not be overlooked. Research published in proceedings have already been disseminated to a professional audience, with opportunity for authors to incorporate feedback from conference attendees, and these studies often go through their own form of multi-level peer review (by supervisors, graduate committees, colleagues, etc.) (Seymour 2010a, 2010b).

Research demonstrates that on both regional and national levels, non-refereed publishing venues are more accessible to authors and exhibit greater diversity among authors with respect to gender and occupational affiliation compared to peer-reviewed venues (Tushingham et al. 2017; Fulkerson and Tushingham 2019a; Tushingham and Fulkerson 2020). As a result, they provide more opportunities for multivocality—a multiplicity of voices—in anthropology narratives (Hodder 2004; Fawcett et al. 2008). It is for these reasons that calls for professionals in Northwest anthropology to create a non-peer-reviewed publication like the *NWAC Proceedings* have previously been made (Fulkerson and Tushingham 2018; see also Fulkerson and Tushingham 2019b; Stapp et al., eds., 2019), and we are fortunate that *JONA* has taken up this call with great enthusiasm.

Clearly, conference proceedings are not a new concept in research, but this was a new effort for the Northwest anthropological community, and participation in the first year was light. Perhaps the strain of pandemic life took its toll, but contributions to the 2022 *NWAC Proceedings* were lower than the first year. Fortunately, we appear to have turned a corner and for 2023, 19 presentations comprising 16.2% of the research papers and posters at NWAC were submitted to the *NWAC Proceedings*.

To participate in the proceedings, research should be presented at NWAC and formatted to be consistent with the *JONA* publishing guidelines. Oral presentations consist of the text and figures as presented with the option to edit the presentation based on feedback provided by the NWAC audience. Research posters are copies of the posters presented, formatted to fit the standard size of the 8.5 X 11-inch *NWAC Proceedings* publication page.

Trends in the 2023 *NWAC Proceedings*

Submissions to the 2023 *NWAC Proceedings* were evaluated for trends in the research themes, disciplinary focus, and geographic regions represented, along with the professional affiliation(s) of authors. Collectively, these works reflect some of the broader trends in contemporary methodologies, theories, conceptual frameworks, and professional practices in Northwest anthropology.

Disciplinary Subfields

Of the four major subfields of anthropology, archaeology research is the most well represented among this year's submitted works, followed by cultural anthropology research (Table 1). We suspect, based on content analysis of 50 years of anthropological publishing in *JONA* (Walker, Jr., Stapp, and Cervantes, eds., 2017:Figure 2, Figure 3) and personal observations, that this is consistent with the types of research that are typically presented at NWAC, where archaeology has consistently maintained a strong presence. The dominance of archaeology in this year's *NWAC Proceedings* and historically at NWAC might be attributed to trends in the job market in anthropology, where cultural resource management (CRM)/ compliance archaeology is a prominent and growing industry with a high demand for qualified professionals (Altschul and Klein 2022). It may also reflect the focus and strengths of academic anthropology departments across the Northwest.

Table 1. Anthropology Subfields Represented Among Submitted Works.

Subfield	Total
Archaeology	13
Historic focus	5
Precontact focus	5
General focus	3
Cultural	6

Conference Sessions and Presentation Formats

Consistent with subfields represented, most studies (68.4%) in this compilation were presented in archaeology-themed sessions at the 2023 NWAC, followed by the Socio-Cultural Studies session (21.1%) (Table 2). Nearly one-third (31.6%) of all submitted works were presented in historic-themed sessions and 38.5% of archaeology submissions have a historic focus (see Table 1), which is a welcome change in a professional community that has tended to favor precontact archaeology research (Mathews and Lynch, this compilation). With respect to the presentation format of submitted works in this compilation, most (78.9%) were presented orally, with poster presentations representing 21.1% of submissions.

Table 2. NWAC Session and Presentation Type (Oral/Poster) of Submitted Works.

Session	Oral/Poster	Total
An Archaeological Miscellany	Oral	4
Environment and Human Land Use Patterns	Poster	2
Historic Archaeology	Oral	4
Modern Methods in CRM Archaeology	Oral	2
Northwest History & Historical Archaeology	Poster	2
Socio-Cultural Studies	Oral	4
The Chemistry of Archaeological Artifacts	Oral	1

Author Professional Affiliations

The professional affiliation(s) of authors, including single/primary authors and co-authors, was calculated from the affiliations provided in the author bylines (Table 3). In some cases, additional research (using department websites, social media, email listings, etc.) was conducted in order to determine whether an author was a student, faculty member, or research associate at an academic institution when their research was presented. For authors with more than one affiliation listed in a byline, each affiliation was included in the calculations.

Results indicate that around half (51.9%) of authors with an affiliation listed in the bylines are associated with an academic institution. Importantly, among all authors (first/single and co-authors) with an academic affiliation, the majority (71.4%) are either graduate or undergraduate students, and half of first/single authors with an academic affiliation are students. Students account for 37.0% of all authors with a listed affiliation. This is significant because it demonstrates that, for at least this year, the *NWAC Proceedings* has become a publishing venue for students in Northwest anthropology, which is a trend that we hope continues in an effort to support the voices of early career professionals.

Table 3. Professional Affiliation(s) Represented Among Authors (Single/Primary and Co-Authors).

Professional Affiliation	Total
Academia	14
Faculty	3
Research Associate	1
Student	10
Agency	4
Museum	1
Private Company	6
Tribe	2

Conversely, we find that authors with a Tribe affiliation listed in the bylines are not common and account for only 7.4% of authors (see Table 3). This is despite the presence of members and professionals from numerous Indigenous communities at the 2023 NWAC (as indicated by affiliations, organized symposia, and special sessions in the meeting program) and despite the fact that much of the research presented at the meeting and submitted in this compilation (see below) involve the tangible and intangible cultural heritage of Tribes and First Nations.

Part of this disparity may be attributed to differences in approaches to transmitting knowledge among Indigenous, academic, and industry communities (see Palmer, this compilation). We also suspect that complicity in settler-colonial violence by anthropologists (Walls, this compilation) and the expropriation and appropriation of Indigenous knowledge, materials, and lands by academic institutions and cultural heritage programs in the Northwest (Nash 2019; Goodluck et al. 2020; Lee and Ahtone 2020; Bond 2021; Fulkerson and Tushingham 2021) has rightfully caused the practice of publishing to be met with criticism and skepticism, and publishing venues to be perceived as unwelcoming spaces for Indigenous communities.

Regional Foci

Regions from across the Northwest and beyond are represented in this compilation (Table 4), from the Fraser Plateau and Northwest Coast to the Okanogan Highlands, Columbia Plateau, Great Basin, and northern and middle Rocky Mountains. Numerous studies focus more broadly on the Pacific Northwest or Intermountain West, while others are more global in reach.

Table 4. Regional Focus of Submitted Works.

Region	Total
Blue Mountains	1
Columbia Plateau	3
Global	2
Great Basin	1
Pacific Northwest-wide/Intermountain West-wide	4
Northwest Coast	3
Okanogan Highlands	1
Rocky Mountains (Northern/Middle)	2

Research Themes

Some of the most common research themes in this year's proceedings (Table 5) include colonialism, settlement, and immigration, which reflect a growing regard for the historic and contemporary impacts of settler-colonialism and globalization on local, Indigenous, and diasporic communities. Related themes of collaborative public archaeology and community-based approaches to research are also represented. Health and wellbeing are reoccurring subjects of interest, as are connections between culture, landscapes, and traditional/ancestral foods and medicines. Cultural and ancestral identities and their connections to materials and place are considered in multiple studies. Other topics of focus include historic-era economies, as well as labor and markets in modern economies. Current lab and field methods for interpreting landscapes and archaeological materials are also represented.

Table 5. Research Themes of Submitted Works.

Themes	Total
Basketry, Cordage, & Bark	3
Colonialism & Globalization	4
Cultural & Ancestral Identity	4
Food & Medicine	3
Health & Wellbeing	4
Historic-Era Economies	3
Immigration, Settlement, & Diasporas	5
Labor & Markets	3
Landscape & Land Use	3
Lithic Analysis	2
Organic & Inorganic Residues	2
Public Archaeology & Community Collaboration	3
Women & Families	2

Messages from the 2023 *NWAC Proceedings*

We are confident that the messages found throughout the 2023 *NWAC Proceedings* will resonate with a wide readership that reaches well beyond the Northwest anthropology community. Emerging from this body of work includes messages about the enduring relationships between people, material, and place that ensure a continuity of culture and that should not be divorced from one another when making conservation, heritage, and land management decisions (Buck; Croes; Marquardt et al.; Palmer). Readers will find related messages about how relationships between people, land, and economy are tied to health and wellbeing, and how the livelihoods and social fabric of communities can be changed when there are disruptions to these relationships (Taysom; Roland; Yoder). Attention is also given to the ways that traditional/ancestral foods and medicines are intimately tied to cultural identity (Buck; Marquardt et al.), and what happens after the onset of colonization when traditional foods become increasingly commodified and part of globally connected markets (Smith).

Throughout the ensuing works, readers will see shifts and advances in analytical approaches, including the application of current and innovative scientific methods that provide more robust and meaningful data and reveal the hidden potential for existing collections (McWilliams and Schultze; Noll;

Ozbun; von Wandruszka et al.). Readers will find a re-envisioning of commonly used frameworks that allow for more nuanced understandings of cultural connections, calls for the legitimacy and importance of non-academic ways of knowing, and the potential for congruity between cultural knowledge systems and western science (Bernick; Croes; Palmer). Renewed attention to historical/archival data and archaeological materials that provide pathways for discovering diasporic, gender, and other social identities can additionally be found (Harvey-Marose; Mathews; Sappington).

The following works also include calls for our discipline to confront the realities of colonialism and settler-colonial violence in the Northwest, and to question why our professional community has been reluctant to do so (Walls; Mathews and Lynch; Roland). Likewise, the works below include an emphasis on collaborative and community-based approaches to anthropological work—particularly those that cultivate reciprocal and sustainable relationships with individuals and communities (Gerlach; Croes). Amid the recurring theme of renewal that characterizes the 2023 NWAC and *NWAC Proceedings*, readers will also find messages about how "renewal" in its various forms (economic revitalization, reconciliation, etc.) can be experienced differently or inaccessible to certain populations. Alongside this is the message of how uncovering the extent of past and present violences, embracing marginalized voices, and legitimizing lived experiences can be the first steps toward truth and healing (Walls; Yoder).

Discussion and Conclusion

Against the backdrop of continued challenges and uncertainty over the pandemic and a re-envisioning of professional practices that may constitute a "new normal" for Northwest anthropology, the 2023 NWAC—with the theme of "renewal"—marked a return to in-person meetings and a welcomed growth in the 2023 *NWAC Proceedings*. As the new home for the dissemination of research presented at the annual meetings, it is our hope that the *NWAC Proceedings* can reach broader audiences, improve representation, and encourage multivocality in Northwest anthropology in a format that is readily accessible to members of our discipline and the communities and stakeholders that we hold a responsibility of transparency to.

This year's proceedings are a promising indication that the venue is heading in such a trajectory. It includes a strong representation of professionals in all stages of career development—from early to advanced—and has an especially strong presence of students who constitute the future of our discipline. The works in this compilation demonstrate that Northwest anthropologists are embracing current methodologies and research that articulates with the themes of identity, immigration, settlement, landscapes, health, and economy, often within the context of colonization and globalization. These studies speak to an awareness of the interconnectedness of people and tangible and intangible cultural heritage, and demonstrate a growing commitment to equity and anticolonial practices. Yet despite these encouraging trends, this year's issue lacks adequate voice from certain groups—particularly Indigenous communities—which demonstrates that there is room for more representation and growth.

If the COVID-19 pandemic is a portal, as described by Roy and LaDuke and referenced in the introduction to this chapter, we might imagine what a transformative anthropology would look like in the Northwest. Provided that the research represented in the collective works of the 2023 NWAC and *NWAC Proceedings* offer up some clues, we might see a future marked by accountability and growth; a future in which professionals and institutions actively work to repair, renew, and sustain relationships with communities, the land, and each other. Such growth might reflect our own professional efforts to "dance for the renewal of the world" (Kimmer, *Braiding Sweetgrass,* 2013).

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Beyond Culture Areas: Re-Visioning Archaeological Basketry

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Abstract

The culture-area scheme has framed basketry research in the Pacific Northwest for more than 50 years. An ever-increasing number of finds continues to show that basketry in the Coast Salish region has been distinct from that in other parts of the Northwest Coast for at least 3,000 years, and that technological and stylistic variation corresponds chronologically to established phases/culture types. These conclusions reflect generalizations weighted in favor of basket types and characteristics that occur with greater frequency. Anomalous specimens are deemed irrelevant to definition of the local style. Recent coastal finds with links to the interior Plateau and a reconsideration of "disappeared" exotic specimens in previously recovered assemblages suggest that coast-interior travel was normal in antiquity. Moreover, one should expect hybrids to be developed and successful (efficient) foreign types to be adopted—not via drift, but intentionally by the people who made baskets.

Introduction: The Research Paradigm

Basketry is a useful artifact type for tracing ethnicity in antiquity, arguably better than pottery since it can be directly dated by radiocarbon assay in addition to being stylistically sensitive and ubiquitous during preindustrial times. When present at an archaeological site, basketry is often abundant. It has the same analytic capacity regardless of the conditions that favored its preservation—water-saturation, extreme aridity, and extreme cold (frozen), among others. Complete specimens have greater potential, but, like potsherds, fragments can be highly informative (Adovasio 1977; Bernick 1987).

Studies of basketry in the Pacific Northwest, both archaeological and ethnographic, are usually situated in a culture area framework. In addition to artifact descriptions, they often feature comparisons aimed at teasing out significant differences and similarities and building regional syntheses that might reveal change (or continuity) through time (Jones 1976; Croes 1977; Bernick 1998, 2017; Held 2006). New finds refine details and expand the range of variation. But after five decades of research, they continue to confirm the established phases/culture types and the ethno-linguistic divisions defined by cultural anthropologists (Croes 2019). That is particularly true for the Coast Salish region, which has notably more ancient basketry assemblages and has seen more archaeological investigations than other parts of the coast. Although more and larger assemblages would further refine the results of analyses, a shift in research objectives has potential for basketry to contribute to knowledge of regional archaeology in hitherto neglected dimensions.

Site reports normally describe all basketry types in an assemblage in detail (Bernick 1983, 1989, 1994; Croes 1995; Croes et al. 2009). However, subsequent analyses aimed at characterizing assemblages are weighted in favor of the more frequently occurring types. Anomalous specimens that are present in small numbers tend to be disappeared from regional syntheses or relegated to a category called "other" (Bernick 1998, 2001, 2014; Croes 1989). Consequently, information about unusual specimens (even their very existence) is not widely disseminated, they are not integrated into stories of the past, and their contributions remain unrealized.

This paper discusses anomalous basketry from the Coast Salish region, mainly from the Northern Straits and Downriver Halkomelem areas as defined by Suttles (1990). It comprises a preliminary attempt to understand what they reveal about people in antiquity, an exploration centered on personal observations rather than formal technical descriptions. The first three examples summarize my presentation at the 2019 Northwest Anthropological Conference, which focused on coast-interior connections. Emboldened by a positive reception of those ideas, I extract further examples from publications and research in-process. The examples are essentially mini case studies. To provide context, I relate how and when they came to my attention. Separately and collectively, they represent a methodological pivot that is still under development, evidenced by only-partially successful substitution of the terms "coast" and "interior" for named culture areas.

Re-Visioned Interpretations

Coiled Basket in an Unexpected Location

A coiled basket cradle recovered from water-saturated deposits at the confluence of the Stave and Fraser rivers presents an unambiguous coast-interior link, though not exactly in the way I had initially assumed. The archaeological site (DhRo-1) is on Kwantlen First Nation lands in the Coast Salish region. Coiled basketry, which is characteristic of the Coast Salish in the postcontact era, is considered to have

spread to the coast from the interior in late protohistoric times (Haeberlin et al. 1928:133–134; Jones 1976; Bernick 1987; Held 2006:30). Coiled basket cradles resembling the archaeological specimen are relatively common in museum ethnology collections; many are attributed to communities in the lower Fraser River region. There are also many collected from Interior Salish communities. The ethnographic and ethnohistoric literature, as well as museum catalogs and online images document variation in construction details and highlight colorful decoration. They distinguish between those made with slat foundations versus spiral-coiled bundle foundations (Teit 1906:205–207; Haeberlin et al. 1928; Conn and Schlick 1998). The Stave Delta coiled basket cradle is the first known precontact specimen of its kind. It provided a radiocarbon assay calibrated to 790–690 B.P. (McLaren et al. 2019:146)—much older than anticipated.

The basket, which I examined in 2013 shortly after its recovery, is nearly complete though slightly damaged. It is an exquisite construction with a subtle corrugated-like texture to its spiral-coiled, flat-bundle-foundation sides but no decoration. The base is 1/1 checker weave (technically, weft-faced unequal plaiting) with sturdy wood slats for the warps and evidence of having been made using an awl (Figures 1A and 1B). For a detailed description of the basket, its context, and its recovery, see McLaren et al. (2019).

Had I been more familiar with coiled basketry, I might have noticed the atypical features immediately. Instead, I was merely disappointed at the absence of decoration. Fortunately, ethnographer James Teit's meticulous descriptions of Interior Salish basket-cradle manufacture are published (Haeberlin et al. 1928:210–212). Accordingly, the archaeological find matches—not a particular object but, rather, the suite of optional techniques and older methods he documents. Moreover, Teit's observations combined with occasional references in contemporary ethnographies and the site's geographic setting strongly suggest a Stl'atl'mx (Lillooet) attribution (Kennedy and Bouchard 1983:180; McLaren et al. 2019). Which, in turn, indicates coast-interior contact many centuries before the purported arrival of coiled basketry in Coast Salish territory. Whether the cradle was made in the interior or on the coast is moot.

The person who made the archaeological specimen was obviously experienced and highly skilled. The time and patience required to produce it argue against her being an expectant (or new) mother. A plausible hypothesis is that she was an older woman who made it for her grandchild, perhaps her first grandchild. She would have been amazed to learn that it washed up on a Fraser River beach nearly one thousand years later!

Enigmatic Twined Object

A "can-you-help-us-please?" email message introduced me to the most unusual basketry object I have ever seen. It was recovered in 2016 from a machine-excavated pile during an archaeological monitoring operation at the multi-component Crescent Beach site (DgRr-1), from an area with thick deposits of modern fill overlying a mudflat. Crescent Beach is in Surrey, British Columbia, near the Canada-U.S. border. The SOS came from archaeologists who had previous experience with local waterlogged basketry but did not know what to make of this specimen—nor did I. Characteristics of the weave suggested an origin in New Zealand or maybe Hawaii. However, a radiocarbon assay indicated an age of about 1900 B.P. for the unusual basketry as well as for several other "normal" waterlogged vegetal artifacts found nearby. That age nixed thoughts of a South Pacific import (Bernick 2018).

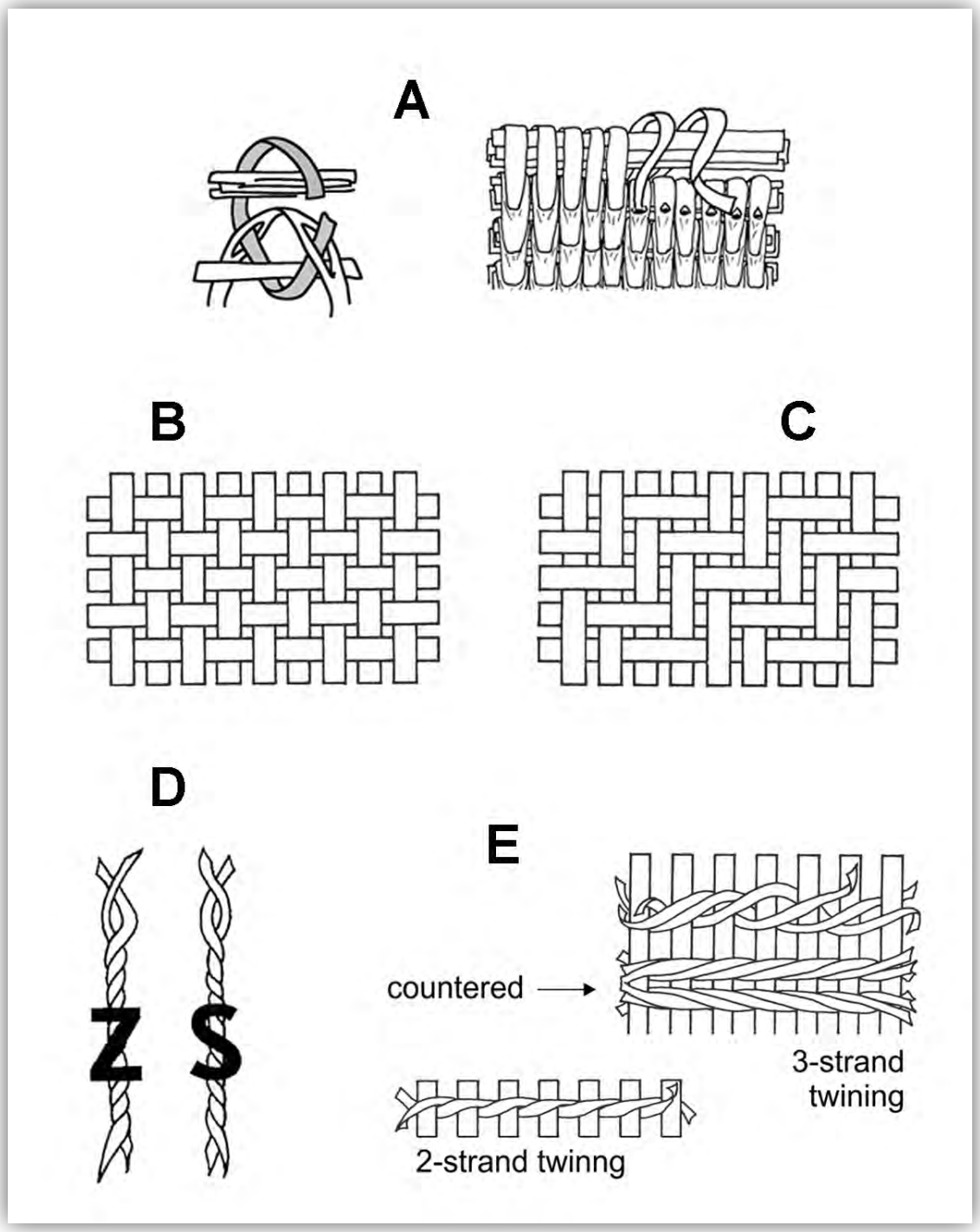

Figure 1. Basketry and cordage construction techniques: *A*, split-stitch, flat-bundle coiling; *B*, 1/1 checker plaiting; *C*, 2/2 twill plaiting; *D*, two-strand plied cordage, Z-lay and S-lay; *E*, two-strand and three-strand twining. Schematic drawings by K. Bernick.

The unusual basketry is a large, flat piece about 61 x 45 cm, broken along most edges but approximately its original size. It is woven in a combination of close two-strand countered twining and close three-strand countered twining (Figure 1E). The latter, which is thicker due to having a third strand, occupies the central portion and two sets of large, right-angled triangles in mirror image position. The infill between the triangles is countered two-strand twining and recessed. In addition to the triangles, there are two narrow lines of countered three-strand twining extending straight across the width of the object. The weft elements are thin and, in their current condition, extremely fragile; the warps are robust by comparison. Species identifications were inconclusive, but the material does not look like that of Northwest Coast basketry. Remnants of a stacked side selvage fashioned with what appear to be tule stems add to the list of unexpected features (Bernick 2018:12–17).

A search for analogues led to the conclusion that the unusual Crescent Beach specimen is either a presently unknown type of Northwest Coast basketry or it originated in another culture area, the likeliest being the Plateau (Bernick 2018:28–29). Some of the features, notably right-angled triangle motifs, occur with some frequency on Plateau basketry (Haeberlin et al. 1928:251) but very rarely on the coast. The combination of inverted geometric designs and countered close twining, along with the selvage (and its presence along a side edge) confer on the archaeological specimen characteristics of "cornhusk bags," which are a renowned type of Sahaptin basketry on the Columbia Plateau (Miller 1990, 1991; Fraser 2009). Differences include the use of false embroidery on the bags rather than three-strand twining, though both methods involve close twining with three strands. And, clearly, the material. Cornhusks (maize), dyed to provide the colorful decoration that is the hallmark and namesake of these constructions, were not available on the Plateau until the early nineteenth century A.D. What the cornhusk replaced is unconfirmed; there are no precontact examples (Miller 1991:179–181). It is tempting to suggest that the unusual 1,900-year-old specimen from Crescent Beach is an antecedent of the flat cornhusk bag. If so, other transformations also occurred. Apart from cornhusks, the warp and weft weaving elements differ in flexibility and almost certainly in species. Just the same, much can change over the course of two millennia including the evolution of basketry types previously not imagined. Analysis of basketry excavated in 2022 at Crescent Beach may add another chapter to this story.

Basket Shape versus Style

Excavated 60 years ago, 2,000-year-old basketry now housed at the Burke Museum poses a different kind of puzzle. Located in traditional Snoqualmie territory in eastern Puget Sound, in the western foothills of the Cascades, the Biderbost site (45SN100) produced basketry that is technologically and stylistically almost identical to contemporaneous specimens from the lower Fraser River region (Bernick 1989, 1998, 2001). Since the site lies within the boundaries of the Northwest Coast culture area, a link with the Fraser Delta has not been questioned. Indeed, according to oral traditions and the ethnographic literature people did travel from upper riverine areas to the coast, including to the Fraser River. They also travelled in other directions (Suttles and Lane 1990:488; de los Angeles and Blukis Onat 2001). In contrast, techno-stylistic characteristics of the Biderbost basketry are not at all like Plateau basketry. That seems odd given geographic proximity as well as trans-mountain connections including travel and intermarriage. Moreover, Charles Nelson (1976, 1990:483) notes that stone projectile points from Biderbost are western Plateau in style.

About ten years ago, in order to obtain data for a different project, I undertook a detailed analysis of the Biderbost basketry. The brittle pieces have tended to break across the weft leaving many with nearly complete measurements of original basket height and occasionally also reconstructable

circumference/diameter. These dimensions provide estimated basket size and, in combination with other attributes, of basket shape. The measurements reveal that many of the Biderbost baskets were tall and narrow, with slightly flaring sides and mouth diameter about two-thirds the size of their height. In shape, they resemble Plateau and Cascades-region coiled baskets such as those made by the Klickitat (Jones 1982:28–29; Trunbaugh and Turnbaugh 1986:165–166). Klickitat baskets typically have false-braid selvages much like the Biderbost specimens—and Marpole-age coastal basketry— though coiled baskets made by some other groups also do. However, it is their "pail shape" that is of current interest.

Ethnographers note that overland travel was common in upriver locations such as the Biderbost site (Smith 1941). Thus, a tall narrow shape suitable for carrying on one's back would be efficient and not surprising despite stylistic similarity to Fraser Delta baskets. Coastal baskets tend to be wide with flat bases suitable for transport by canoe (Jones 1982:26–27). Whether that difference in shape was also true in antiquity is unclear since the Fraser Delta archaeological specimens tend to be fragmented by excavating and dredging machines and their original shapes compromised. If the coast-interior difference in shape was also true 2,000 years ago, that could be the "missing" Plateau influence on Biderbost baskets. Conventional interpretations attribute development of the Klickitat tall narrow shapes to convenience of transport by horseback (Trunbaugh and Turnbaugh 1986:166), but that would not apply to Biderbost.

On the other hand, the antiquity of coiling on the Plateau is unknown; it is thought to have spread from the south in the past one thousand years or so, and then to the coast where it replaced many types of Salish woven basketry (Haeberlin et al. 1928:133–134; Held 2006:30). Alternatively, the opposite may have occurred. Perhaps 2,000 years ago everyone in the Cascades region made Biderbost-style baskets, and when the Klickitat adopted coiling, they retained a basket shape that was practical for their lifestyle.

Twill-Plaited Folded Basket

Several years ago, I saw a twill-plaited wood-splint basket cradle sitting in a tub of water in the Burke Museum's archaeology lab awaiting conservation treatment. It appeared to be complete but broken at one corner. Three Nooksack Tribal members on river patrol had found it in 2014 under an uprooted tree on the bank of the Nooksack River in Washington State near Everson. Photos of the basket as well as an account of its discovery and subsequent stabilization and reconstruction by the museum are published in the Nooksack Tribal newsletter *Snee-Nee-Chum* (2019). The article notes that radiocarbon analysis determined it is more than 300 years old. Dale Croes (2019:318 n227) comments on its fine, decorative weave. He likens it to the same general type as two ca. 1,000-year-old Skagit Delta specimens excavated in the 1970s from the Fishtown (45SK99) and Conway (45SK59b) sites respectively (Blukis Onat 1976:132; Munsell 1976:100, 119). Like the Nooksack basket cradle they are woven in 2/2 twill plaiting, but the cursory available descriptions constrain further comparison at this time.

Pending an opportunity to examine the Nooksack cradle, a similar basket cradle in the Indigenous collections of the Royal British Columbia Museum (RBCM) serves as a proxy. It too is woven in 2/2 twill plaiting (Figure 1C) and displays the same distinctive method of construction (Figure 2). The provenance of the museum specimen is ambiguous. A collector purchased it at a yard sale on southern Vancouver Island, but that is not necessarily where it was made or used. It is of Indigenous manufacture, probably dating to the early postcontact era. A description and contextualized discussion were published by Alan Hoover (1989), the RBCM's former ethnology curator. I examined it in 2014 after seeing the Nooksack specimen, with the aim of understanding the method of construction—which differs significantly from that of typical baskets. The following summary draws on my analysis notes.

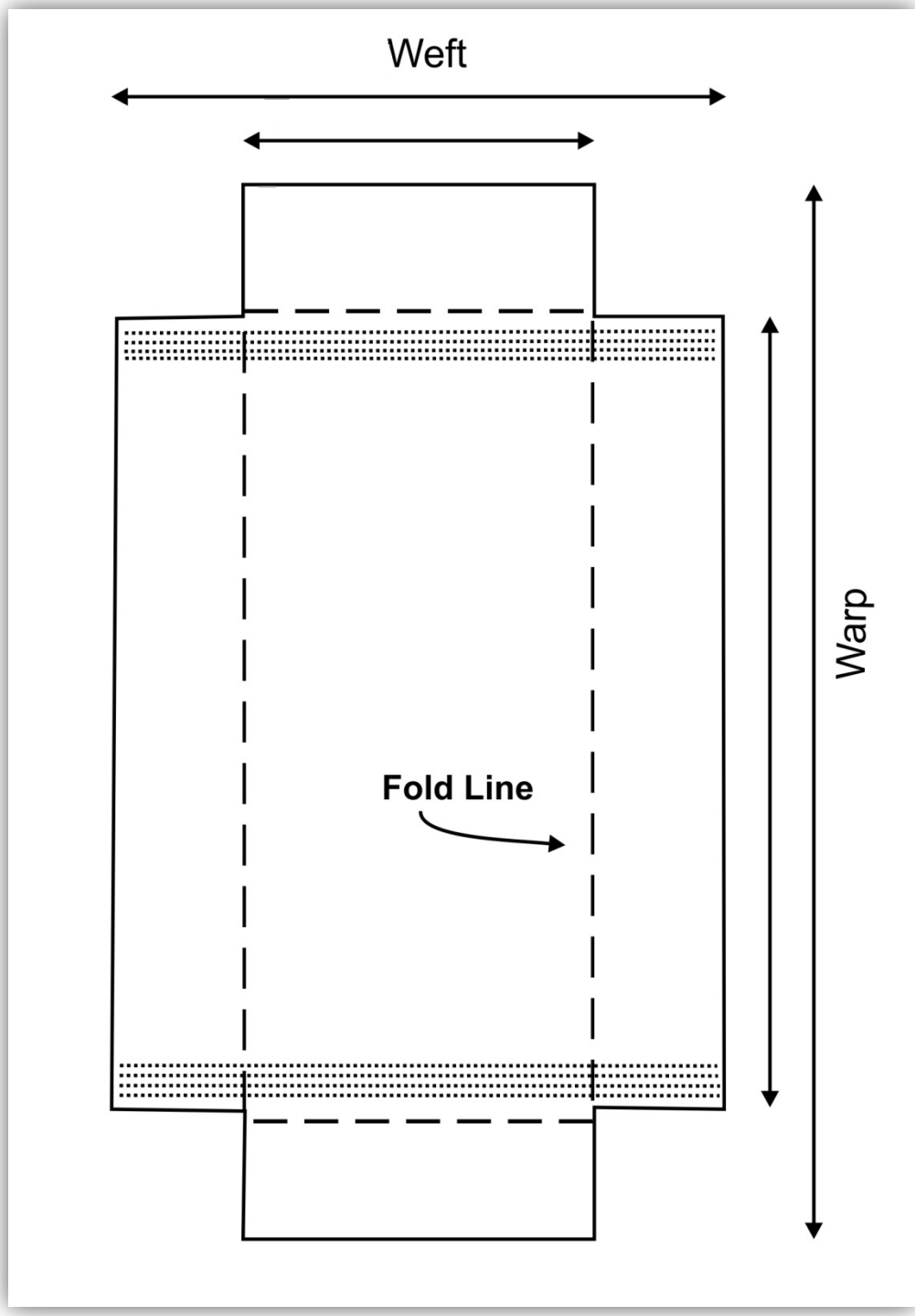

Figure 2. Pattern for making a twill-plaited folded basket cradle. The cross-shaped flat piece is woven in 2/2 twill plaiting with four close rows of twining across the warp at each end. Not shown: after bending up the ends and sides 90°, the corners are stitched closed forming a rectangular container. Drawing after a museum specimen (not to scale), by K. Bernick 2023.

Contemporary basketry artists would classify the twill-plaited cradle as a folded basket (LaPlantz 2001:49–54). It was made by bending up the sides of a flat woven piece and stitching them together at the corners. Figure 2 shows the shape of a flat piece used to make a specimen like that at the RBCM. The base and ends of the cradle are aligned with the long axis of the pattern; the sections that do not extend the full length are bent up to become the cradle sides. Extending across the full width at each end of what will be the cradle bottom, there are four rows of two-strand twining. These rows of twining are the clue that the entire object was woven as a flat form rather than having basket walls/sides woven with a spiralling weft. The twining would have held the plaited elements during construction and also served to reinforce the base. The ends and sides of the basket are bent up perpendicularly and each corner is closed with a complex braided stitch. The final part of the construction, the rim, consists of a ring bundle secured with a whip stitch. Photos of the Nooksack cradle in *Snee-Nee-Chum* (2019) show several rows of countered twining and an adjacent wrapped reinforcement extending across the width of the basket in three or four locations. That probably signifies it is larger than the museum specimen and needed a stronger bottom.

Folded woven baskets are not described in the ethnographic literature for the Northwest Coast and to my knowledge not represented in local museum collections. Construction by folding brings to mind birch bark baskets, which were common in the interior, and also containers made by folding slabs of cedar bark (Teit 1930:222; Schlick 1994:115–131). Nonetheless, suggesting a derivative relationship seems unwarranted. It is more plausible that twill-plaited folded basket cradles represent a local innovation. In the Coast Salish region twill-plaiting (2/2 and 3/3) has been the usual weave for making the bases of checker-plaited and open-twined wood-splint baskets for at least the past 3,000 years (Bernick 1998:145). These baskets are woven from the bottom up, beginning with a flat, twill-plaited base that is often encircled by a row or two of twining to hold the elements in place before they are bent up to become wall warps. The wall warps are then engaged by a spiralling weft or, on occasion, by weft elements arranged as a series of hoops. In her book about twill basketry, accomplished basketry artist Shereen LaPlantz (2001:49–50) observes that twill plaiting is notably easiest to weave as a two-dimensional flat form. She recommends folded baskets, made in the manner of bark containers and Japanese gift boxes, as a practical way of weaving a three-dimensional twill-plaited basket. That is also how the twill-plaited cradle is made. It might be particularly practical when making a container with low sides such as a cradle.

Plied-Cordage Warps

In addition to aspects of construction technique, decoration, and shape, the basketry weaving elements may exhibit properties characteristic of a community, region, or period. Warps consisting of plied cordage are one example. Northwest Coast baskets nearly all have warps (and wefts) readily recognizable as longitudinally split (and sometimes whole-round) withes and roots, or strips of bark. Plied (twisted) cordage warps are reported for one plaited specimen made of monocot materials, excavated in 2007 at the Sunken Village site (35MU4) on Sauvie Island in Oregon (Croes et al. 2009:139–142). That composition (1/1 plaiting with cordage warps) is consistent with a distinctive weave type known from 10,000 B.P. assemblages in the Great Basin. However, Croes et al. (2009:140) note uncertainty as to whether the plied cordage elements are the warps or the wefts, and to cover both possibilities they also liken it to vertically twined rush bags in ethnographic collections. The examples they give are woven in 1/1 plaiting with a tightly packed warp that conceals the two-strand plied-cordage wefts (technically, warp-faced plaiting). These kinds of bags were made in the interior as well as on the Oregon coast (Croes et al. 2009:139–142) and are consistent in age with Sunken Village site radiocarbon estimates of ca. 660–130 B.P. (Croes et al. 2009:44, 48).

The use of plied-cordage warps for cedar-bark close-twined coastal basketry has, or soon will have, better documentation. Until a few years ago, there was only one archaeological specimen from the Northwest Coast. It was excavated in 1971 at English Camp (45SJ24) on San Juan Island (Sprague 1976). Croes (1977:45, 2019:344) classifies it as a hat, which is not entirely convincing (the photo looks like a partial upside down, bowl-shaped basket). Regardless, a recently published close-up image clearly shows the plied-cordage warps, identified as "strings" (Croes 2019:344, 346, Figure 102.1). That cordage is S-laid (Figure 1D), which is opposite to the usual twist direction of coastal cordage, whereas the up-to-the-right (/) pitch of the twined weaving conforms to expectations for the southern Northwest Coast. On the Plateau, and also on the northern Northwest Coast, twined basketry is usually twined up-to-the-left (\). Recent finds in the Boundary Bay area of British Columbia include about ten fragments of close twining with two-strand plied-cordage warps (Bernick 2023). They represent several original objects, some with characteristics consistent with being baskets. Further details await completion of analysis. Though not directly dated, the English Camp and also the Boundary Bay specimens are associated with 2,000-year-old material.

Archaeological basketry in close plain twining with plied-cordage warps has a 9,500-year history in the Great Basin where it is made from tule and known as "catlow twining" (Connolly et al. 2017). The technique is also documented ethnographically for the Plateau, especially for flexible bags woven with cedar bark or bast fiber cordage warps (Haeberlin et al. 1928:138). Its sparse presence on the coast suggests an interior origin, as does its presence at 2000 B.P. sites that have other coast-interior links.

Conclusion

The examples discussed in this paper can be summed up in several ways. The most relevant from a methodological perspective is that, in antiquity, people travelled and moved around more than archaeologists have credited. Ideas and skills were an integral part of peoples' interactions, along with the transport of material objects. Their journeys may have taken them far or near, to visit kin or encounter strangers, or simply to explore. Always with the potential of imparting knowledge and receiving inspiration. Thus, mobile artifacts recovered at a particular location do not necessarily all represent the same cultural entity—but recognizing the foreign objects and reconstructing their origins is challenging. Sources of inspiration for new ways of making things, whether imitations or hybrids, would have been plentiful.

Considering basketry specifically, archaeologists classify and describe objects according to their technological attributes, especially weave type. That is the best way to include all items of an assemblage, complete specimens as well as fragments (often comprising the majority). It values the primacy of technology. Decoration, if present, often assumes a secondary level of importance. But baskets also have other kinds of attributes. Shape/function, practicality of construction, and characteristics of available materials may drive decisions about basket making. All of these options are touched on by the examples in this paper. There are sure to be more.

Acknowledgments

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Enhancing the Relationship of Culture and Place: Plants Sustain the Atomic Age

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Abstract

The Columbia Plateau is an ecoregion that is home to nearly 2,000 vascular plants. In the largest, hottest, and driest portion of Washington State lives a rich flora and productive soil. This region is also home to an untouched and undeveloped stretch of land in which culture meets place—the Hanford Reach National Monument. Within this 51-mile stretch of the Columbia River and the 196,000 acres of land are many rare and endangered native plants. Two native plants listed and protected under the Endangered Species Act are the White Bluffs bladderpod (*Physaria douglasii* ssp. *tuplashensis)* and the Umtanum desert buckwheat (*Eriogonum codium*). While there are methods and plans enacted to protect and restore these plants, there are few reports of the habitats as "culturally significant" and "culturally sensitive." The White Bluffs bladderpod occurs in the region known as the White Bluffs. This region ties deep into the sacred beliefs of Yakama people regarding life and a practice that follows death. While 344 acres of land are protected for Umtanum desert buckwheat and 2,861 acres of land are protected for White Bluffs bladderpod, the region is also cultural; the protection of these lands as sacred places pre-dates present federal requirements.

Keywords Yakama, White Bluffs bladderpod, Umtanum desert buckwheat.

Introduction

In the state of Washington, there are nine major ecoregions (Figure 1): the Northwest Coast, the Puget Trough, the West Cascades, the North Cascades, the East Cascades, Okanogan, the Canadian Rockies, the Blue Mountains, and the Columbia Plateau. The Columbia Plateau is the largest ecoregion in the state of Washington-covering nearly 13.9 million acres of land (Fertig 2020). In a central portion of the Columbia Plateau is the area known as the Hanford Reach, the last free-flowing section of the Columbia. This area includes a fifty-one mile stretch of land along the Columbia River that was designated the Hanford Reach National Monument (HRNM) in 2000. Two areas of the HRNM are now designated as critical habitat in Benton and Franklin counties, and protection is the result of two species of plants that are listed under the Endangered Species Act. The protection also covers the critical habitat where the plants reside. The critical habitat for the Umtanum desert buckwheat (*Eriogonum codium*) consists of 344 acres in Benton County on the Hanford Reach National Monument (Figure 2). The critical habitat for the White Bluffs bladderpod (*Physaria douglasii* ssp. *tuplashensis*) consists of 2,861 acres in Franklin County on the area known as the White Bluffs (Figure 3)—also a part of the Hanford Reach National Monument (The Center for Biological Diversity 2013).

Figure 1. Washington Ecoregions. U.S. Fish and Wildlife Service 2013.

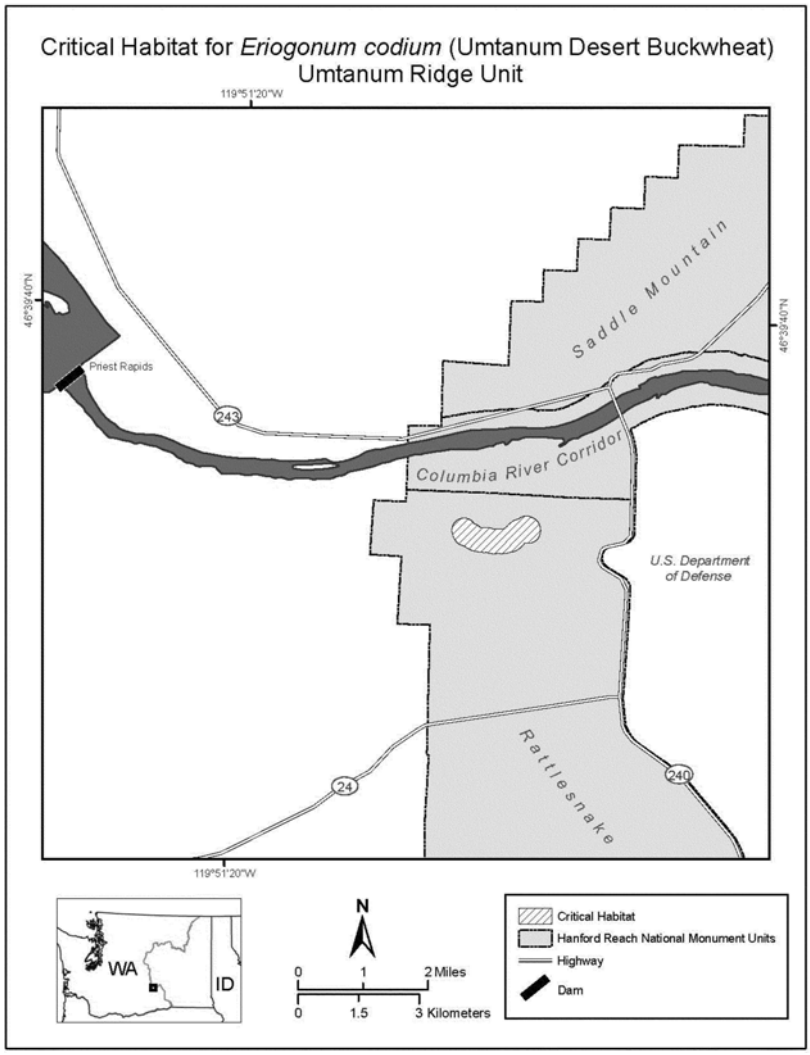

Figure 2. Critical Habitat for *Eriogonum codium* (Umtanum Desert Buckwheat), Umtanum Ridge Unit. U.S. Department of Natural Resources 2007.

Analysis

Under the Department of the Interior and the United States Fish and Wildlife Service, the threatened status for *Eriogonum codium* and *Physaria douglasii* ssp. *tuplashensis* (as well as the designation of their critical habitat) was affirmed under the Endangered Species Act of 1973. The rule was effective December 20, 2013, and published on April 23, 2013 (Department of the Interior, Fish and Wildlife Service 2013). The United States Geological Survey created four land management categories, and they're based on conservation and protection of native biological diversity. These categories are numbered one through four or Gap Status 1–4; "Gap 1" would be the highest degree of protection under this National Gap Program (Walter Fertig 2020).

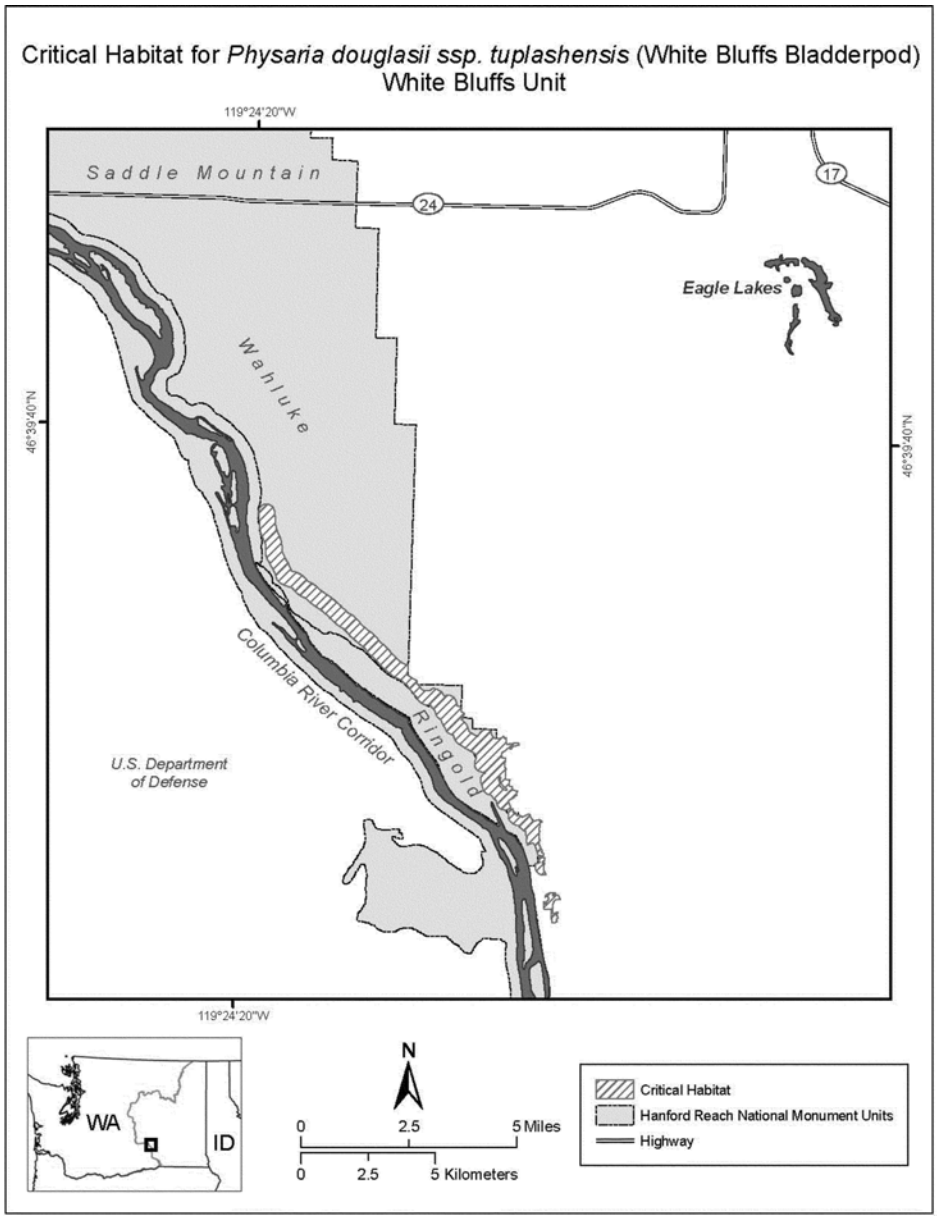

Figure 3. Critical Habitat for *Physaria douglasii* ssp. *tuplashensis* (White Bluffs Bladderpod) White Bluffs Unit. U.S. Fish and Wildlife Service 2013.

Eriogonum codium (Umtanum desert buckwheat) has the following conservation and protection status: G1/S—which means a Global rank 1/State rank 1, where the "1" is described on a 1 to 5 scale, "1" meaning "Critically Imperiled;" The Distribution Pattern is "LocEnd" which is Local Endemic; The Federal status is "T" meaning it is determined to be Threatened on a Federal level. The State status is "WE," and this states that the species is Washington Endangered, and finally "CP" and "p" is stating that this species is Present on the Columbia Plateau ecoregion (Walter Fertig 2020).

As for *Physaria douglasii* ssp. *tuplashensis*, it has the following conservation and protection status: G4?T1/S1—which is Global 4 (4 meaning Apparently Secure), Trinomial Rank 1 "Critically Imperiled," and a

State rank of "Critically Imperiled," the Distribution Pattern is "Loc End" which is Local Endemic, the Federal status is "T" meaning it is Threatened, the State status is "WE" which is Washington Endangered, and lastly, "CP" and "p" meaning the species is Present on the Columbia Plateau ecoregion (Walter Fertig 2020).

The Columbia Plateau ecoregion has a rich variety of rare and unique vascular plant species. The Consortium of Pacific Northwest Herbaria and Washington Flora Checklist websites provide a comparison of species and rare and unique vascular plants for all nine ecoregions. A portion of this information is significant to Washington Tribes. The total number of species for the Columbia Plateau ecoregion is approximately 1,956. The number of native species is approximately 1,387, and approximately 158 are unique to the Columbia Plateau. This is significant to local Tribes, like the Confederated Tribes and Bands of the Yakama Nation because many of the native plants that are endemic to the Columbia Plateau are important cultural plants.

The habitats for both the Umtanum desert buckwheat and the White Bluffs bladderpod are presently listed under the Endangered Species Act. This is a decision of great significance, and the Yakama Nation is in agreement. The health and recovery of these habitats are a vital portion of land that the Tribes and Bands of the Yakama Nation rely on for the continuation of their culture and way of life. The plants and habitats have a great cultural significance to the Yakama people, and this goes back to pre-contact land uses. It was written in The Lewis and Clark Journals that in October of 1805, the voyagers had come upon Indian lodges once they made their way to the Columbia River. One of the first observations they made were of graveyards near the lodges (Lewis et al. 2003). This record of an established people is explained in detail and has the description of a true relationship between Tribes and the land. This deep relationship between the Yakama people and the land continues to the present day.

Discussion

In order to better understand what is considered a Cultural Resource to Yakama people, it's necessary to understand the Yakama Culture. This cannot be so easily defined and can be constantly changing. For example, a Vision Quest site can be at a new place for each occurrence, per each individual, so a new culturally significant place will then be named. If the Yakama people see that something is important economically, socially, and spiritually, it can be considered culturally significant (Uebelacker 1984).

From a cultural perspective, The White Bluffs is a traditional cultural landscape for the Yakama Nation. It is referred to as "*Tiplas*" in the *Ichishkíin* language, a native language of the Indigenous people of the Columbia Plateau region (Virginia Beavert 2009). The National Gap Status mentioned earlier in this document assigns a rating on a scale of one to four, and this is based on the degree of protection and conservation of native and biologically diverse places. Gap status 1 has the highest degree of protection, meaning the status gives permanent protection and has a mandated management plan to maintain a certain condition. On the other hand, if the land is Tribal land, and has no formal conservation designation from the Tribe(s), it has a Gap 4 status. Gap 4 Status is not considered protected (Walter Fertig 2020). Status 4 means there are no known public or private institutional mandates, legally recognized easements, or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types (Jennings 2000). The area generally allows conversion to unnatural land cover throughout. The White Bluffs holds foods, medicines and historical campsites of the Yakama people dating back since time immemorial, long before the 1800s. The White Bluffs bladderpod is a species of plant very specific and rare to the White Bluffs habitat. The plants' survival is important to the Yakamas by helping to maintain the lands' natural integrity (Resources 2020). If the region of the White Bluffs

acquires protection by means of this culturally significant plant, then this species of plant protects a place that is also a Sacred Site to the Yakama Nation—a site that would otherwise not be protected.

Umtanum Ridge is also a culturally significant place. Its location is along the Columbia River, "*N'chi Wána*" (Big River in *Ichishkíin*). This ridge runs southeast from the Cascades to the Columbia River, ending near Priest Rapids Dam. The name is said to stem from an *Ichishkíin* word, "*ɬmtnɬm*." The Umtanum desert buckwheat is a narrow endemic plant specific to this particular ridge and known nowhere else. This ridge is home to foods and medicines of the Yakama people, as well as wild game hunting areas. One example of a native food that occurs on this ridge is the "*sɬkni*" or the yellow bell flower (*Fritillaria pudica*). This is one of the first foods for the Yakama people, especially during the spring gathering season (Virginia Beavert 2009). Other foods and medicines include balsamroot, and types of buckwheat and lupine. The buckwheat and lupine were historically used to decorate gravesites (Hunn, *Sahaptin Ethnobiology*, 1979). This species of plant, along with the White Bluffs bladderpod, is also under state and federal protection on the Hanford Reach National Monument (HRNM).

The current protection for these two plants began with their discovery during a botanical survey in 1995 at the Hanford Reach. After 1999, the Hanford Reach was recognized as a rich habitat of significant plant and animal diversity. In 2000, the Hanford Reach was designated a national monument (The Center for Biological Diversity 2013). In 2013, the Umtanum desert buckwheat and the White Bluffs bladderpod were affirmed and listed on the Federal Register for Endangered species through the U.S. Fish and Wildlife Service (Department of the Interior, Fish and Wildlife Service 2013). In 2021, the U.S. Fish and Wildlife Service created version 1.0 of the Recovery Implementation Strategy for Umtanum desert buckwheat and the Recovery Implementation Strategy for White Bluffs bladderpod. Under the Gap Status 1, it is mandatory to formulate a management plan for the recovery efforts (Walter Fertig 2020). Both plans include a three-part framework: assessment of the species, concise overview of the recovery strategy, and an outline of how to implement the recovery plan.

To establish "recovery," there are certain habitat conditions that must be met, that are lined out in these plans. The Umtanum desert buckwheat was listed as a threatened species on December 20, 2013, under the Endangered Species Act of 1973. Under the recovery efforts, there are three parts: the Recovery Vision, the Recovery Strategy, and the Recovery Criteria. The criteria are what will be covered here. To change the status from "listed" to "recovered," five conditions must be met. First, there must be at least six populations of Umtanum desert buckwheat. Second, each population will be self-sustaining with a certain population size for a period of at least fifteen years. Third, nearby populations will be in a matrix of native shrub steppe habitat within effective pollinator distances, while threats are being managed. Fourth, populations that are contributors to the recovery are protected from wildfire by minimizing fuels. Fifth and finally: establishing, storing, and maintaining a seed collection at a seed bank to support augmentation and reintroduction efforts is a requirement, in case the species becomes extinct in the wild. A major part of the recovery plan is reduction of the threats. The threats to Umtanum desert buckwheat are: wildfires, invasive species, climate change, a narrow geographic distribution, a declining population, and low recruitment (U.S. Fish and Wildlife Service 2022a).

The White Bluffs bladderpod was listed as threatened on April 23, 2013, then affirmed with revisions on December 20, 2013, under the Endangered Species Act of 1973. The recovery efforts are also in three parts: the Recovery Vision, the Recovery Strategy, and the Recovery Criteria. For the status to be changed from "listed" to "recovered," the following two conditions must be met. First, discovery or establishment of at least one additional population of White Bluffs bladderpod within the monument, or on nearby protected lands. These populations must be capable of adapting to a changing environment.

Second, management and improvement of the habitat to support the populations must be established wherever the species occurs. The threats to the White Bluffs bladderpod are: wildfire and fire suppression activities, slope failure/landslides, recreational activities and/or off-road vehicle (ORV) use, competition and fuels load from non-native plants, small population size, limited geographic range, and climate change (U.S. Fish and Wildlife Service 2022b).

Chronology

Land use, chronologically, may be extremely broad through a cultural lens. More broadly, are the major events on the one piece of land, presently known as the Hanford Nuclear Reservation. In 1805, the Lewis and Clark expedition encountered Tribes and Bands along the Columbia River, and as mentioned earlier, one of the first encounters were gravesites (Lewis et al. 2003). There had already been an established pattern of living and movement of village sites, and these were in alignment with available seasonal resources. This was a time before the establishment of the Washington Territory and before Treaty negotiations took place, which began near 1848. In 1933, the Columbia River had been altered by the construction of hydropower dams. In March of 1943, the groundbreaking began for the Manhattan Project at the Hanford Site, called "Hanford Engineer Works" (Hanford Cultural and Historic Resources Program 2003). Prior to these major events of: land surveys, Euro-American settlement, establishment of territory, dam construction, and The Manhattan Project, this region was open land to Indian Tribes.

Conclusion and Cultural Setting

Eugene Hunn, in his book "*Nch'i Wána*" describes this open style of land use as a type of ethnogeography. The perspective of land to a Tribe was from a culturally significant event or resource that gave a site its name. The individual or the Tribe were/are able to give more detail as to the degree of importance of a site based on the cultural importance of that area (Hunn 1990).

For Yakamas (and other Tribes), an entire region could be named based solely on the most abundant resource. For example, if a plant such as Tule or American bulrush (*Schoenoplectus acutus*) were found to be of exceptional quality and in abundance at one site, that entire marshland could be named in relation to this presence (Hunn 1990). This ancient perspective of the relationship between the land and Tribes and Bands is still a practice with present-day Yakamas. Land use for Yakamas isn't easily defined in a consistent manner. One cultural site can be added to a landscape based on an event that may have occurred at that site. A food or medicine may occur on a site, and it is this traditional importance that now makes it a cultural site to Yakama people. There is a practice of economic use by Yakamas on the land. There is also a ceremonial use that can co-occur with an economic use for a plant. The economic use of a region of land, for example, could be gathering a plant medicine. This medicine may be stored or used right away. The economic practice of gathering this medicine would be that only what is needed is gathered, and there's minimal disturbance to the plants' habitat. This practice is noted and recorded in old documents and oral histories of Native peoples dating back to the early1800s and prior (Uebelacker 1984).

Acknowledgments

I feel it's important to acknowledge the team at the Yakama Nation Environmental Restoration/Waste Management Program. In the short time I've interned with this team, my academic experience has been significantly heightened and polished. I also feel it fitting to give an honorable Land Acknowledgement to the first peoples of this land in Central Washington, the Fourteen Tribes and Bands of the Yakama Nation and the Wanapum Band.

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Generationally-Linked Archaeology: The Use of Ancient Basketry (and Cordage) fromWet/Waterlogged Sites On the Northwest Coast to Show Cultural Ancestry and Identity

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Abstract

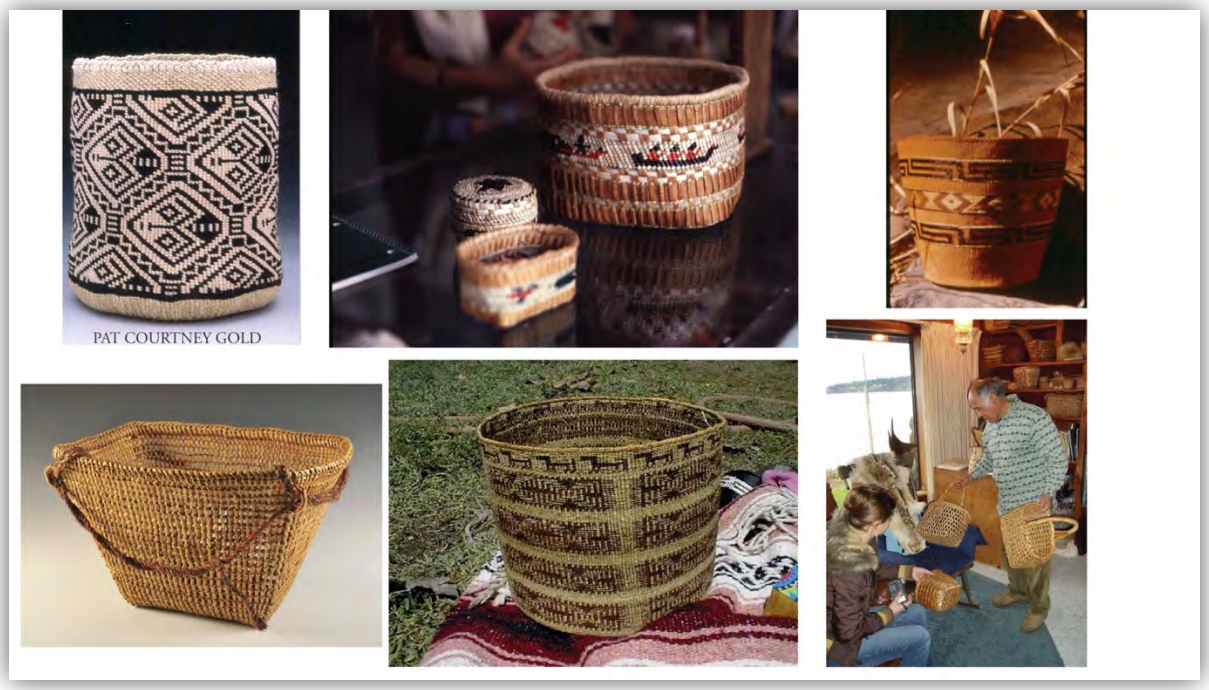
Through five decades of basketry and cordage research, I have tested style similarities in specific regions of the Northwest Coast. In recent work with Salishan Master Basketmaker Ed Carriere, Suquamish Elder, we have coined our approach as *Generationally-Linked Archaeology*, defined and explained in our *JONA Memoir Re-Awakening Ancient Salish Sea Basketry, Fifty Years of Basketry Studies in Culture and Science* (Carriere and Croes 2018; Croes, Carriere, and Stapp 2018). Working from as far back as possible (deep time), and as additional wet sites have been reported, I have tested degrees of similarity of basketry and cordage attributes (modes) and types using Average-linkage Cluster, Cladistic, and Bayesian phylogenetic test time-calibrated analyses. These tests conducted over four decades continue to support the hypothesis and demonstrate stable cultural styles through time, especially with Ed's work (Salishan region) in contrast to those from the outside (Wakashan/Makah) West Coast sites for at least 3,000 years. Together we have experimentally replicated ancient wet site basketry in museums as old as 4,500 years, where Ed, supported by my statistical hypotheses, has learned from over 200 generations of his Salishan grandparents, compiling layers of weaves from 4,500-, 3,000-, 2,000-, and 1,000-year-old styles in a single basket he calls an Archaeology Basket—analogous to a Salishan 4+ millennia history book.

In July 2022, Carriere was awarded the Community Spirit Award by the First Peoples Fund, and in February 2023, Carriere received the National Endowment for the Arts (NEA) National Heritage Fellowship, both in large part from his work with Northwest archaeological basketry. On the science side, Ed Carriere and I were awarded the March 2023 Society for American Archaeology (SAA) Award for Excellence in Archaeological Analysis, based on our *Generationally-Linked Archaeological* approach and demonstrating that the synergy of culture and science produces more conjointly. Because of these awards, our publisher, Northwest Anthropology, LLC, has issued a hard cover version of our book, now available on their Storefront and Amazon.

Keywords *Generationally-Linked Archaeology*, wet sites, Cultural Identity, Salishan, Salish Sea, Wakashan, Hoko River, Ozette Village, Biderbost, Water Hazard, Boundary Bay, Musqueam NE, Glenrose Cannery, fishing creel, Ed Carriere, Julia Jacobs, John Cook, Cultural Transmission, Cultural Evolution, Old-Man-House, clam basket, pack/burden basket, Kathleen Hawes, Thuja plicata, Washington Archaeological Society (WAS), average linkage cluster analysis, Cladistic analysis, Bayesian phylogenetic test, Archaeology Basket.

The following are PowerPoint slides (Slide 1, 2, 3, 4...) with captions as presented at the 76th Northwest Anthropological Conference held from April 12th to 15th, 2023, in Spokane, Washington.

Slide 1. *Introduction:* Hello I'm Dale Croes and I have worked my entire career developing what has become termed the *Generationally-Linked Archaeology* approach. Images from left-right: (1) I began this work at the Ozette Village wet site analyzing the basketry and cordage for my M.A. thesis and Ph.D. dissertation; I (at 23) am on the cover of recent *JONA Memoir* 17 cleaning a basket at the site (photograph by Ruth Kirk; Croes 2019); (2) at 30 I'm excavating a 3,000-year-old burden basket at the Hoko wet site as tide comes in; (3) at 60 I'm helping to recover a large clam basket with the Squaxin Island Tribe at the *Qwu?gwəs* wet site; (4) an acorn basket in an acorn leaching pit at the Sunken Village wet site, Portland, Oregon (Croes et al. 2009); (5) Ed Carriere (83) and I (70) on the cover of our book, *Re-Awakening Ancient Salish Sea Basketry, Fifty Years of Basketry Studies in Culture and Science,* where the full approach is defined and explained through our work together (Carriere and Croes 2018); and (6) an Ozette whale harpoon rope on the cover of *JONA Memoir* 21 (Croes 2021).

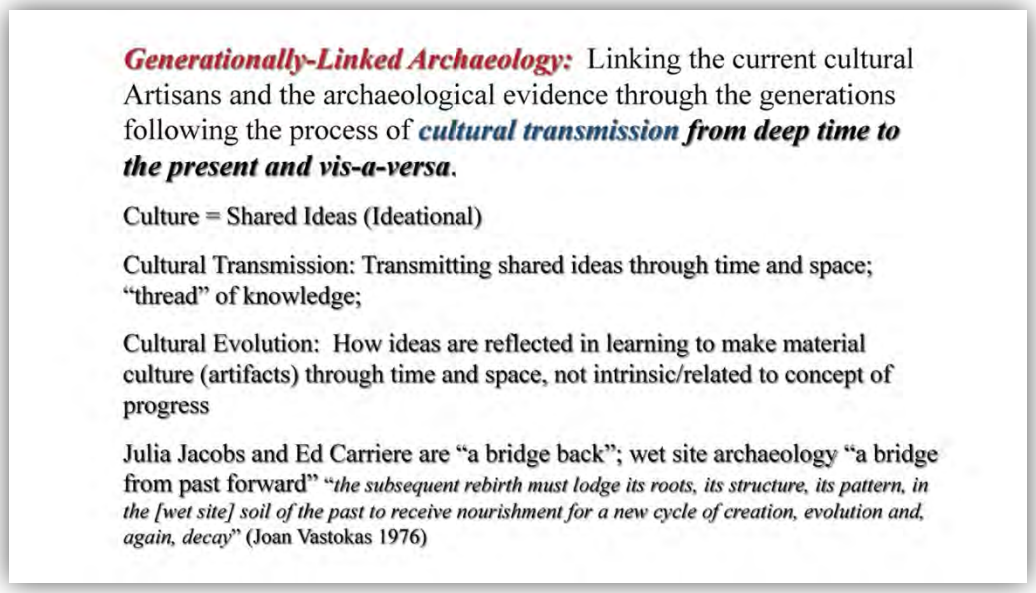


Slide 2. *Now a short quiz*—to demonstrate how sensitive basketry can be in terms of cultural identity from community to community in our Northwest Coast region, take a moment and see if you can identify the origin of the cultural community for each image.

Answers (images from left to right): (1) Master Weaver Pat Courtney Gold's basket has distinct designs of the Wasco/Warm Springs Tribes along the Columbia River; (2) these cedar bark based baskets, with canoe and whale designs, are distinct Makah baskets; (3) this spruce root fine twined basket with geometric designs is from the northern Tlingit community; (4) this burden basket with open wrap twine (bird-cage weave), distinct corners and vertical tumpline loops is seen for 3,000 years from the West Coast Hoko, Ozette, and Makah communities; (5) the row of wool dog designs on the top edge, and the distinct side symbolism, is Skokomish Tribe in style; and (6) the hallmark split cedar limb and root clam baskets are being shown by Ed Carriere in his home studio. Recognize how distinct each communities' style is and how this is the case for millennia of archaeologically basketry as well (below).

Next, I showed an actual example of the basket illustrated in the upper left of the next slide and asked what it is called or named. After a short pause someone yelled *fishing creel*, and I pointed out, that if you are of any Euro-American descent, this is a very distinctive (and an unusual formed) basket of your heritage.

Slide 3. I had the pleasure of being an apprentice for two summers with John Cook, an Austrian Master Basketmaker, living in Elk River, Idaho (Carriere and Croes 2018:53–54). He was trained as a young man in Austria to become a willow wicker basketmaker specializing in agricultural baskets. In searching for the origins of the European *fishing creel*, I found it is a Middle English term seen ~750 years ago, approximately 38 generations back. Also, its distinct image is seen in a woodcut printed cover of a 1662 fishing book, or 18 generations back. (Lower left) I am shown working with John, measuring a top loop for my basket at 27 years old. When working with European basket making everything is carefully measured with tapes, etc., and each step is verbally explained in detail by the teachers. In Northwest Coast basket making one mostly judges the measurements while making the basket and most learning is by observation, not being verbally explained. If you do something wrong, the teacher takes the basket from you, undoes the mistake, and redoes the work correctly while the student observes, and when the teacher feels you must have seen the correct way, they give the basket back and you can resume.

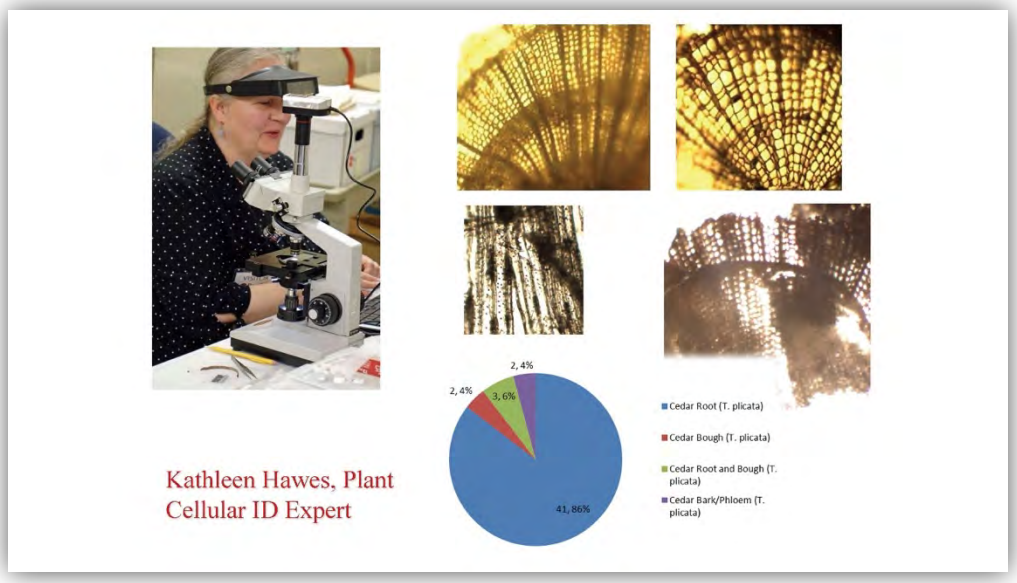


Slide 4. These are general definitions and explanations underpinning *Generationally-Linked Archaeology*. As mentioned, the whole approach is outlined and detailed in *Re-Awakening Ancient Salish Sea Basketry* (Carriere and Croes 2018) and *The SAA Archaeological Record* (Croes, Carriere, and Stapp 2018).

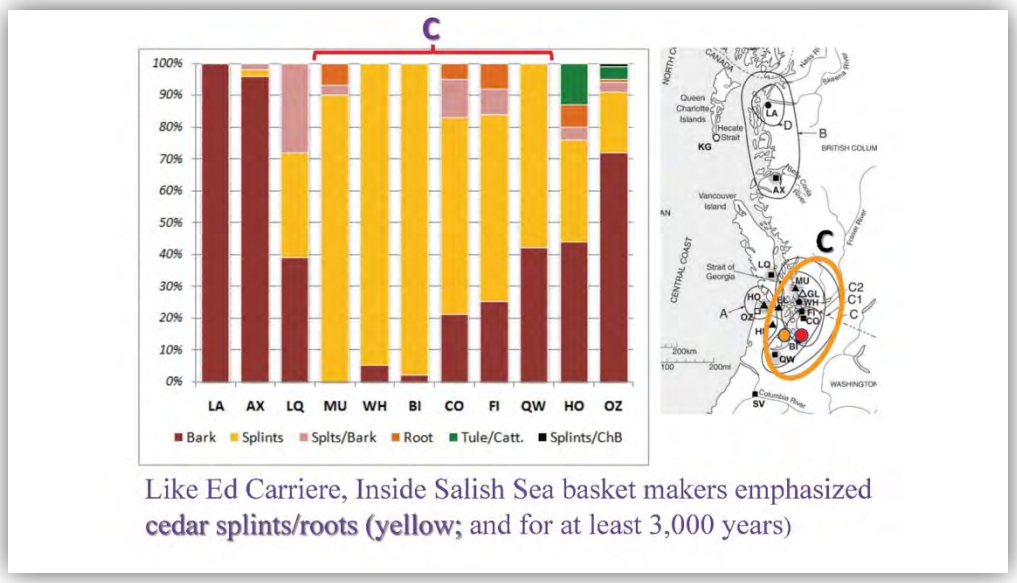
Slide 5. We are very fortunate that Ed Carriere was raised from infancy by his Great Grandmother Julia Jacobs, who was born in 1874. She moved with her family from the large cedar plank house, Old-Man-House, in her late teens to the allotment that Ed currently lives on. Ed is shown with his hallmark split cedar limb/root clam basket that he learned to make from Julia when he was 14 and used it to collect clams with his family to make spending-money. It's worth pointing out that he made his first clam baskets to use, and later ones were made to sell as examples of early clam basket, mostly to non-Indians.

Slide 6. Early photographs of Coast Salish clam baskets like Ed learned from Julia. Upper left: an 1870 photograph comparing Nuu-chah-nulth/Makah woman (left) with a Salish woman (right). Note the Salish woman's clam basket with a tumpline. Lower right: an Edward Curtis picture, probably of Princess Angeline (Chief Seattle/Sealth's daughter) collecting mussels with classic clam baskets in ~1898. Julia Jacobs was raised in Old-Man-House where the Seattle/Sealth family resided as well.

Slide 7. (Left) Ed with Julia at 14 when he learned to make clam baskets—she provided this "thread of knowledge" to the deep past; (right) examples of several clam baskets Ed made for sale at art festivals. From sales records we calculate that Ed has made over 600 clam baskets in his life so far.



Slide 8. In working with the 2,000-year-old ancient Biderbost wet site baskets, both for analysis and our replications, Kathleen Hawes conducts cellular analysis to identify not only the plant used, but the part of the plant (root, limb, bark). The pie chart shows that 86% of the Biderbost pack baskets were western red cedar root (microscope slides on right) versus limbs/boughs (on left). Another 10% are a combination of cedar roots and limbs or just cedar limbs. Cedar bark (4%) is rare.



Slide 9. The bar graph shows the basketry materials emphasized at major Northwest Coast wet sites. Encircled area C is the inside Salish Sea, with a marked emphasis on splints, split cedar roots and/or limbs (yellow in bar graph). Ed's home is shown with orange-yellow dot and the Biderbost site is the red dot. In *Generationally-Linked Archaeology* we show the statistical connections between the baskets Ed replicated from Biderbost to the other sites for 3,000 years in the inside Salish Sea and hypothesize that these are his Salishan communities' ancestors.

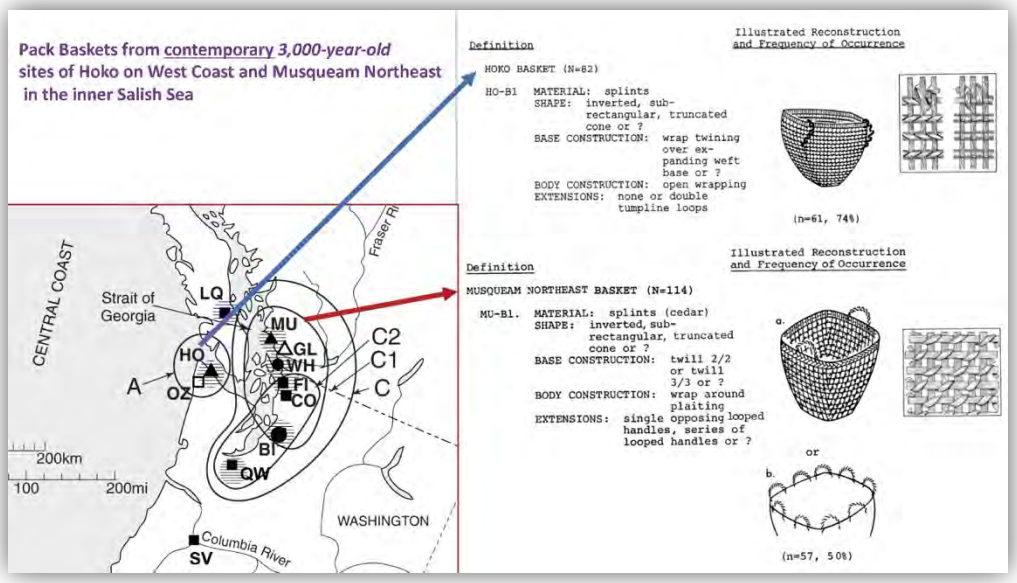
Slide 10. The site Ed and I analyzed and produced replications of 2,000-year-old basketry, was the first wet site excavated on the coast and was conducted by the *Washington Archaeological Society* (WAS). They used some hydraulic techniques to recover the most common pack baskets made with split cedar root in a checker plaited body (upper two right photographs) and some made with fine open twining (lower right photograph).

Slide 11. The Biderbost collection is at the U.W. Burke Museum, and Laura Philips, Archaeology Department, shows Ed the baskets as he begins replicating the lower center open twined basket following her request. The lower right original basket is shown in the ground, *in situ*, in the lower right slide (10) above and with Ed's split cedar root replica; in dimensions, this small basket has a complete base, height, and rim with handle, so Ed's replica is exact. The large fine open twine pack basket is made on a Styrofoam form; at Ozette bentwood boxes were used as forms for making the most common twill weave food storage baskets (Croes 2019:236–248). The 2,000+ year-old pack basket bottoms in the inside Salish Sea were typically of twill 3/3 weave (upper right).

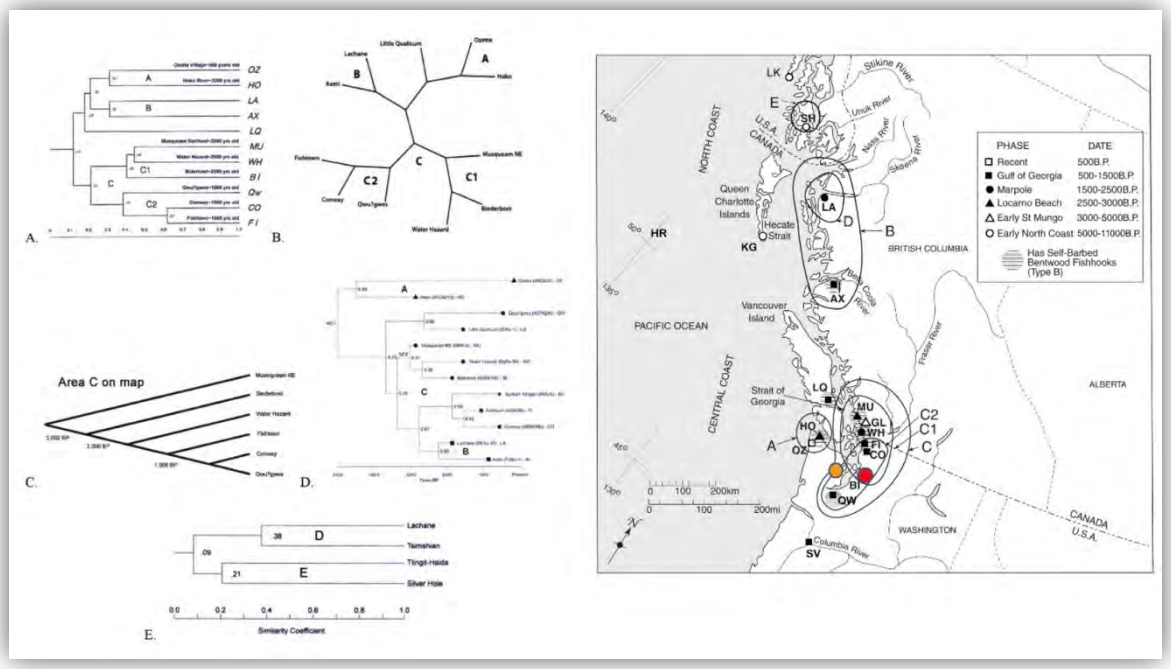
Slide 12. The Biderbost fine open twine pack basket with handles placed down on reinforcement rows (lower left) is replicated by Ed (upper left). The most common "rough and tumble" checker plaited pack baskets, with handles down on reinforcement rows is shown *in situ* at the Biderbost site (upper center), at the Burke (lower right) and in my replication in splint cedar roots (upper right). I was carefully guided by Ed in my replication and greatly benefited from learning Makah basket making in Neah Bay classes at their school from Master Weavers, and sisters, Isabell Ides and Lena McGee Claplanahoo (Carriere and Croes 2018:48–52). The Makah leadership believed (rightly so) that I could not fully understand the ancient Ozette basketry unless I learned from their Masters.

Slide 13. Beyond the call of duty… Victoria Boozer, *our Journal of Northwest Anthropology* Production and Design Editor, models my replica of a checker plaited, cedar root Biderbost pack basket with tumpline strap at the Northwest Anthropological Conference presentation. Thank you for all you do for us at *JONA*, Victoria!

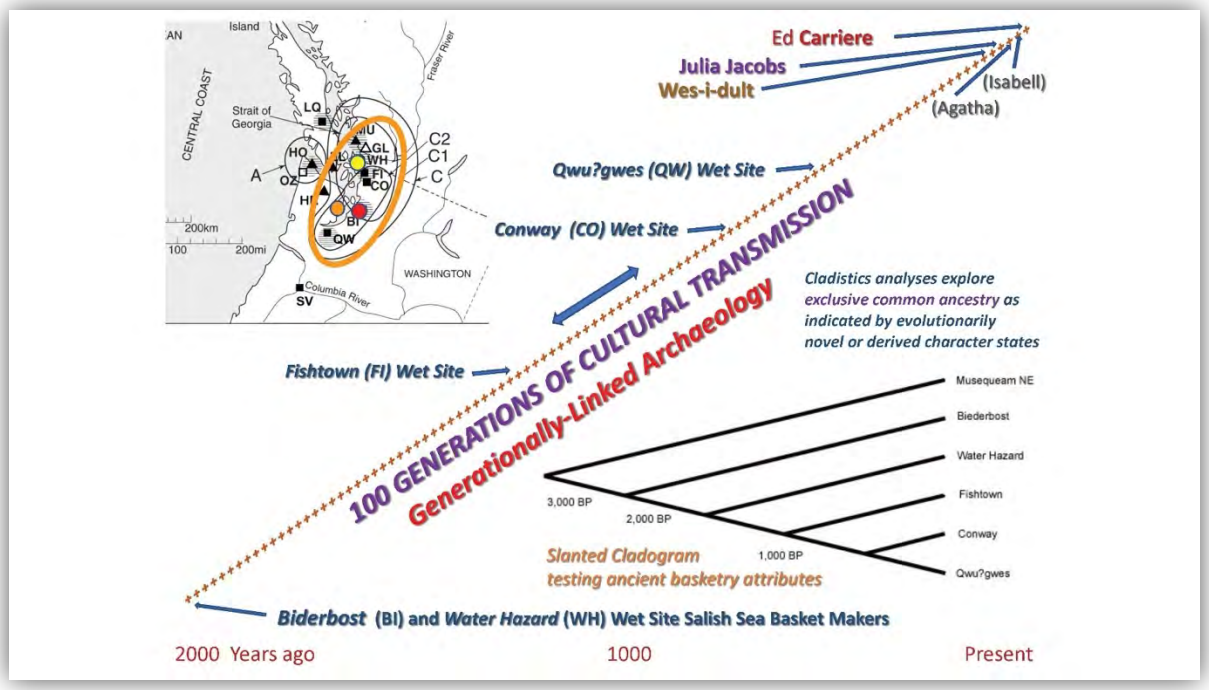
Slide 14. (Left) I'm shown fighting the tide and hydraulically excavating a very different style of burden basket from the 3,000-year-old Hoko River wet site with the common open wrap twined (bird-cage) body weave and vertical tumpline loops on the distinct corners (Croes 1995).



Slide 15. Though both these wet sites are 3,000 years old, contemporaneous, one can see a very distinct style of pack basket found on the West Coast (n=61, 74% of the baskets) versus the inside Salish Sea (n=57, 50% of the baskets). Similar to Slide 2 above, these two regions have culturally distinct styles of pack baskets, that are likely emblemic of West Coast and inside Salish Sea pack baskets 3,000 years ago. I would say that a person 3,000 years ago wearing a West Coast burden basket would be identified as from the West Coast or to have obtained a basket full of something from the west coast and visa-versa with the inside Salish Sea pack basket.



Slide 16. Following my original hypothesis of regional basketry and cordage style continuity in different parts of the Northwest Coast, as presented in my 1977 Ph.D. dissertation, I have continued to test this hypothesis with new wet site excavations and with different statistical tests. Above are some of those tests comparing the outcomes, and they continued to support my hypotheses for regions of continuity as shown on the Northwest Coast map (on right): A. Average linkage cluster analysis dendrogram (after 40 years of data collection) representing links in Northwest Coast wet site basketry attributes (modes); note how West Coast links (A) and inside Salish Sea links (C) are completely separated (Croes 2019:144); B. A Cladistic unrooted cladogram representing tests derived from Northwest Coast basketry types; note how west coast branches (A) and inside Salish Sea branches (C) are polar opposites (Croes et al. 2005:146–147); C. A Cladistic test produces a slanted cladogram from only inner Salish Sea wet sites (Cluster C of the unrooted cladigram (B)), and arranges in distinct temporal ordering, even though site dates are not considered as part of the testing (see map; Carriere and Croes 2018:133–136; Croes 2019:192); D. Bayesian phylogenetic test time-calibrated maximum clade credibility tree based on 66 cordage subtypes from 12 wet sites—incorporating chronological data; note how cordage data sort out similar to basketry tests (to see this Bayesian tree clearer, see Slide 28, below; Croes 2021:86–87); E. Average linkage cluster analysis of North Coast basketry attributes (modes) from (1) Lachane wet site, (2) historic Tsimshian museum collections, (3) historic Tlingit-Haida museum collections, and (4) the Silver Hole wet site basket; note how the two cultural areas separate for at least 2,000 years (Croes 1989, 2001, 2019:395). Map: Northwest Coast wet sites distributions showing major areas of basketry and cordage style continuity and where Ed Carriere lives (orange dot) and where the Biderbost site is located (red dot). Site key: LK=Lanaak (49XPA78), SH=Silver Hole (49CCRG433), LA=Lachane (GbTo-33), KG=Kilgii Gwaay (1325T), AX=Axeti (FaSu-1), LQ=Little Qualicum (DiSc-1), MU=Musqueam NE (DhRt-4), GL=Glenrose Cannery (Dg Rr6), WH=Water Hazard (DgRs-30), FI=Fishtown (45SK99), CO=Conway (45SK59b), BI=Biderbost (45SN100), QW= *Qwuʔgwəs* (45TN240), SV=Sunken Village (35MU4), HO=Hoko (45CA213), and OZ=Ozette (45CA24). Map adapted from original by Susan Matson.



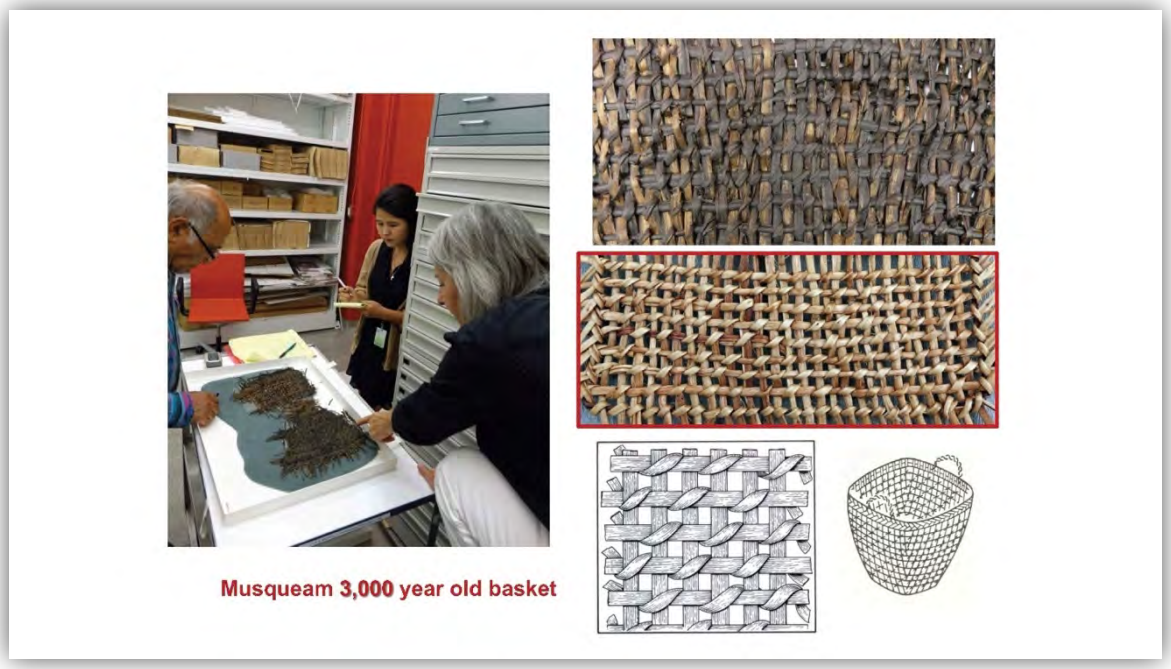
Slide 17. Chart illustrating *Generationally-Linked Archaeology*, where the + signs represent the generations from Ed back through his teacher and great-grandmother Julia Jacobs (his mother Isabell and grandmother Agatha showed no interest in basketry so in parentheses) Julia's mom, Wes-i-dult; and with other generations before her and statistically back through data from wet sites in the inner Salish Sea, eventually leading to the Biderbost and Water Hazard 2,000-year-old archaeological wet sites evidence. Ed works from the present back through these 100 + generations. I work from the deep past upward with wet site basketry data, statistically showing stylistic continuity through 3,000 years of generations, as shown by the results of my slanted cladogram using cladistics tests (below right) and my generated map of regional basketry continuity areas (above left). The red dot is Biderbost (BI), the yellow dot is Water Hazard (WH), and the orange dot is where Ed lives today in the inside Salish Sea—his traditional territory. Note that there is about the same distance between Biderbost and Water Hazard, with very similar basketry, as between Biderbost and the distinct basketry from West Coast sites of Hoko and Ozette.

Slide 18. Following our work analyzing and replicating 2,000-year-old Biderbost basketry, Ed and I visited the University of British Columbia (UBC) Museum of Anthropology to observe the same age baskets and older wet site baskets from the Fraser River Delta in British Columbia, Canada. (Left) We presented our work with the Biderbost basketry at a brown bag talk with museum and local indigenous cultural leaders. (Right) Ed is observing a 2,000-year-old Water Hazard basket similar to those from Biderbost.

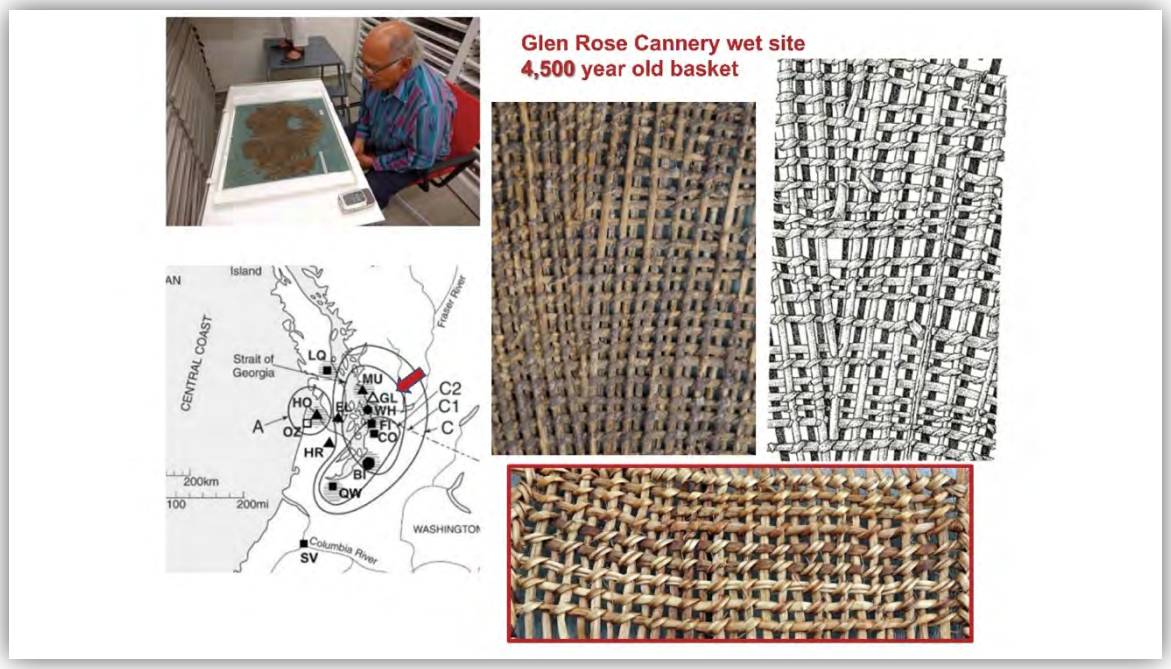
Slide 19. Ed observes an open twined Water Hazard pack basket with handles down on reinforcement rows and identical rim constructions as seen at Biderbost.

Slide 20. Later Ed and I visited the recent excavations of another Fraser Delta 2,000-year-old wet site, Boundary Bay (red dot), and again were shown similar styles as we saw at Biderbost and Water Hazard. Hartley Odwak, Project Director (2nd from left), and crew show Ed a large checker plaited pack basket from the site.

Slide 21. Tia Williams, Archaeology Coordinator, Tsawwassen First Nation, on the right observes with a fellow Indigenous archaeologist the large Boundary Bay pack basket (upper left). The lower row of baskets shows (left) a Boundary Bay checker plaited pack basket with handles down on reinforcement rows, and common twill 3/3 base (center), a Biderbost checker plaited pack basket with similar handles down on reinforcement rows, (right) my replication of a Biderbost, and, in fact, Boundary Bay pack basket.



Slide 22. Ed observing a 3,000-year-old Musqueam NE wet site pack basket with a distinct wrap around plaiting body weave. Later Ed replicated a sample of this weave (center right) to show at our presentations.



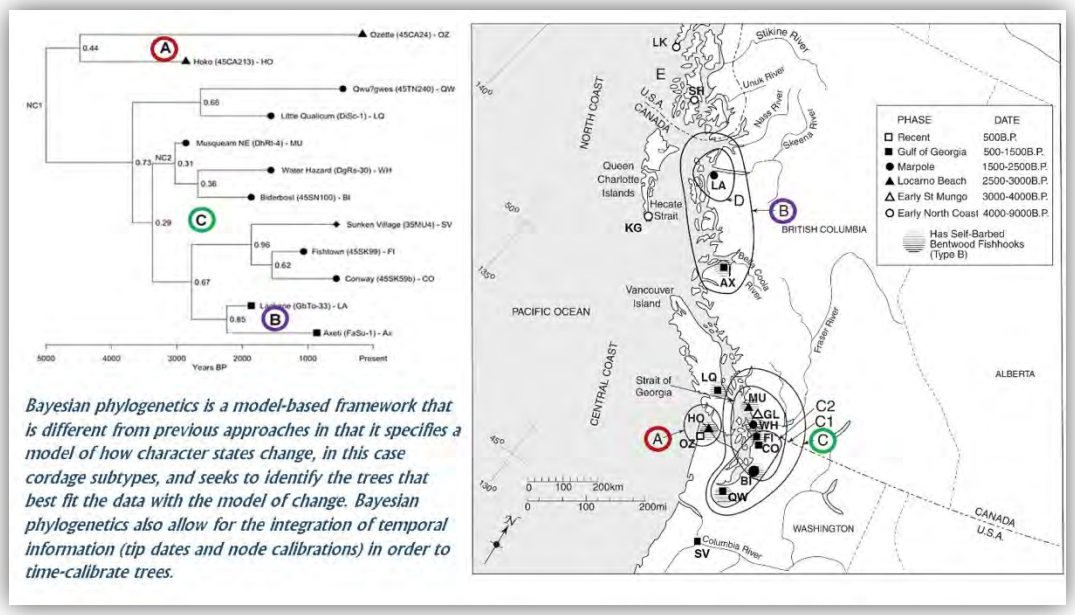
Slide 23. Ed also observed the oldest Fraser Delta pack basket to date, the 4,500-year-old Glenrose Cannery wet site example and made a sample of this slightly different dual-warp wrapped body weave (below right).

Slide 24. After viewing the 2,000-, 3,000- and 4,500-year-old baskets at the UBC Museum of Anthropology and making flat sample weaves from cedar root of the ancient baskets found in these different time periods, Ed decided to make a "book" from the examples of 225 grandparents' generations of teachings from the inside Salish Sea by putting all these slightly different ancient styles of weave into one pack basket, his Archaeology Basket.

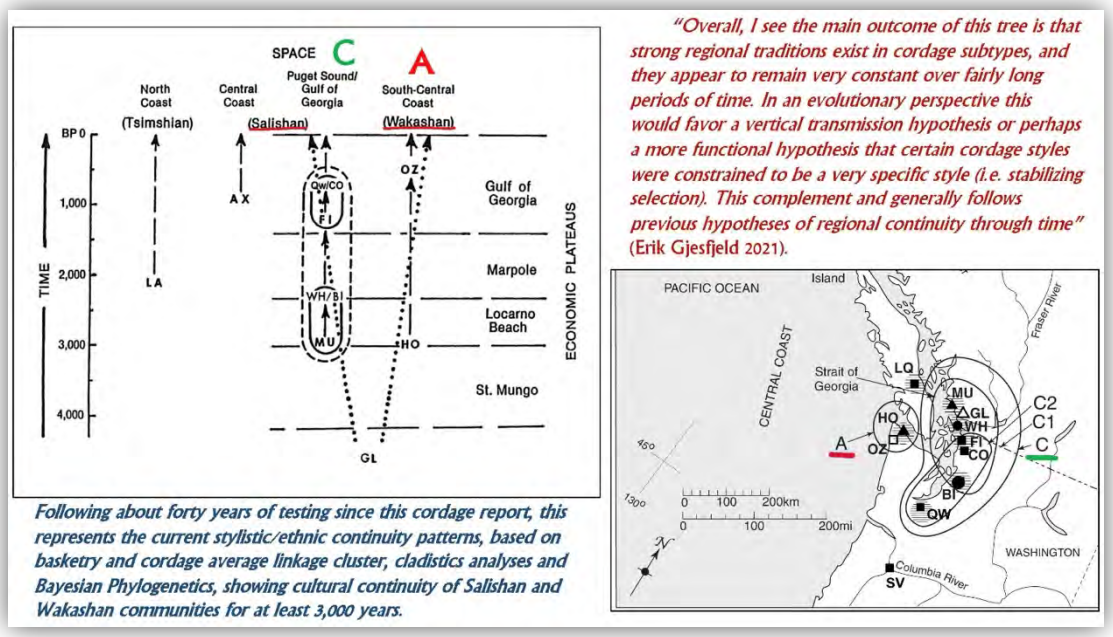
Slide 25. Ed perfected his Archaeology Basket, separating the different Salish weave style time-period layers with a row of cherry bark. Ed is using his tumpline to model this example, made for the American Museum of Natural History in New York and their newly remodeled (after 150 years) Northwest Coast Hall.

Slide 26. Ed's Archaeology Basket on display at the entrance of the newly remodeled Northwest Coast Hall; this hall was originally developed by Dr. Franz Boas, the "Father of American Anthropology," 150 years ago.

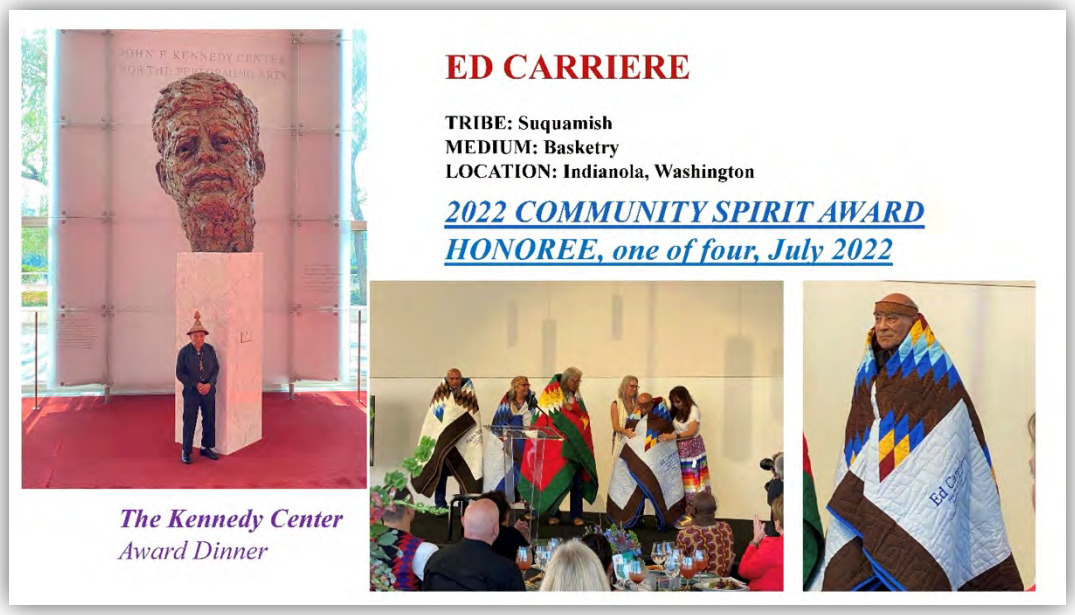
Slide 27. The Seattle Art Museum (SAM) purchased an Archaeology Basket from Ed and present him a blanket at the opening of the show. Dr. Barbara Brotherton, curator, blankets Ed. On the left witnessing are Ed's two Great Grandchildren, Cody and Lily, and their Mom, Ed's Granddaughter Jessie.



Slide 28. The recent Bayesian phylogenetic analysis of 66 wet site cordage subtypes showing a similar clustering of Northwest Coast wet sites as seen with more sensitive basketry artifacts (Croes 2021:86–87). Unlike other tests, Bayesian phylogenetics incorporates site temporal information.



Slide 29. A graphics of my 40 years of testing my hypothesis and supporting Northwest Coast regional basketry and cordage style continuity in at least three regions of the Northwest Coast. Dr. Erik Gjesfjeld's summarizes the Bayesian Phylogenetic analysis he ran on 66 cordage subtypes upholding my "vertical transmission hypothesis" (Croes 2021:86–87).



Slide 30. From our work together, Ed Carriere is awarded the First Peoples Fund 2022 Community Spirit Award at the Kennedy Center, Washington D.C. The awardee on the left is Shawn Brigman also from Washington State, a Spokane Tribe Canoe Builder.

Slide 31. Ed and I getting the 2023 Society for American Archaeology (SAA) Award for Excellence in Archaeological Analysis in developing the *Generationally-Linked Archaeology* approach. Ed also is receiving, in part from his work with archaeological basketry, the 2023 National Endowment for the Arts (NEA) National Heritage Fellowship in Washington D.C. in September 2023. On the right my granddaughter Liliko helps us by modeling one of Ed's Archaeology Baskets with tumpline at the SAA Portland, Oregon, meeting.

Slide 32. Thank you, thank you for attending and now reading this Northwest Anthropological Conference presentation. I hope I've demonstrated how the ongoing testing of the original 1977 dissertation hypothesis of basketry and cordage regional style continuity continues to be supported and upheld. Shown above is a powerful Ozette box front design superimposed on a striking Ozette sunset.

Acknowledgments

I would like to thank the *Journal of Northwest Anthropology* (*JONA*) co-editor Dr. Darby Stapp and his team for seeing the value of preserving and presenting the proceedings of the Northwest Anthropological Conference, with the first in-person gathering of our Anthropological community following the pandemic, held from April 12th to 15th, 2023, in Spokane, Washington. And Victoria Boozer, Production and Design, does a brilliant job in editing and re-organizing and compiling the numerous PowerPoint slides and captions, through her exceptional composition skills. She helped with revisions and commenting throughout, making this a far better presentation.

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About the Author

Dale R. Croes received his B.A. in anthropology from the University of Washington (UW). He did his Ph.D. dissertation research on basketry and cordage artifacts from the Ozette Village wet site (Croes 2019, 2021); conducted post-doctoral research with the Makah Tribal Nation at the Hoko River wet site (Croes 1995) and Hoko Rockshelter shell midden (Croes 2005); directed the first-ever archaeological excavations at the National Historic Landmark wet site of Sunken Village with the Confederated Tribes of Siletz Indians, Confederated Tribes of Grand Ronde, and the Confederated Tribes of the Warm Springs Indians (Croes et al. 2009); and co-directed excavations of the *Qwuʔgwəs* wet and dry site with the Squaxin Island Tribe (Croes et al. 2013). As seen above, Croes is a Northwest wet archaeological site specialist who encourages others to pursue investigating these well-preserved archaeological sites, where approximately 90% of the ancient material culture is preserved (Croes 2023). In retirement he is working with Ed Carriere, Suquamish Elder and Master Basketmaker, and they together wrote *Re-Awakening Ancient Salish Sea Basketry, Fifty Years of Basketry Studies in Culture and Science*, *Memoir* 15, *Journal of Northwest Anthropology* (Carriere and Croes 2018). This book highlights their work analyzing and replicating 2,000-year-old Biderbost wet site basketry housed at the UW Burke Museum. They define this work as a new approach called *Generationally-Linked Archaeology* discussed in detail here (Croes et al. 2018). To review the above references and others by Dale Croes, please follow this link: https://wsu.academia.edu/DaleCroes. In large part from Ed Carriere's work in replicating archaeological baskets from Northwest museums, he was awarded a national Community Spirit Award (2022) from the Native American-based First Peoples Fund program: https://www.firstpeoplesfund.org/2022-fellows. Recently Carriere was awarded a National Endowment for the Arts (NEA) 2023 National Heritage Fellowship <https://www.arts.gov/honors/heritage/ed-eugene-carriere-suquamish>. And, on the science side, Croes and Carriere received the Society for American Archaeology (SAA) 2023 Award for Excellence in Archaeological Analysis. These awards demonstrate that the synergy of science and culture produces much more together than separately.

Heritage, Identity, and Artifact Display: Public Archaeology and Community Collaboration at Iosepa

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Abstract

Public archaeology emphasizes methods and interpretations which benefit Indigenous, stakeholder, and descendent communities. This article discusses the creation of a mobile artifact display created for the descendent community of Iosepa, a late nineteenth to early twentieth century Hawaiian and Polynesian settlement site established by The Church of Jesus Christ of Latter-day Saints in Skull Valley, Utah. Combining community interviews, archival research, and excavated material culture, the exhibit offers a glimpse into the personal stories of Iosepa's first residents while also offering education about the science of archaeology. By tracing the process of the exhibit's creation, I will show how collaboration with the descendent community has not only increased public interest in the archaeological process but also resulted in an interpretive display that best meets community needs.

Background

This article focuses on my thesis project, which involves the creation of a mobile artifact display and interpretation panels for the annual Memorial Day Celebration in Iosepa, Utah. I will be discussing my preliminary research design, ethical considerations, and project goals.

Iosepa was a settlement established by the Church of Jesus Christ of Latter-day Saints in Skull Valley, Utah. It was occupied from 1889 to 1917, and at its peak had 228 occupants (Atkin 1958; Pykles and Reeves 2021). This settlement is unique, however, as the majority of the residents were from Hawai'i (Pykles and Reeves 2021) and was established during a time period when those who joined the Church were encouraged to "Gather to Zion" or to move to Utah. Iosepa, which means Joseph in Hawaiian, was named after Joseph F. Smith, who served as a missionary in Hawai'i and later became the President of the Church in 1901 (Pykles and Reeves 2021). The town is modeled after the "Plat of the City of Zion," which features a north-south and east-west grid system of streets and a centralized public square, a common feature of Church settlements from this time period (Pykles and Reeves 2021). However, the streets and avenues are named after Hawaiian places and important people, thereby customizing this standardized town plat to the Pacific Islander occupants. Through this, we see an interesting interaction between both religious and cultural identity through the town's Euro-American built environment and the usage of Hawaiian language (Pykles and Reeves 2021). It is speculated that Iosepa's closure in 1917 may have been due to either a leprosy outbreak—of which there were three cases after Iosepa's establishment, residents not acclimating to Utah's climate, or the businesses at Iosepa not being profitable (Atkin 1958; Aikau 2010). Some scholars have posited that the settlement ended due to the 1915 announcement of the building of the Lā'ie Hawai'i Temple by Prophet Joseph F. Smith (Atkin 1958). Iosepa's occupants may have returned to Hawai'i in order to assist with the building of the temple as well as to participate in genealogical work to complete temple ordinances for ancestors (Atkin 1958). Additionally, it is reported that President Smith worried that the next President of the Church would not have the same level of concern for Hawaiian interests that he had, and that Iosepa wouldn't get the same consideration in the future (Atkin 1958; Aikau 2010). After the residents left Iosepa, the land was sold to the Deseret Livestock Company, and since then all the buildings have been removed, leaving only foundations (Atkin 1958).

There have been two archaeological investigations at Iosepa, one in 2008 and the other in 2010, both of which were led by Dr. Benjamin Pykles in association with the State University of New York at Potsdam. While presenting his research to the Iosepa Historical Society, Dr. Pykles made a connection with a descendant of John and Emily Mahoe. As a result of descendent interest, their house lot was chosen to be excavated. The 2008 excavation resulted in the location of a privy, from which various artifacts were recovered, including bottles, table wares, and a tea set. It was later determined that the majority of these objects were deposited when the Mahoe's left Iosepa in 1917. The subsequent 2010 excavation focused on the foundation remnants on the house lot. Artifacts recovered include horseshoes, buttons, and pieces of a harmonica. Artifacts from both excavations are housed at Brigham Young University's Museum of Peoples and Cultures in Provo, Utah (B. Pykles, pers. comm., 2021).

With this background of Iosepa in mind, we can discuss how I came to this project. I first heard about Iosepa in a guest lecture at my undergraduate program from Dr. Pykles. I was amazed that there was a settlement with such a unique story that existed just over one hundred years ago and within one hundred miles of where I'd lived my whole life, and that I'd never heard about. I also had an additional interest in Iosepa as I am also a member of The Church of Jesus Christ of Latter-day Saints, and this in an important and unique part of the history of that organization. As I moved to my graduate program at the

University of Idaho, I reached out to Dr. Pykles who made me aware of the opportunity to create an exhibit in collaboration with the Iosepa descendant community.

Project Focuses

The foci of this thesis project are centered around public archaeology and community collaboration and outreach. I am committed to making archaeology accessible and approachable to the public. By bringing an archaeological exhibit directly to the Iosepa community, I hope to increase stakeholder's interest in preserving local histories while also increasing education about archaeology and the study of the past. The traveling artifact display that I am building will be brought to the Iosepa Memorial Day Celebration, which takes place at a pavilion by the Iosepa Cemetery, not at the town site, and includes not only members of the Iosepa descendant community, but also members of the Hawaiian and Polynesian communities in Utah and across the globe. Goals of this celebration include providing a time and place for members of the Polynesian community to gather, paying respect to those who lived in Iosepa, as well as learning about Iosepa (Aikau 2010).

Another focus of this project is that of community collaboration and involvement, in this case specifically with members of the Iosepa descendant community. This includes members of the Iosepa Historical Society's board, as well as descendants of the Mahoe family. This collaboration is important because the goal is to make this display applicable to the Iosepa descendant community, as opposed to doing my own interpretations of value or importance.

Steps Taken In Project

To this point, a few steps have been taken in this project. The first is networking. Through Dr. Pykles, I was able to be in contact with George Sadowski, a descendant of the Mahoe family. I have conducted a few formal interviews with George focused on his family history. Additionally, I was able to attend an unofficial Iosepa Memorial Day Celebration in 2022. Due to Covid-19, there wasn't a celebration in 2020 or 2021, and technically there wasn't a celebration in 2022, but there were still individuals there to camp and meet together. While there, I was able to meet Charmagne Wixom, the President of the Iosepa Historical Society, as well as other individuals at the celebration. Both George and Charmagne are incredible resources of information, both having done research about Iosepa and being able to provide photos, records, and stories about the community. At the end of the summer of 2022 I also had the opportunity to attend the unveiling of Hannah Kaaepa's marker on the National Votes for Women Trail at Iosepa. During this event I met more stakeholders, including an associate producer from PBS Utah. I learned that Utah's PBS station is doing a feature on Iosepa and will also be attending the 2023 Memorial Day celebration, providing an opportunity for a larger audience in this project's goal of public archaeology.

I've also had the opportunity to do some archival research at the Church History Library in Salt Lake City. While there, I perused catalogs for Zions Co-Operative Mercantile Institute, or ZCMI, which was a store in Salt Lake City, as well as land deeds for the Iosepa Agriculture and Stock Company. More recently, I've been able to find pictures of the Iosepa townsite, as well as the marriage certificate for John and Emily Mahoe.

I've also begun the artifact selection process for my exhibit boxes and interpretive banners. Over the summer of 2022, I initially selected notable and intact materials from the Brigham Young University's Museum of Peoples and Cultures, where the Iosepa artifacts are housed. While there I worked with Paul

Stavast, the Museum Director, narrowing 18 boxes of material down to 4, which are now at the Bower's Lab at the University of Idaho. In choosing artifacts, I am looking for a few key attributes. I want to catch observers' initial interest by displaying artifacts that are more complete or unique. I am also looking for objects that are easily recognizable in order to make the display something that people can feel a connection to through the relatability of common or everyday items. Another characteristic I am looking for is specificity to Iosepa, as well as extending to communities in Utah at large. After my initial sort, I solicited two rounds of feedback from members of the descendent community and the Iosepa Historical Society Board before making final selections. Some of the artifacts will be in the displays themselves, while others will be better represented as photos on banners that will provide narrative context for the displays. My consultation with descendants and board members has been important because the purpose of this project is to meet the needs of the community, and through active communication throughout the design process I am hoping to avoid needing massive corrections near the end of my project.

For my final displays I have identified four themes that represent the site's history. They are: Iosepa's Connections, Personal Stories, A Iosepa Home, and A Happy Healthy Family.

Iosepa's Connections looks at the ways Iosepa was connected not only locally to Salt Lake City, but also to Hawai'i and a more global market. The local market can be represented by a horseshoe and barbed wire, representing the ranching that occurred at Iosepa, as well as two glass bottles, one with a paper ZCMI label, which was a store in Salt Lake City, and another with Salt Lake City embossed on the side (Figures 1, 2, and 3). The national market can be seen in ceramics with makers marks, an embossed glass Wm. R. Warner & Co. Philadelphia bottle, and even a 1904 quarter (Figures 4 and 5). There are two artifacts that represent a connection to Hawai'i, a shell carved into a heart and a perforated cowrie shell, but I don't have access to them as they are on display at the Church History Museum in Salt Lake City, so they will be included as pictures. Lastly, an interesting set of artifacts representing the global market are three ceramic artifacts from Japan. Working with the individuals at the University of Idaho's Asian American Comparative collection, we were able to determine that two of the vessels were created for export, while, intriguingly, one was made for domestic use (Figure 6) (R. Campbell, pers. comm., 2023).

Personal Stories displays the items people would have touched and carried on their person. This includes some of the mundane everyday items such as buttons, buckles, suspender parts, and a shoe (Figures 7 and 8). Additionally, there will be some more eye-catching items like parts of a pocket watch, a harmonica, and jewelry (Figures 9 and 10). One of the artifacts that stood out to me, and members of the descendent community, the most is an ice skate; yes, Hawaiians seem to have taken up winter sporting in the Utah desert (Figure 11) (Pykles 2013)!

A Iosepa Home will look at the things people had in their home, and what made it a home. The display box itself includes artifacts associated with the dinner table, such as a plate, spoon, cup, and part of a saltshaker (Figure 12). Other artifacts include a lotus lamp, glass bottles, and parts of a tea set (Figure 13). An assemblage of artifacts that show the continuity of the foods eaten at the Hawaiian Pioneer Day Celebration, which took place annually on August 28, and the Iosepa Memorial Day Celebration includes peach pits, a baking soda lid, a Mason jar, a mixing bowl, parts of a stove, and a pie weight, all aspects of making a peach pie (Figure 14) (Atkin 1958).

Figure 1 (top left). Iron horseshoe. Catalog number 2015.2.1304.
Figure 2 (top right). Patent medicine bottle with paper label from Zion's Co-operative Mercantile Institution, ca. 1906+. Catalog number 2015.2.1035.

Figure 3. Patent medicine bottle with "WILLES – HORNE DRUG CO. / DESERET NEWS BUILDING / SALT LAKE, UTAH" embossed on side, ca. 1885+. Catalog number 2015.2.570.

Figure 4. Ironstone ceramic sherd with "Homer Laughlin / The Angelus" mark, ca. 1905–1916. Catalog number 2015.2.1300.

Figure 5. 1904 Liberty Head nickel. Catalog number 2015.2.9.

Figure 6. Japanese porcelain bowl with Hana Karakusa (Scrolling Grass and Flowers) pattern, ca. 1900–1945. Catalog number 2015.2.656.

Figure 7. Pictured left to right: hard rubber utilitarian button with "I.R.C.Co GOODYEAR 1851" stamped on back, ca. 1854-1898. Catalog number 2015.2.1216. Bone shirt button. Catalog number 2015.2.1272. Prosser pie crust shirt button, ca. 1840+. Catalog number 2015.2.7. Shell cat-eye underwear button. Catalog number 2015.2.1213.

Figure 8. Leather women's shoe with heel missing. Catalog number 2015.2.802.

Figure 9. M. Hohner harmonica cover plate, ca. 1881–1939. Catalog number 2015.2.1306.

Figure 10. Pictured left to right: blue paste gem with brass bezel. Catalog number 2015.2.35. Silver plated brass three leaf clover brooch. Catalog number 2015.2.1204.

Figure 11. Men's size 11 adjustable Union Hardware ice skate, ca. 1854+. Catalog number 2015.2.94.

Figure 12. Pictured clockwise: porcelain saltshaker top piece. Catalog number 2015.2.1008. Etched glass tumbler. Catalog number 2015.2.993. White ironstone dinner plate, ca. 1905–1916. Catalog number 2015.2.620. Metal spoon. Catalog number 2015.2.24.

Figure 13. Pictured clockwise: ironstone teacup, plate, and saucer with red flower decals, ca. 1894–1899. Catalog number 2015.2.655, 2015.2.672, and 2015.2.614.

Figure 14. Pictured left to right: Ceramic pie weight. Catalog number 2015.2.832. Peach pit. Catalog number 2015.2.245.

The next theme is A Happy Healthy Family, which focuses on the women and children at Iosepa, as well as aspects of personal hygiene that speak to moral mothering practices (Wilkie 2003). This box will include a doll eye and a marble, a sewing machine oil bottle, as well as a cold cream jar and a straight razor (Figures 15 and 16). Especially intriguing are a nursing bottle and a Vaseline jar (Figure 17). In collecting oral histories with George, I learned that Emily Mahoe, his grandmother who lived at the home this privy was associated with, not only had 12 children of her own while living at Iosepa, but also worked as a midwife at the settlement (G. Sadowski, pers. comm., 2022).

I hope that through these four themes, I will be able to tell a representative and inclusive story about Iosepa, and what life was like for the people who lived there.

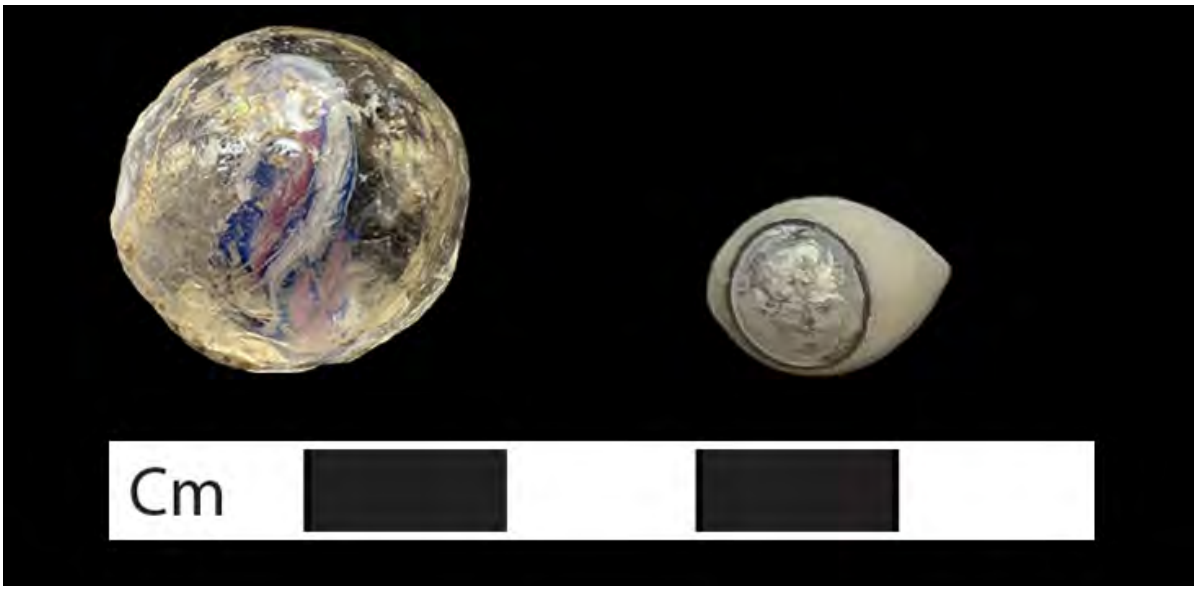

Figure 15. Pictured left to right: glass marble. Catalog number 2015.2.864. Oval pinch back glass doll eye. Catalog number 2015.2.27.

Figure 16. H. Böker & Co straight razor with plastic handle, ca. 1900–1924. Catalog number 2015.2.11.

Figure 17. Pictured left to right: Hygeia nursing bottle with "PAT. JUNE 19TH 1894" embossed on body, ca. 1894–1902. Catalog number 2015.2.571. Vaseline jar with "VASELINE / CHESEBROUGH / NEW – YORK" embossed on body, ca. 1908+. Catalog number 2015.2.581.

Future Steps

As for the future steps of this project, a major one is the creation of the display itself. I plan on creating four boxes, one for each theme discussed earlier, with each box having an associated interpretive banner. An additional banner will be created that describes what archaeology is and why we do it. Logistically, many aspects are being taken into account with the creation of this display. First, the boxes are being created as a fixed unit measuring 10 inches high, 16 inches wide, and 13 inches deep, meaning that the contents of each display won't be assembled and disassembled between each use, instead being stored as a unit on the shelves of the Museum of Peoples and Cultures. With these things in mind, the displays must have a few parameters. One is that they must be made of archive quality materials, as they will be stored in this state for the foreseeable future. Additionally, as the celebration takes place outdoors, the displays must be a contained unit, decreasing the chances for potential contamination or exposure to the elements. These transportable, fixed-unit displays are being created with the intention of being reused at Iosepa Memorial Day celebrations in the future, while also being available to schools in Tooele County, the county where Iosepa is located, or other Church groups. This furthers the reach of this project in its ability to interact with multiple publics, thereby furthering public education about archaeology and the community's history.

Other major steps following the completion of the display is its presentation at Iosepa, which will take place Memorial Day weekend, 2023, as well as follow-up analysis of the effectiveness, usefulness, impact, and overall opinion of the display by members of the Iosepa descendent community. This will ultimately culminate in my MA thesis.

Conclusion

Through the use of community collaboration throughout the entire process, the goal of this project is to make archaeology accessible and meaningful to the public.

Acknowledgments

I'd like to thank the John Calhoun Smith Fund and the Roderick Sprague Endowment, which are providing the funding for this project. I'd also like to thank the Museum of Peoples and Cultures as well as the Asian American Comparative Collection for all of their help. Additionally, I'd like to thank George Sadowski, Charmagne Wixom, and the entire Iosepa descendent community for their hospitality and willingness to collaborate with me on this project. Finally, I'd like to thank Dr. Benjamin Pykles for his assistance in getting this project started and Drs. Katrina Eichner and Mark Warner for their support and being on my thesis committee. All artifacts in figures are housed by the Museum of Peoples and Cultures in Provo, Utah.

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Pon Yam House: A Refuse in Time

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Abstract

During the later 19th and early 20th centuries, Chinese immigrants moved to the Boise Basin to secure jobs in mining, only to be subject to discriminatory labor laws. The U.S. Chinese Exclusion Act of 1882 led many immigrant laborers to find alternative employment in industries such as laundering, mercantile, and gardening. By 1867, local laws prohibiting Chinese miners were repealed in the Boise Basin, opening new opportunities, including purchasing mining and water rights. By the 1890s, the Chinese comprised over half the Boise Basin population. The 1860s Pon Yam store is the only remaining preserved building formerly occupied by the Chinese residents of Idaho City. In 1998, the US Forest Service excavated the Pon Yam house's backyard space during a preservation project. Preliminary analysis of the recovered material collection provides insight into the daily life of Chinese immigrants in Idaho and offers new insight into the events surrounding an 1865 fire that destroyed all but a few buildings in the region.

Introduction

First, I want to acknowledge that Idaho City has been the ancestral and unceded territory of the Shoshone Bannock People. Although they do not consider themselves landowners, the Shoshone Bannack were the original stewards of the Boise Basin, which was irreversibly changed by the pioneers who founded Idaho City during the gold rush of 1860.

Idaho City (originally named Bannock but renamed soon after) is located in southwestern Idaho, approximately 35 miles from Boise. In 1862, George Grimes and Moses Splawn discovered gold in the Boise Basin and subsequently kickstarted the town of Idaho City overnight. This attracted hundreds of men to the area of the Boise Basin and initiated the creation of towns like Pioneerville, Centerville, and Bannock City (Idaho City), which were founded on October 7, 1862 (Renk 1974). Although many other small towns were thought to be closer to gold sources, Idaho City was considered superior regarding its proximity to water (Renk 1974). Eventually, the population of Idaho City surpassed that of Portland, at 6,200 people, including 360 women and 224 children (Conley 1982:173).

In 1865, only three years after the town's inception, a devastating fire burned through most of the town, sparing only a few buildings. According to Idaho City's local newspaper, *The Idaho World*, the fire broke out on the upper floors of a dance house on Montgomery Street. After the fire alarm had been rung, the locals gathered, and sometime after the fire had already ravaged the northern part of the community, they assumed that the south side of town would escape the fire; however, it continued "up the creek" and destroyed most of the town (*The Idaho World*:4; 27 May 1865). But it would not take long for the community to rebuild, as the call toward gold, quartz, and gravel was strong for any entrepreneur at the time (Renk 1974). The same pull brought many Chinese immigrants to southern Idaho and the Boise Basin. Large-scale migration to the U.S. was due to multiple factors. Politically China had recently lost the opium war, and the Ti-Ping Rebellion profoundly disrupted the country. In addition, floods in the 1860s swept through China, and because of this, livestock, crops, and other important staples were destroyed, causing widespread famine and epidemics that killed thousands (Sargent-Gross and Campbell 2021:1).

Although many Chinese immigrants came to Idaho City and surrounding areas for the opportunity to work in and buy mining and water rights, local laws and regulations limited options for any would-be Chinese miners. Because of this, many Chinese immigrants turned to other entrepreneurial opportunities instead, including laundering, gardening, or even digging water ditches for the Euro-American miners (Sargent-Gross and Campbell 2021:1). In 1868, local exclusionary laws were repealed, and many of the mines thought to be exhausted by Euro-American claim owners were sold to Chinese immigrants who took the mining claims and revitalized the economy. By the 1890s, the Chinese immigrant population comprised nearly half of the Boise Basin (Campbell 2018).

In the next few decades, the population of Chinese immigrants and first-generation Chinese Americans would gradually decrease due to a variety of political and social factors. Some Chinese immigrants would return to their homes in China, while some would stay and live quietly, but few other new immigrants would replace those who left. (Sargent-Gross and Campbell 2021:1).

My work focuses on Chinese life, and I focus my study on a collection of materials excavated by Boise National Forest in the 1990s. The materials come from the Pon Yam House. The Pon Yam House was eventually owned by the highly respected and prolific merchant Pon Yam whose building was built after the 1865 fire. It was constructed as a "fireproof building," which would come in handy as three more fires swept through Idaho City in subsequent years. The building where his mercantile was located is now the

Pon Yam House Museum in Idaho City. The house is one of the town's only remaining historically intact buildings.

Pon Yam's store was invaluable for the local Chinese community in providing the community with imported goods, Chinese medicines/herbs, clothes, foods, books, and other "sundries" from port cities like Seattle and San Francisco (Boise NF 1999). Pon Yam was not just a proprietor of a successful business—some would say incredibly successful, as he was said to have a very large diamond ring—but probably most importantly, the mercantile functioned as a social center. Chinese immigrants would come to the store to receive mail from family back home, take out loans, and meet up with friends.

This would be increasingly important as most of the Chinese population in the Boise Basin were men, especially as more laws were passed forbidding immigration from China to come into the United States for the next few decades (National Archives 2023). In this sense, the mercantile was an invaluable establishment in a place where people were thousands of miles away from their family members. Later, women and children would join their husbands in the trek to the Boise Basin. However, the population of men, women, and children was still skewed heavily toward men, "By 1870, at least 54 Chinese women and 10 Chinese children were living in Centerville, Pioneerville, Placerville, and Idaho City" (Campbell 2022).

Interestingly enough, unlike other places in the United States, children were not excluded from participating in school with other white children. Additionally, Chinese women were involved not only in Chinese cultural events in Idaho City but "regularly participated in weddings, funerals, and festivals, as well as local community and cultural events that would have made them an undeniable part of the social and economic fabric of the Boise Basin" (Campbell 2022).

Archaeology

In 1998, six backhoe trenches were dug behind the Pon Yam House to ascertain whether there were any cultural deposits. The work was done prior to a restoration project on the Pon Yam House porch. These trenches provided the cultural materials that, in coordination with the Boise National Forest and the University of Idaho, are being cataloged, processed, and written into a report and are the basis for this paper's preliminary findings.

The Pon Yam collection is the latest collaboration between the University of Idaho and Boise National Forest. Over the past seven years, the forest has provided some funding to the University of Idaho to rehabilitate and conduct research on collections for which the forest is responsible; in exchange, university students have cataloged and rehabilitated multiple collections leading to numerous student research projects—including this one.

Limitations

A limitation in working with the collection is the scale and, quite simply, how dirty everything is. It must be cleaned and sorted before the collection can be cataloged, which is no small task. Because of the time spent cleaning and sorting, the cataloging has taken a backseat while we chip away at the layers of dirt.

Findings

Though this has taken some time, we have found many interesting things, including bags of glass labeled "glass slag." These are just bags of melted glass— interestingly, glass melts between 2600º– 2800º F (Scientific, Inc. 2020) and a good bonfire can reach temperatures up to 2002ºF (Munoz 2018). Temperature is mentioned because some of the glass found became so hot that it turned back into the molten form and melted into an icicle-like configuration. It can only do this in its molten state, which would take prolonged, high temperatures not necessarily attainable from trash piles, bonfires, or campfires.

As well as melted and warped glass, there were many shards, partially complete bottles, and complete bottles in the trenches ranging from milk glass/platonite, colorless, aqua, amethyst, amber, amber/black, and miscellaneous colors. Some of these are very helpful contextually, like Kelly's Old Cabin Bitters bottle, which was only in circulation from around 1863 until 1874 when the founder was caught defrauding the United States of excise taxes and subsequently went out of business (Garnhart and Kelly 2023). Additionally, quite a few amethyst Armour grape juice TopNotchBrand, Chicago bottle pieces could be dated around 1870–1920 (Lockhart 2006:54).

Unsurprisingly, quite a few ceramics have been found in the part of the collection that has been washed and sorted. This includes double happiness jars, Chinese brown stoneware, and a soy sauce jar spout. A large amount of metal was also found at the Pon Yam site, including hand-wrought nails, square-cut nails, rim locks, and metal barrel bands/hoops. I am in the early stages of cataloging these materials; I expect the overall assemblage to consist of several thousand items.

Why is this Important?

The Pon Yam House restoration project is a unique archaeological site because it provides a window back in time. This collection is the perfect example of how archaeologists can see how the material culture, production methods, and changes in technology have changed over time and how the people using the site have adapted to new circumstances and challenges. The eventual report created from this collection will help archaeologists identify periods of cultural stability or disruption by analyzing changes in artifact styles or production methods over time and can gain insights into the factors that contributed to these changes. Additionally, studying artifacts through time can help to identify patterns of continuity and change within a society.

Understanding how the material culture changed and developed over time and how these changes were linked to broader social, economic, and cultural change patterns, like the story of Chinese miners during the gold rush in the Boise Basin. This important piece of American history has been largely overlooked and understudied. By exploring this history, we can better understand the experiences and contributions of Chinese immigrants during a pivotal period in American history. Chinese immigrants played an integral role in the Northwest, particularly during the gold rush. Despite having such a significant contribution to the history of the Northwest, their stories are often marginalized or ignored in mainstream historical narratives. Highlighting these stories promote the Chinese heritage and culture that the Chinese pioneers brought to America during the gold rush to promote a more inclusive view of American history. By exploring these stories and the experiences of the Boise Basin, we can shed light on the neglected aspects of the important impacts the Chinese immigrants had in this period.

Conclusion

Idaho City has a long history of Chinese pioneers who are intrinsically, culturally, socially, and economically tied to the larger Boise Basin area. In 1863, Idaho City was founded with the prospect of mining gold. Around 1870, Chinese immigrants came to Boise Basin to escape the harsh life of epidemics, droughts, and famine to be met with racism and exclusionary laws preventing them from working in the mines and being forced into other hard labor jobs. Far from allowing the local exclusionary laws to keep them from moving forward, many Chinese immigrants became entrepreneurs like Pon Yam. From around 1873, when the exclusionary laws were repealed, to 1903, Pon Yam ran a mercantile, creating social ties within the Chinese community in Idaho City. I look forward to returning next year and presenting my completed Pon Yam report at next year's conference.

Acknowledgments

I want to acknowledge the John Calhoun Smith fund, which allowed me to travel to and stay in Spokane, Washington, for the 2023 Northwest Archeological Conference. I also want to highlight how the fund enables the dissemination of a broader knowledge range. By funding the attendance of individuals like me, who may have yet to have the financial means to attend otherwise, you ensure that a wider range of perspectives and experiences are represented at the conference. This, in turn, leads to a richer and more diverse exchange of ideas and knowledge. I also want to thank Susie Osgood and Jessica Goodwin of the Boise National Forest for creating an innovative collaboration with the University of Idaho and for allowing me to work with this important collection, Renae Campbell, for whom much of my historical research is from, and Mark Warner, my Adviser.

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Developing More Holistic Approaches to Cultural Resource Inventories: Results from a Salvage Survey

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Abstract

Most heritage surveys conducted by Federal agencies in compliance with the National Historic Preservation Act (NHPA) focus exclusively on archaeological resources. This approach results in the effective documentation and preservation of archaeological sites but leads to gaps in the understanding of a wide variety of cultural resources. For the last several years, National Forests have been encouraged to develop more holistic approaches to cultural resource management. In 2022, the Umatilla National Forest proposed to conduct a roadside and area salvage sale within the Lick Creek Fire footprint in southeastern Washington. A cultural resource inventory design incorporating ethnographic and ethnobotanical survey was developed and implemented on a 700-acre sample of the salvage project area. The results of this survey highlighted the interrelatedness between archaeological sites in the northern Blue Mountains, the natural world they are sited in, and the contemporary cultures who rely upon this land for physical and spiritual sustenance. A better understanding of the Blue Mountains as a cultural as well as natural resource also provides a much-needed human element to the development of forest projects situated in traditional knowledge and lifeways. The field methods presented in this paper are designed to be easily incorporated into existing survey frameworks.

Introduction

The last two years in federal land management have seen an increase in the number of projects in a shorter timeline. Agencies usually refer to this as "increased pace and scale." In the forest service, these projects aim to increase a landscape's resilience to fire, disease, and climate change while providing commercial forest products, such as timber and pulpwood, to local economies. With tight timelines and budgets, Forest Service heritage staff need to inventory and evaluate historic properties that may be impacted by project activities, protect those properties eligible for the National Register of Historic Places, and ensure that Tribal Treaty rights are being respected and resources enhanced. Oftentimes, heritage professionals are encouraged or pressured to do "C-level" work and churn through cultural resource inventories that contain the bare minimum to comply with federal heritage laws.

Several major questions surrounding the state of compliance-based archaeology in the forest service context are explored in this paper. These include:

1. What is our purpose as federal archaeologists?
2. Is it a matter of compliance or is there some greater purpose we can provide to communities in thinking about cultural resources more holistically?
3. How can we be better "public servants" as archaeologists working for the federal government and ultimately United States taxpayers?
4. Can we do holistic archaeological work in a time- and cost-effective manner?

Salvage Survey Case Study

The northern Blue Mountains stretch across northeast Oregon and southeast Washington. They are situated between the Cascade and Rocky Mountain Ranges and mark the boundary between the Columbia Plateau and the northern Great Basin (Figure 1). Miocene age basalt flows form the foundational geology of the area. Coupled with the presence of multiple major streams, this combination of geology and hydrology lends the mountain and upland areas their characteristic broad, flat ridges and deeply incised valleys (Figure 2). The climate is marked by cold, snowy winters; dry, hot summers; and cool, rainy spring and fall seasons. This area remains rural, with overall low population densities. Contemporary economies are built around dryland agriculture, ranching, and forestry.

After an unprecedented heat dome event in June 2021 saw temperatures rise into the 110s Fahrenheit, a series of dry lightning storms ignited hundreds of fires across the Pacific Northwest. The Lick Creek and later Green Ridge Fires quickly expanded to become the largest fires in Umatilla National Forest history (Figure 3). Well over 1,000 firefighters participated in suppression activities which lasted from July 7 until October 15. Within the project area in blue, post-fire timber salvage treatment areas were identified for evaluation in 2022 (Figure 4).

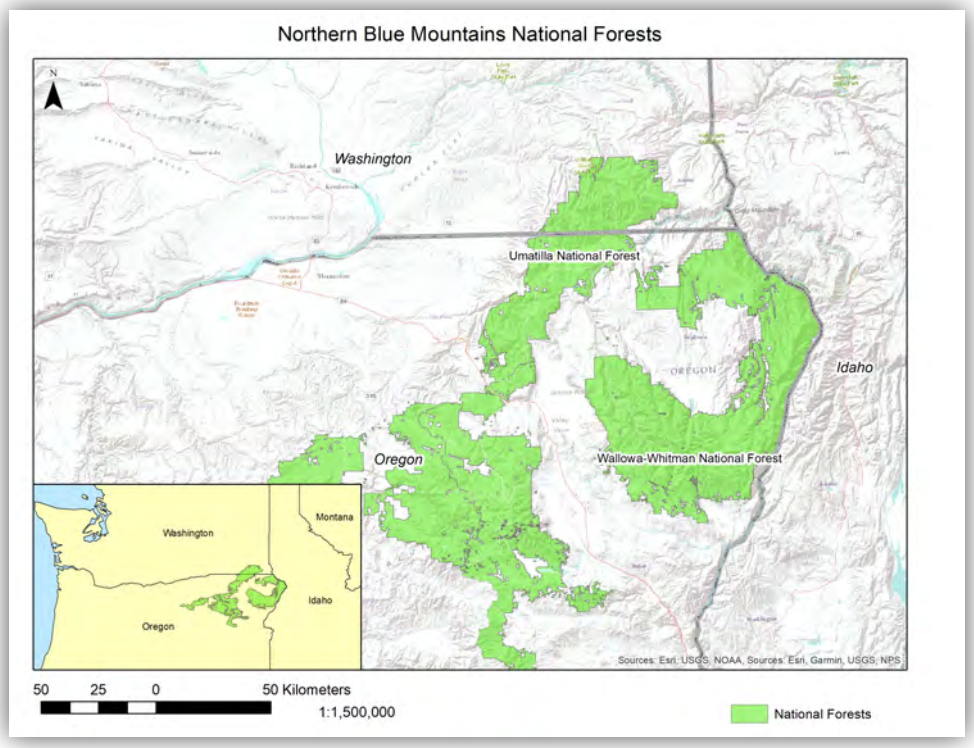


Figure 1. Map showing the location of the Umatilla National Forest relative to other regional forests and geographic features.

Figure 2. Characteristic topography of the Blue Mountains and particularly the Asotin Creek watershed. Photograph by Will Marquardt.

Figure 3. Photograph of typical burn conditions encountered during the 2021 Fire Season on the Umatilla National Forest. View is taken from the Tucannon River looking south into the Wenaha-Tucannon Wilderness. Photograph by Will Marquardt.

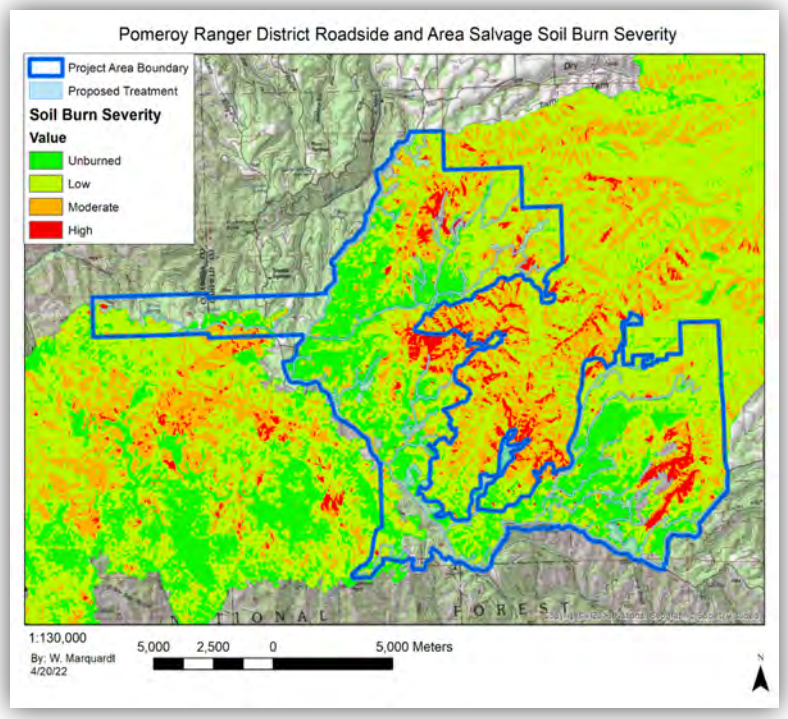


Figure 4. Overview map of the Pomeroy Ranger District Roadside and Area Salvage Survey overlaid on the Soil Burn Severity data taken from the Green Ridge (left) and Lick Creek (right) fires.

The Asotin Creek Watershed in southeast Washington is an important ecological and economic component of the Umatilla National Forest. Within this watershed are critical habitats for endangered salmon, steelhead, and bull trout as well as grazing and cover for elk and deer populations. Severe fires pose a risk to all these species. Generally speaking, this area transitions from a semi-arid shrub-grass steppe to dry forest to moist forest as elevations increase. Historically, a large Nez Perce village was located at the mouth of Asotin Creek and this whole area has been utilized by Nez Perce people continuously for millennia.

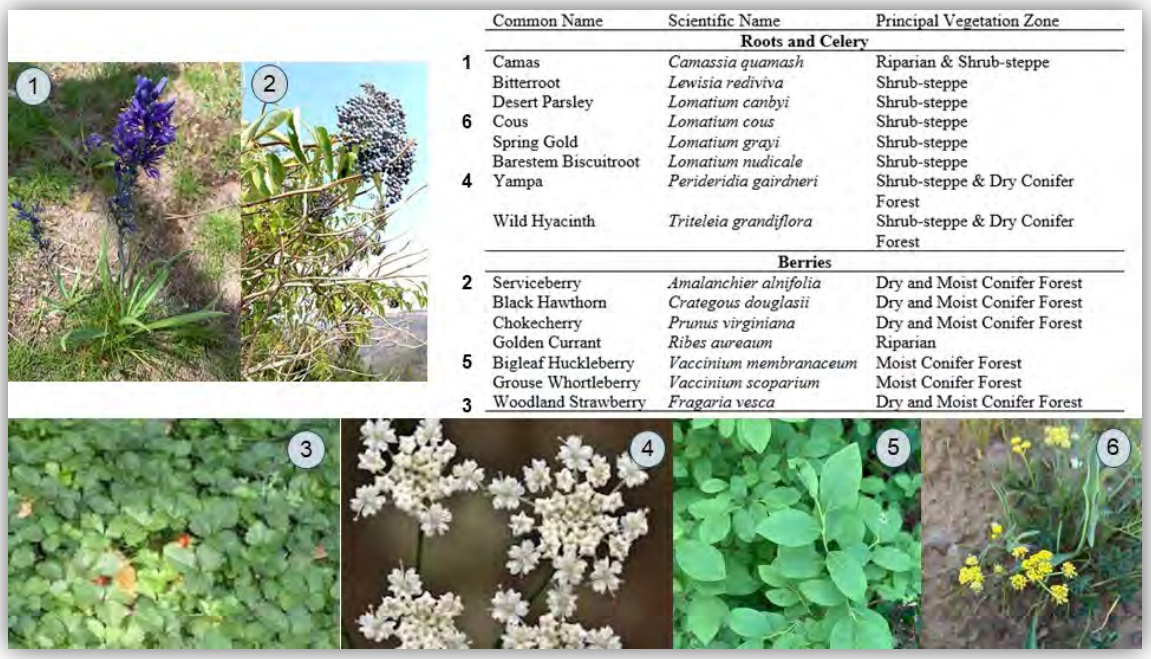
Sahaptin language speaking peoples have been stewards of this area for at least 16,000 years (Davis et al. 2019). Their interactions with the landscape can be characterized by seasonal movement from riverine villages to upland camps. Their diverse subsistence practices throughout the Blue Mountains include spiritual celebration of the annual subsistence cycle. According to the creation stories of Sahaptian speaking peoples, the Creator told the animals and plants about the coming of a new people, human beings, that would need their help to survive (Marshall 1999, 2006; Hunn et al. 2015; Endress et al. 2019). Salmon and the other fish volunteered first, followed by deer and the other game animals. Cous and the roots came next followed by Huckleberry the other berries. This relationship is one of mutual benefit. In exchange for sustenance, humans are expected to harvest respectfully and care for First Foods. The First Food Feast, practiced in many longhouses of contemporary Sahaptian speaking Tribes, embodies this relationship over the course of a single meal reminding Indigenous people of their responsibilities to respectfully use and take care of these foods lest they feel disrespected and forgotten eventually leaving.

For this study, roots and berries were selected due to ease of observation and monitoring in successive years. These are also keystone species upon which many other species rely. From a list of First Food plants, this study focused primarily upon six species which are the easiest to identify in the field with minimal botanical training: camas, serviceberry, woodland strawberry, yampa, bigleaf huckleberry, and cous (Figure 5). This species list is taken directly from the Confederated Tribes of the Umatilla Indian Reservations (CTUIR) First Foods Upland Vision (Endress et al. 2019).

Methods

The archaeological survey followed previously established cultural resource inventory protocols on the Umatilla National Forest. The survey design utilized the 2021 archaeological probability model as developed by Will Marquardt for the Umatilla National Forest. This predictive model uses slope, aspect, elevation, soil type, vegetation community, and proximity to water to determine the likelihood of archaeological material in a particular area (Marquardt 2021). Pedestrian surface surveys with 15 meter transects were conducted in areas that burned at moderate to high intensity within the Lick Creek Fire Footprint. A total of 730 acres of the Lick Creek Fire Footprint was identified for survey (Figure 6).

Survey units included areas of low to high probability based on the predictive model to continue testing the model's efficacy. (Many of the low-probability areas ended up being dropped due to steep slope or other safety concerns.) Archaeological materials were analyzed and documented in the field using a resource grade GPS unit. Diagnostic artifacts were photographed and measured. All known historic properties in the area were revisited and fire effects were noted. All newly discovered and previously documented historic properties were evaluated for eligibility to the National Register of Historic Places (NRHP). At the beginning of the project, all First Food plants were identified, geolocated, and photographically documented.



	Common Name	Scientific Name	Principal Vegetation Zone
	Roots and Celery		
1	Camas	*Camassia quamash*	Riparian & Shrub-steppe
	Bitterroot	*Lewisia rediviva*	Shrub-steppe
	Desert Parsley	*Lomatium canbyi*	Shrub-steppe
6	Cous	*Lomatium cous*	Shrub-steppe
	Spring Gold	*Lomatium grayi*	Shrub-steppe
	Barestem Biscuitroot	*Lomatium nudicale*	Shrub-steppe
4	Yampa	*Perideridia gairdneri*	Shrub-steppe & Dry Conifer Forest
	Wild Hyacinth	*Triteleia grandiflora*	Shrub-steppe & Dry Conifer Forest
	Berries		
2	Serviceberry	*Amalanchier alnifolia*	Dry and Moist Conifer Forest
	Black Hawthorn	*Crategous douglasii*	Dry and Moist Conifer Forest
	Chokecherry	*Prunus virginiana*	Dry and Moist Conifer Forest
	Golden Currant	*Ribes aureaum*	Riparian
5	Bigleaf Huckleberry	*Vaccinium membranaceum*	Moist Conifer Forest
	Grouse Whortleberry	*Vaccinium scoparium*	Moist Conifer Forest
3	Woodland Strawberry	*Fragaria vesca*	Dry and Moist Conifer Forest

Figure 5. List and reference images of most readily identifiable first food plants found in the Blue Mountains (adapted from Endress et al. 2019).

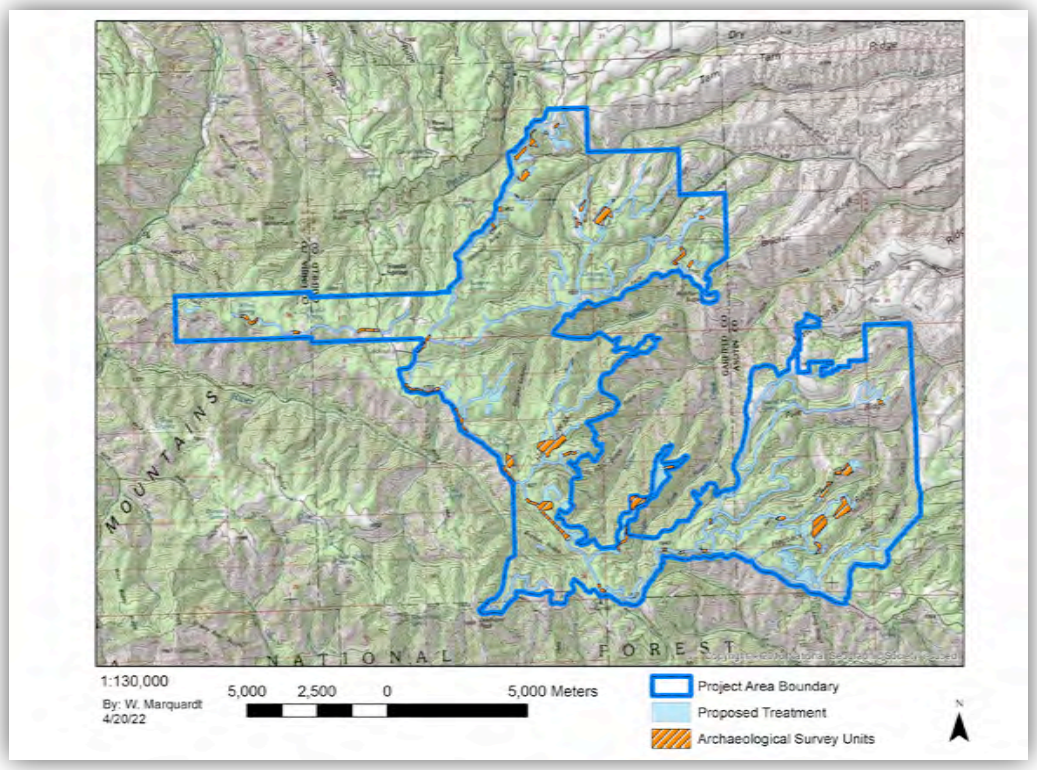


Figure 6. Map of salvage project area with survey units identified with diagonal shading.

As the field-season continued and other members of the survey crew became versed in local vegetation, the entire crew was able to contribute to these efforts as well. This project builds on years of relationship building between the Umatilla National Forest and Tribal governments whose traditional lands are now held in trust as a National Forest. Fortunately, the CTUIR and the Nez Perce Tribe have active cultural and natural resources departments whose staff are eager to collaborate on a variety of landscape restoration projects. At various points during the development and execution of this survey, Umatilla National Forest and Tribal staffs participated in field visits within the Lick Creek fire footprint to discuss management and landscape rehabilitation options. The First Foods Upland Vision published by the CTUIR Department of Natural Resources was instrumental to the development of the First Food Survey methodology in this project.

The Heritage Program also implemented a number of outreach and training opportunities during the course of this project. During the field season, the Forest employed two archaeological technicians. An undergraduate, Autumn Myerscough; and graduate student, Meghan Caves; and a para-professional trainee from the recreation department, Tim Lewis, received in-field, practical training in Forest Service archaeological and First Food survey methods as well as practice writing site forms and report documentation. In addition, six local high school students from Pomeroy and Clarkston High Schools spent two weeks participating in survey, receiving introductory training in archaeology and heritage resource management. Umatilla National Forest Heritage Staff participated in an Archaeology Day event hosted by the Association of Washington Archaeologists in Spokane, Washington, for approximately 100 members of the public. Topics in archaeology, First Foods, and Indigenous culture were introduced to a wide variety of individuals. In collaboration with the Nez Perce Tribes Office of Legal Counsel, the Umatilla National Forest has also hosted a regular workshop on Treaty Rights aimed at Forest Service employees.

Results

Figure 7 visually summarizes the aggregated results of the First Foods survey. Camas and huckleberry were the most commonly observed species in the project area. Camas was typically found in seasonally wet or moist meadows on the lower elevation ridges of the project area. While huckleberry was found in cool, moist forest areas in the southern half of the project area, typically at higher elevations. Lomatiums such as Cous were found in xeric meadows and occurred infrequently within the project area. The infrequency of this species was almost certainly due to the timing of the survey which was after the peak season for lomatiums, in March and April. Multiple species also frequently co-occurred with each other. For instance, huckleberry and strawberry were commonly found together.

The archaeological survey results were largely as expected, documenting sites primarily located on ridge tops with culturally significant viewsheds. The primary site types included Nez Perce Camps, late-nineteenth century homesteads, Forest Service and Civilian Conservation Corps administration structures and associated materials, twentieth century recreation debris. This survey revisited 100 previously documented sites to evaluate condition changes. Fifty of these revisited sites had unchanged conditions, while at least 41 were impacted by the 2021 fires (Marquardt et al. 2022:31). Burned sites exhibited greatly increased visibility of surface deposits, which actually posed an overall benefit to site updates and allowed for the identification and recording of 19 new archaeological sites, including one eligible for the NRHP.

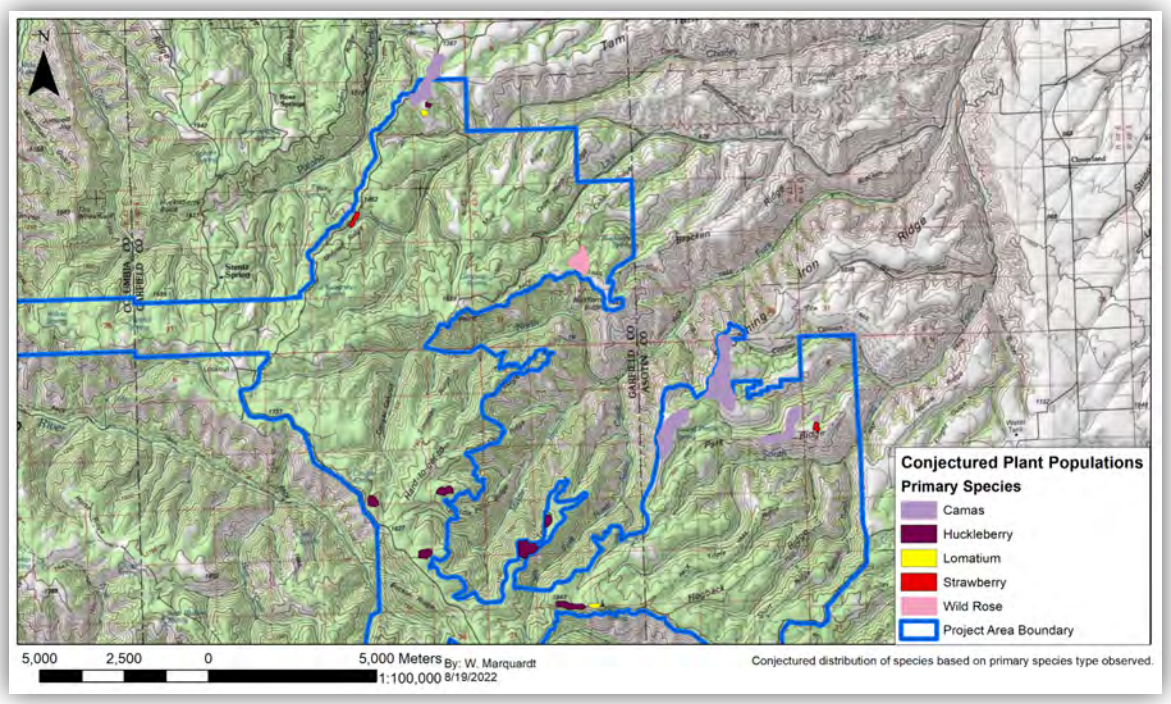


Figure 7. Aggregate estimates of distributions of First Food plants within the project area by species.

The most interesting result from the combined First Food and archaeological survey is the relationship between large pre-contact camps and large populations of First Food plants, which is, in retrospect rather unsurprising. Within the project area, two noteworthy associations were found: 1) The Round Prairie Camas Camps, and 2) The Mount Misery Huckleberry Camps (Figure 8). These locales are well attested gathering areas in the ethnographic, historical, and archaeological records. Archaeological data from sites in these locales (including grinding stones) indicate plant processing activities occurred here. The results of these surveys underscore the multifaceted relationships between people and the landscape within the northern Blue Mountains.

Discussion

These results demonstrate that First Food surveys are easily incorporated into existing pedestrian archaeological surveys taking place between May and September in the Blue Mountains. Within the project area, there is substantial overlap between archaeological sites and the availability of First Foods demonstrating both the ease of documentation of First Foods as well as the value of incorporating First Foods botanical knowledge into archaeological survey methodology. While some of the primary fire affects to archaeological sites and materials were adverse (e.g., heat impacts and erosion), there is also a benefit due to increased overall site surface visibility. In addition to these contexts, understanding First Foods' ecological and cultural importance helps the Forest Service better achieve its stated goals of ecological land management.

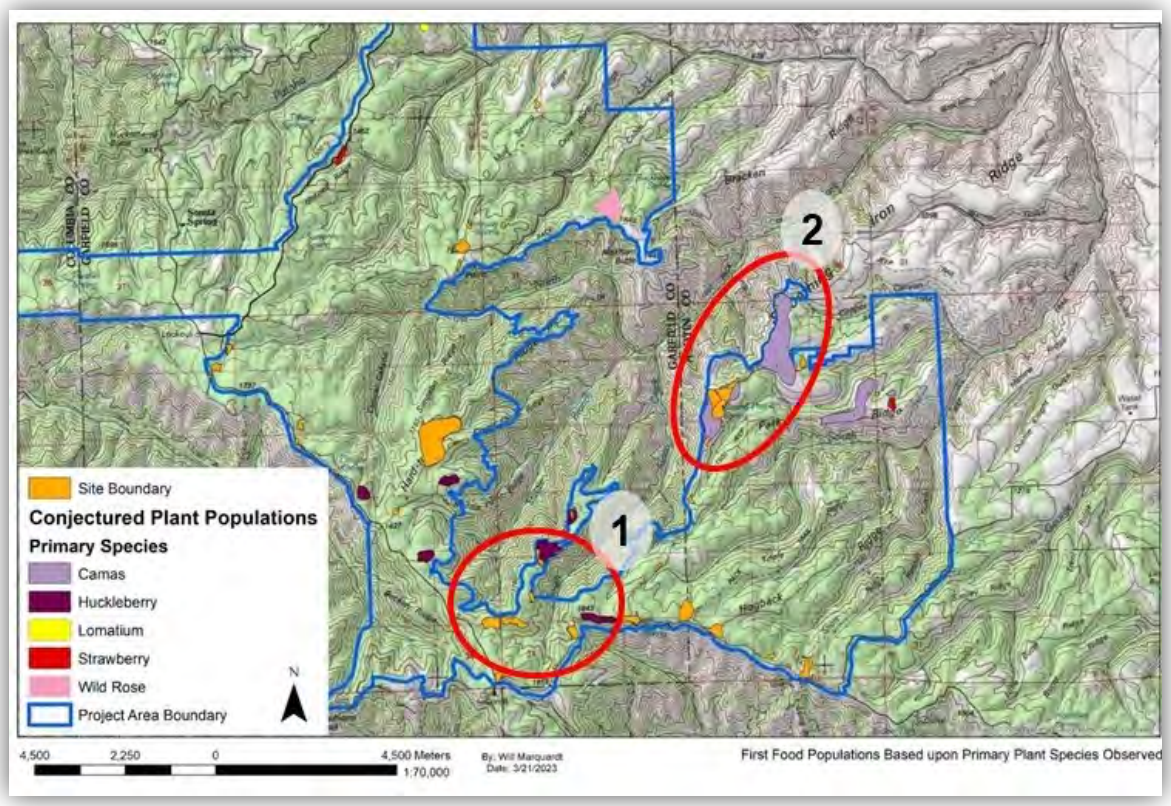


Figure 8. Overlay of archaeological site boundaries (in orange) with conjectured plant populations within the project area, which shows the two most significant overlapping areas: 1) The Round Prairie Camas Camps, and 2) The Mount Misery Huckleberry Camps.

Conclusions and Future Directions

This case study demonstrates the rather common-sense truism that the distribution of archaeological sites matches known cultural practices in Blue Mountains, particularly with regards to the abundance of culturally significant plants. This study also suggests that low-intensity fires benefit First Food plants, which may inform future conservation practices within National Forests. First Food surveys also provide invaluable opportunities for relationship building and collaboration between Tribal partners and agencies such as the Forest Service. The Youth Conservation Corps, local archaeology public programming, and para-professional training provide a chance for outreach and hands on education beyond the immediate network of heritage and archaeology professionals.

To build upon the outcomes of this project, the authors intend to develop a geodatabase of First Food plant populations in collaboration with Tribal partners so that Tribal members can utilize the observational data of forest staff in their ongoing cultural practices throughout their ceded lands. The Umatilla National Forest heritage program will continue to refine the First Food monitoring program and expand survey timing to reflect seasonal variations and better capture the range of keystone species observed. Overall, the program will continue to strive to broaden anthropological approaches to cultural resource inventories for projects in the Umatilla National Forest.

Acknowledgments

The authors owe a debt of gratitude to the following organizations and people: the Confederated Tribes of the Umatilla Indian Reservation, Cultural Resource Protection Program, and the Nez Perce Tribe Cultural Resources Program, for their ongoing collaboration and innovations to make the heritage work we do the Umatilla National Forest more meaningful and useful; the Pomeroy Youth Conservation Corps Crew and Tim Lewis for their assistance with the execution, documentation, and reporting of the heritage compliance work for the salvage survey.

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Women Homesteaders of Northeastern Washington: Orcharding in the Okanogan Highlands

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Abstract

Homesteading in Washington's Okanogan Highlands occurred later than in other parts of the state, with very few Americans claiming Homestead Act lands here until the 1890s. American settlement and land claims began to peak in the Okanogan Highlands in the early 1900s, shortly after surveyors mapped out available government lands. Railroads expanded in the area at this time, and small Okanogan communities were promoted as emerging boom towns. New irrigation districts encouraged orcharding and farming in a region that had previously supported transient mining. Does the history of homesteading in the Okanogan Highlands reflect this change in the economy? This poster presents summary data of women's homesteading history in Washington's Okanogan, Ferry, Stevens, and Pend Oreille counties and explores connections between homesteading and orcharding histories in this region.

Goals

The Washington Women Homesteaders project aims to develop a historical context for Washington homestead history that includes female homesteaders. Previous studies (Mathews 2019, 2020, 2021, 2022, 2023) have established that the homesteading history of Washington has unique variations that are influenced by local settlement histories and economies. The Okanogan Highlands region was selected as a study area because of this region's unique mining, agricultural, and irrigation histories. The goal of the present study was to summarize statistics for women homesteaders in Washington's Okanogan Highlands to explore 1) when homesteading peaked in the region; 2) if spatial or temporal patterns are evident in women's homesteading; and 3) how the history of homesteading in the region relates to local settlement and economic patterns.

Methods

Summary statistics for this research were collected by browsing Homestead Act (12 Stat. 392) records in the glorecords.blm.gov land patents database (Bureau of Land Management 2022). Records were browsed by county and tallied by gender by year. In cases where the gender of the homesteader was unclear, additional research into homesteaders' gender was done through primary sources such as census or marriage records. For this study, homesteaders were classified as women homesteaders if they were apparently legally *femes sole* not listed with a male patentee or if they were identified by their family surname and their husband was later included on the patent.

Okanogan Highlands Homesteaders, 1869–1941

The Homestead Act permitted American settlers, including legally independent women (*femes sole*), to claim up to 160 acres of unappropriated public lands by settling on and cultivating their claim. Washington homesteading began to peak in the 1880s and had declined by the early 1920s (Figure 1). Within this statewide trend are peaks and valleys that represent local trends best analyzed at the county and region level. While homestead patents decline briefly across Washington State in the early 1900s, patents begin to rise sharply in the Okanogan Highlands (Figures 2–3). Very few people patented lands under the Oregon Donation Land Claim Act in this region, suggesting it was difficult or unappealing for Americans to successfully establish sustainable farms in the Okanogan Highlands prior to the 1900s (Table 1). Why does homesteading peak so much later in this part of Washington?

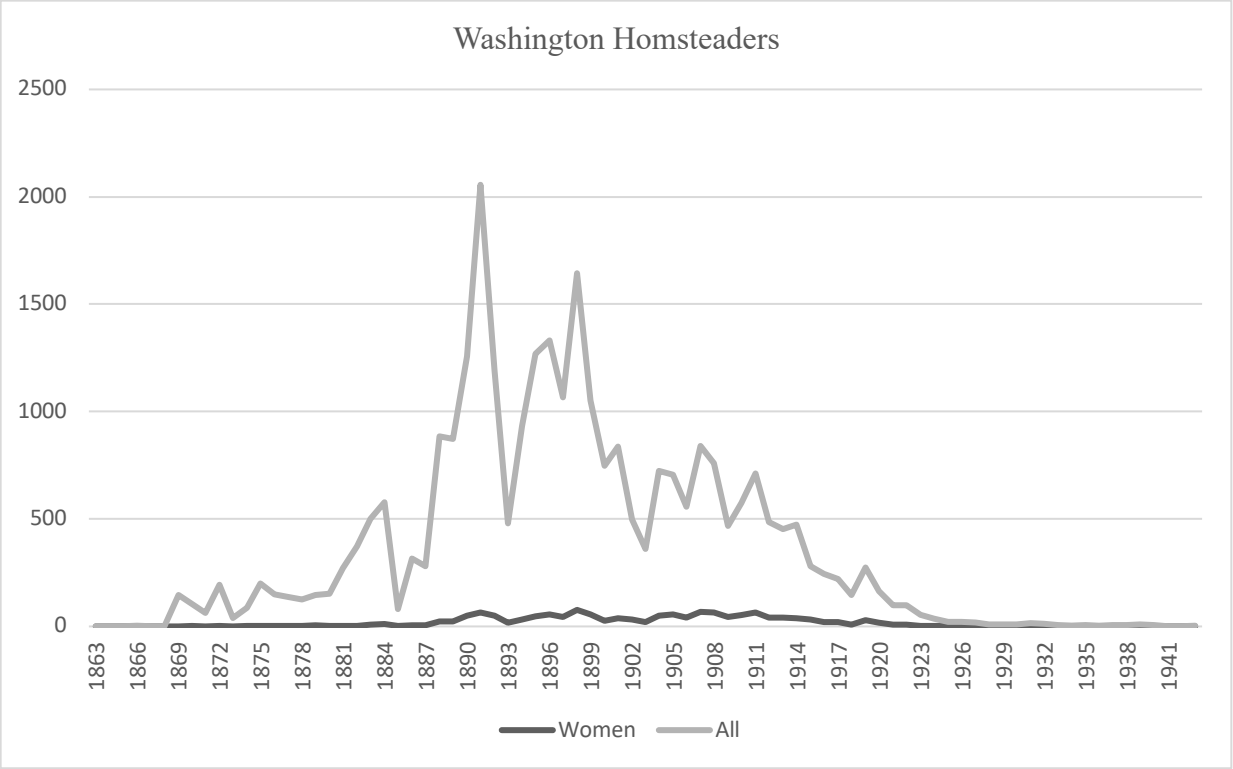


Figure 1. Washington Homesteaders by Year, including Western Washington and the Channeled Scablands.

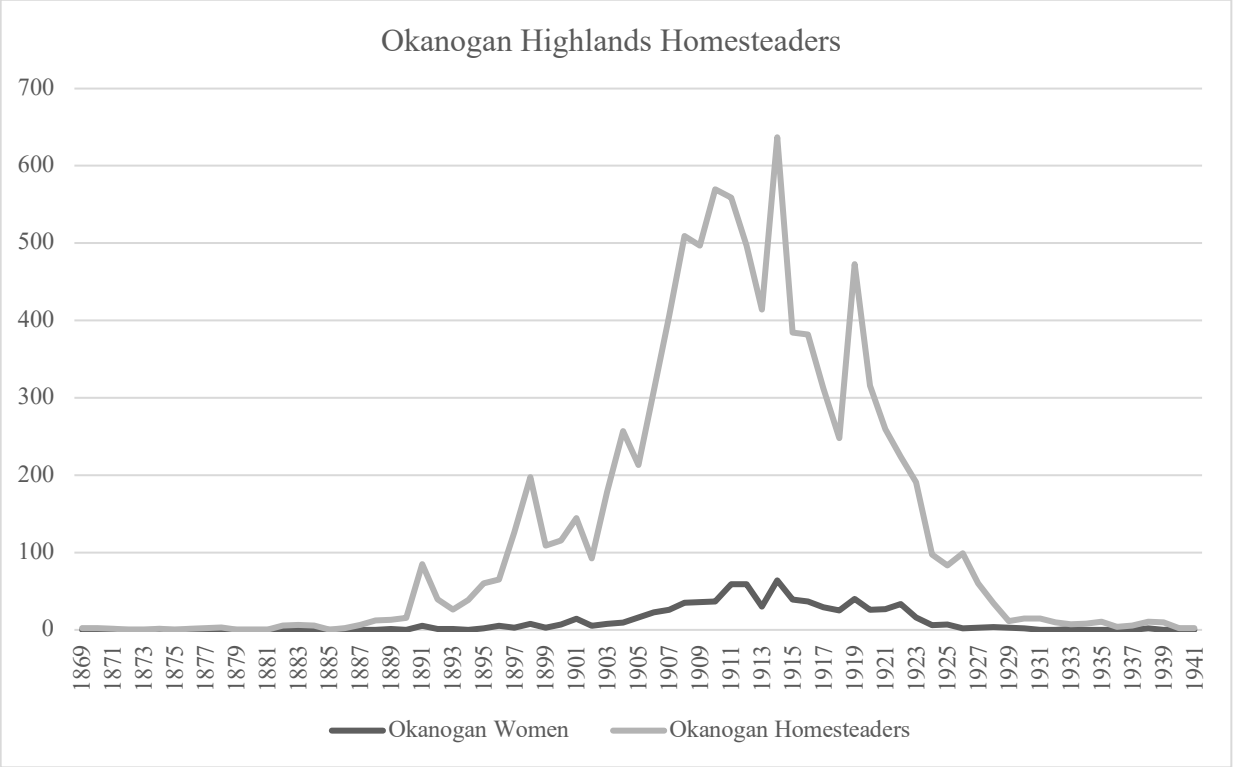


Figure 2. Okanogan Highlands Homesteaders.

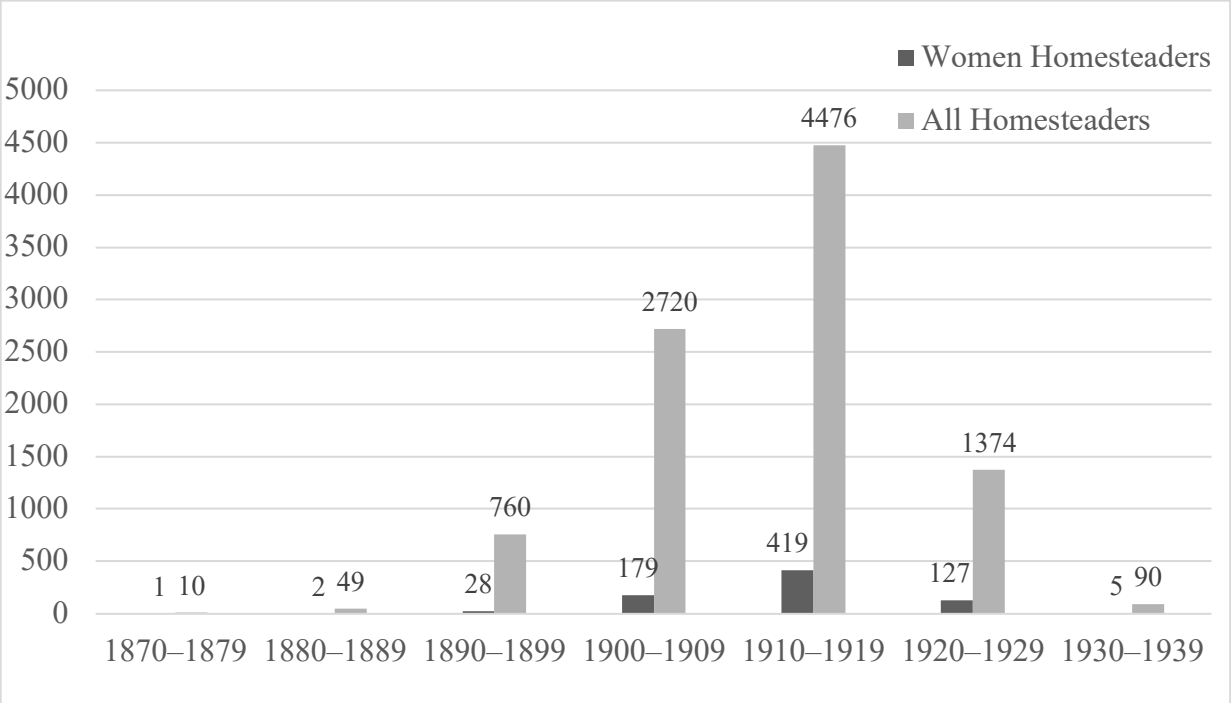


Figure 3. Okanogan Highlands Women's Homestead Patents by Decade.

Table 1. Okanogan Highlands Oregon Donation Land Claim Act Patents by County.

County	Couple Patents	All	% Couple
Okanogan Highlands	5	7	71%
Okanogan	0	0	-
Ferry	0	0	-
Stevens	3	3	100%
Pend Oreille	2	4	50%

Women were issued 8% of the Homestead Act patents in the Okanogan Highlands (Table 2). By county, the rate of women homesteading ranges from 6.1% to 10.1%. The proportion of women homesteaders parallels all homesteading in this region year to year and decade by decade, but the proportion of female homesteaders is highest in the 1910s, when women patented up to 12% of homesteads every year. The proportion of women homesteaders remains high throughout the 1910s suggesting that the regional settlement boom may have influenced female heads of household to settle in the region, rather than the proportion being high due to death of male heads of household in World War I (1914–1918) or the Spanish Flu (1918–1920).

Table 2. Okanogan Highlands Women Homesteader Patents by County.

County	County square miles	Women Homestead Patents	All Homestead Patents	% Women Homesteaders	Homesteader per square mile
Okanogan Highlands	11,350	762	9,426	8.1%	0.83
Okanogan	5,268	413	4056	10.1%	0.77
Ferry	2,204	76	1087	7.0%	0.49
Stevens	2,478	200	3290	6.1%	1.33
Pend Oreille	1,400	73	993	7.4%	0.71

Women Homesteaders by County

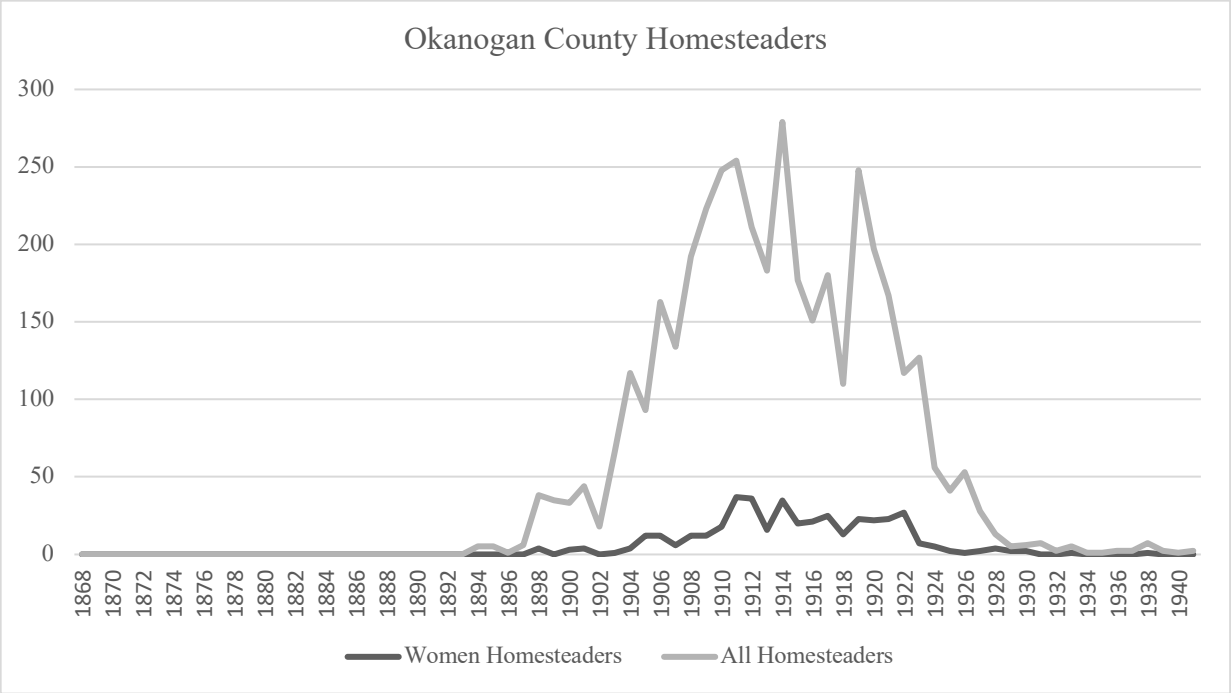
Because the typical homestead patent process could take anywhere from six months to seven years it is difficult to correlate brief historic events with homesteading trends at a regional level but exploring county patterns provides better insight into local homesteading history. Homesteading in the Okanogan Highlands region generally occurred between the late 1890s and 1920s.

Okanogan County, which encompasses nearly half of the study area, exhibits the same trend with homesteading beginning in the 1890s and declining in the 1920s (Figure 4). This county has the highest proportion of female homesteaders in the region, and over half (54%) of the Okanogan Highlands women homesteaders were located here.

Ferry County was entirely within the Colville Reservation from 1872 to 1892. In 1900 the United States opened the north half of the county to homesteading, followed by the south half in 1916. This explains the late homesteading trend here and may also be the cause of a bimodal trend (Figure 5).

Stevens County is remarkable in the region for having the longest trend, which begins in the 1870s, much earlier than the rest of the region (Figure 6). The county also had several Donation Land Claim Act patents which is rare for the region. Stevens County, the site of Hudson Bay Company's Fort Colville, was the site of Euro-American interest from the 1820s.

Pend Oreille County was the last county to form in Washington, splitting from Stevens County in 1911. The homesteading history of Pend Oreille County appears to be connected to the development of the new county as well as new railroads connecting the county to the rest of the country (Figure 7). Homesteading in Pend Oreille County began in 1893, after the Great Northern Railroad line was completed through the area, connecting Seattle to St Louis via Newport in 1892. The spike of homesteads in 1907–1908 may be the result of the Idaho & Washington Northern Railroad reaching Newport in 1907.



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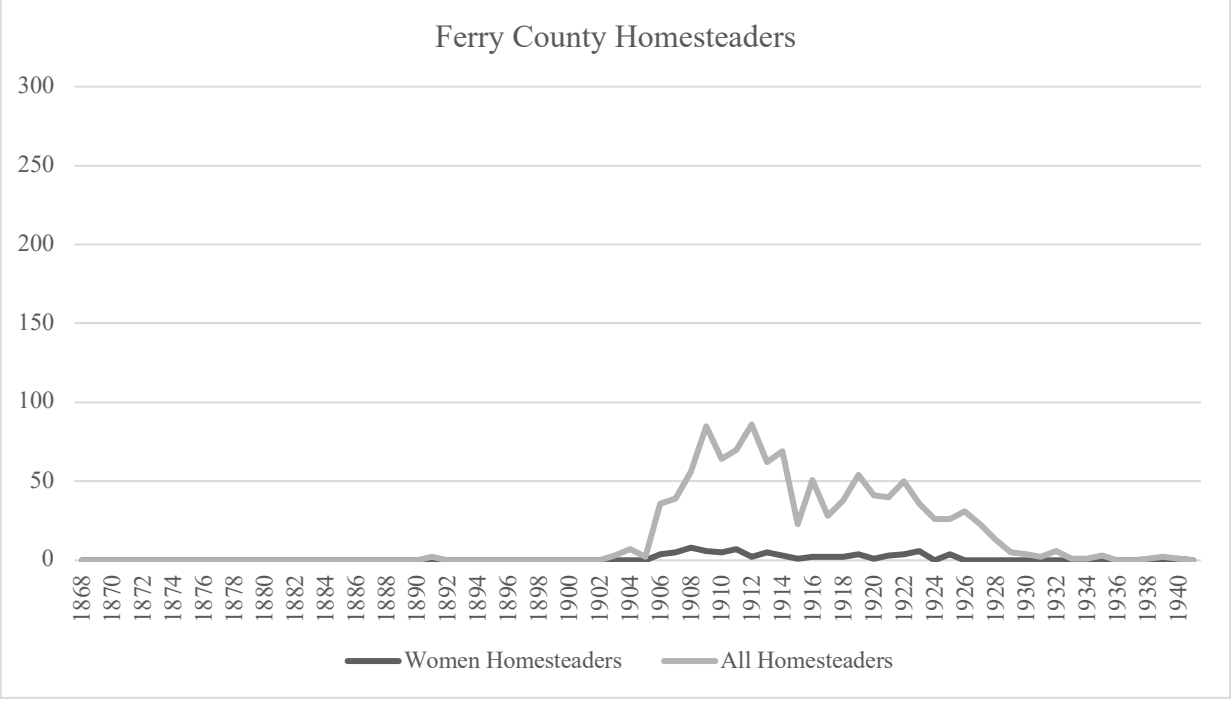

Figure 5. Ferry County Homesteaders.

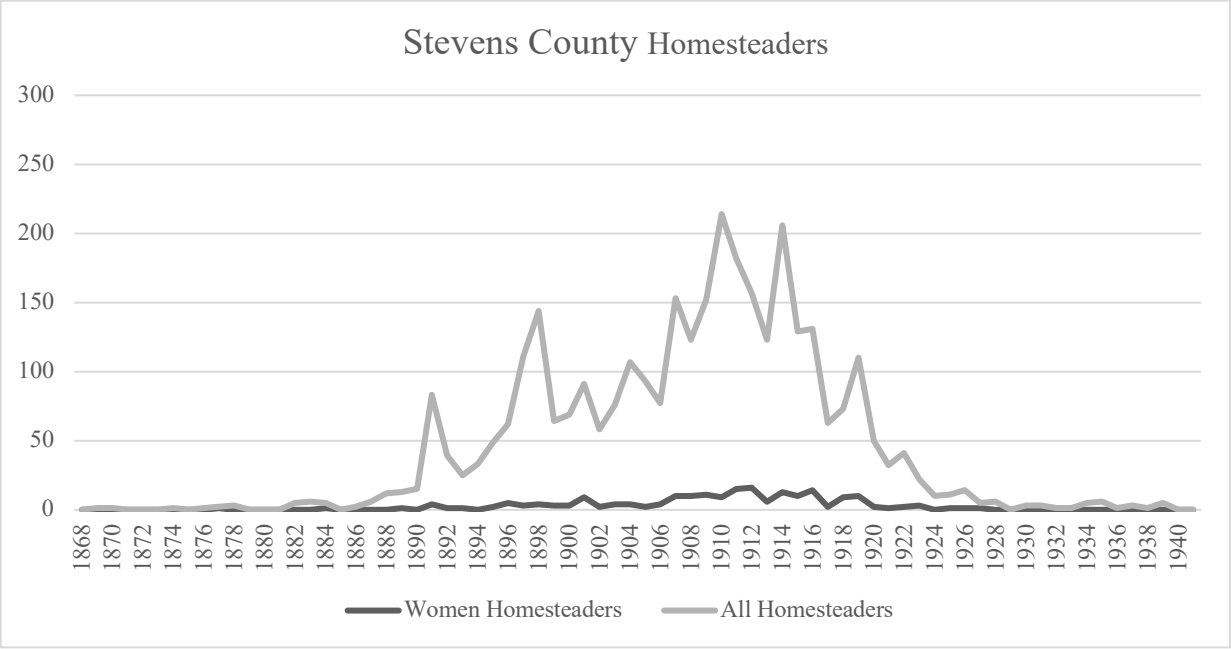

Figure 6. Stevens County Homesteaders.

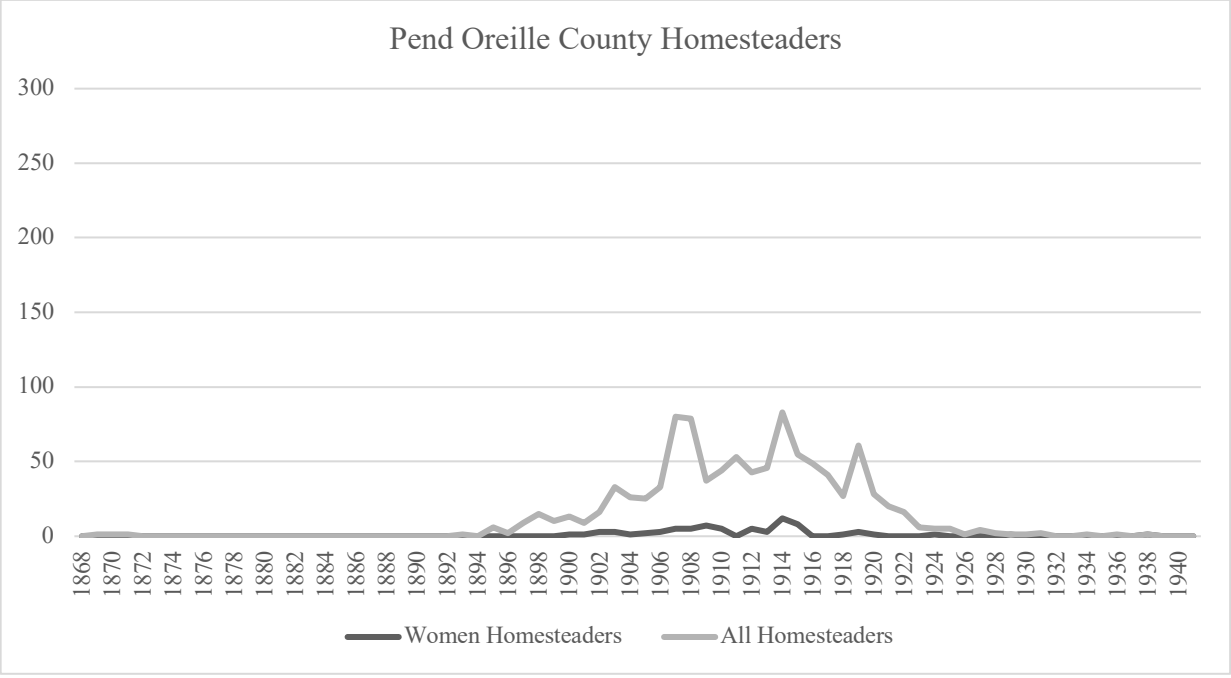

Figure 7. Pend Oreille County Homesteaders.

Okanogan Highlands Homesteading Families

A previous study on homesteading in the Channeled Scablands (Mathews 2022) found that in peak homesteading years between one-third to one-half of women homesteaders had family nearby who were also in the process of proving up their Homestead Act patents. This suggests that family support was an important aspect of homesteading and that there was an economic and social motivation for families to cooperate to claim large tracts of land. In the Okanogan Highlands the peak homesteading year was 1914, which is also the year with the greatest number of women homesteaders. Statistics were collected by searching the GLO database for women's family surnames to determine whether any family had patented lands within one Township and within five years of women's 1914 patents (Table 3). This review determined that between one-third to three-fourths of women homesteaders in the Okanogan Highlands had family homesteading nearby. This may be an important theme of homesteading across Washington and the West.

Table 3. Okanogan Highlands Women Homesteaders with Family Homesteaders in Area, 1914.

County	Women Homesteaders	Women w/ Family Nearby	% Women Homesteaders w/ Family Nearby
Okanogan	35	26	74%
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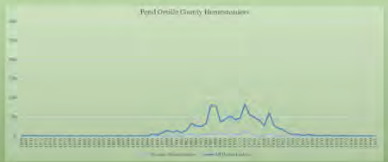

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The Status of Northwest Historical Archaeology: An Analysis of Representation

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Abstract

Historic-period archaeological research comprises a substantial portion of the cultural resource management archaeology completed in the Northwest every year. How do we define historical archaeology in the Northwest? How much of our research is focused on historic-period archaeological sites? Does the archaeological community publish the results of historic-period archaeological research proportionally? Do cultural resource assessment background reviews and their resulting research designs identify diverse histories in the Northwest? This poster presents data on Northwest historical archaeology in presentations, publications, and cultural resource management literature to begin to evaluate the status of Northwest historical archaeology in cultural resource management.

Goals and Obstacles

The goal of this research was to establish how historical archaeology is defined in the Northwest, how much historical archaeology is done, and whether historical archaeology is proportionally represented in regional publications and presentations. The authors encountered some obstacles in not being able to compare site data from Washington, Oregon, Idaho, and British Columbia because of differences in database management, and in freely accessing some regional journals.

What is Historical Archaeology?

We reviewed definitions of historical archaeology from regional and national organizations and found that most centered European colonization (Table 1). If we typically divide Northwest archaeology into "precontact" and "historical" categories, does our work center American colonization, and is this a cause for the minimization of historical archaeology?

Table 1. Historical Archaeology Definitions.

Organization	Definition
Society for Historical Archaeology	The study of the material remains of past societies that also left behind documentary and oral histories.
National Park Service	Studies the remains of cultures with the aid of written history. In the Old World, historical archaeology covers a period of several thousand years; however, in the Americas, historical archaeology is limited to the period after the arrival of Europeans.
Washington Department of Archaeology and Historic Preservation	Telling the story of the Euroamerican influence.
Oregon State Historic Preservation Office	A part of archaeology which studies the material remains of past societies that also left behind some other form of historical record.
Encyclopedia of Historical Archaeology	The archaeological investigation of any past culture that has developed a literate tradition; the study of the 'modern world'; the historical and cultural conditions that have shaped our world since about AD 1500.
International Handbook of Historical Archaeology	The archaeology of those societies developing in the wake of the European Middle Ages (where the Reformation, mercantile capitalism, and industrialization all ruptured the previous order of things) and of those emerging in regions of the world that were colonized by Europeans and that developed along a new multiethnic trajectory.

Northwest Historic Archaeological Sites

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2015	-	-	-	1	10	10%	-	-	-	0	4	0%	1	14	7%
2014	-	-	-	0	10	0%	-	-	-	0	2	0%	0	12	0%
2013	-	-	-	2	10	20%	-	-	-	1	6	17%	3	16	19%
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It is a common observation amongst cultural resource management professionals that assessment reports tend to prioritize the history of colonizers, relying on the creation stories of an elite white male dominant narrative (think Lewis and Clark, Robert Gray, etc.) with little mention of the history of Indigenous peoples, women, or any history other than European diasporas. While these cultural narratives are improving, we argue that more work is needed to diversify contexts so that our profession can better recognize and preserve a more diverse and meaningful history in Washington State. To study the representations of histories in recent assessments, we sampled two of the most recent assessments in each of Washington's 39 counties (78 reports total).

This pilot study finds that while it is common for historic settings to include Euroamerican explorers, fur traders, and miners, archaeologists are reluctant to recognize colonization (Figure 5). In fact, railroad history is more frequently introduced than Native history, and it is slightly more common to mention post-1889 history than it is to mention Treaties or Indian Wars.

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Discussion

Is an aversion for historical archaeology in cultural resource management rooted in our profession's disinterest in recognizing, studying, and preserving the history of colonization, or are there truly fewer significant historical sites to research and publish on? We argue that although it is common to observe historic archaeological sites during cultural resource management fieldwork, our profession is failing to recognize opportunities to better understand the complex and diverse history of the Northwest. Poorly researched historical settings may be an indication of a lack of commitment to finding historic-period archaeological features, and poorly written research designs are likely to result in misrepresenting the significance of an archaeological site. Further, it is common in the Northwest for historical sites to be determined ineligible based on inadequately researched historical settings, in conflict with the ethics of professional archaeology in the Northwest. More research is needed to assess archaeologist's outlook and

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The Status of Northwest Historical Archaeology

An Analysis of Representation

Bethany K. Mathews (Antiquity Consulting) & Michelle R. Lynch (Applied Archaeological Research, Inc.)

Abstract

Historic-period archaeological research comprises a substantial portion of the cultural resource management archaeology completed in the Northwest every year. How do we define historical archaeology in the Northwest? How much of our research is focused on historic-period archaeological sites? Does the archaeological community publish the results of historic-period archaeological research proportionally? Do cultural resource assessment background reviews and their resulting research designs identify diverse histories in the Northwest? This poster presents data on Northwest historical archaeology in presentations, publications, and cultural resource management literature to begin to evaluate the status of Northwest historical archaeology in cultural resource management.

Goals & Obstacles

The goal of this research was to establish how historical archaeology is defined in the Northwest, how much historical archaeology is done, and whether historical archaeology is proportionally represented in regional publications and presentations. The authors encountered some obstacles in not being able to compare site data from Washington, Oregon, Idaho, and British Columbia because of differences in database management, and in accessing some regional journals.

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What is Historical Archaeology?

We reviewed definitions of historical archaeology from regional and national organizations and found that most centered European colonization. If we typically divide Northwest archaeology into "precontact" and "historical" categories, does our work center American colonization, and is this a cause for the minimization of historical archaeology?

Table 1. Historical Archaeology Definitions.

Organization	Definition
Society for Historical Archaeology	The study of the material remains of past societies that also left behind documentary and oral histories.
National Park Service	Studies the remains of cultures with the aid of written history. In the Old World, historical archeology covers a period of several thousand years; however, in the Americas, historical archeology is limited to the period after the arrival of Europeans.
Washington Department of Archaeology and Historic Preservation	Telling the story of the Euroamerican influence.
Oregon State Historic Preservation Office	A part of archaeology which studies the material remains of past societies that also left behind some other form of historical record.
Encyclopedia of Historical Archaeology	The archaeological investigation of any past culture that has developed a literate tradition; the study of the 'modern world'; the historical and cultural conditions that have shaped our world since about AD 1500.
International Handbook of Historical Archaeology	The archaeology of those societies developing in the wake of the European Middle Ages (where the Reformation, mercantile capitalism, and industrialization all ruptured the previous order of things) and of those emerging in regions of the world that were colonized by Europeans and that developed along a new multiethnic trajectory.

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Archaeological Survey Design in Washington Floodplains

Tyler McWilliams, B.A., RA
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Abstract

Recent and ongoing work under the auspices of Washington State's Chehalis Basin Strategy has brought renewed attention to the archaeology of rivers and floodplains. This talk will show that floodplains are complex depositional environments that defy the easy targeting of 'high probability' locations for archaeological survey. We review geomorphological concepts applicable to floodplain archaeology and apply them to Washington State case studies using geographic information system (GIS); laser imaging, detection, and ranging (LiDAR); and historical map data. Despite the complexities, some generalizations and truisms regarding probable site locations do emerge from this study. These can be used as a guide to survey sampling strategies for habitat restoration and flood control projects throughout the region.

Introduction—Floodplains are Complicated

Since 2018, the authors have been assisting the Washington Department of Fish and Wildlife to implement the Washington State Capital funded projects under the Chehalis Basin Strategy for which consultation and cultural resources study are required under executive order 21-02. These projects enjoy substantial support from the Washington legislature, with multiple biennium appropriations on the order of $70 million. Individual projects under the strategy range in size from small and medium granted projects to large reach-scale projects which can be hundreds of acres, and Cultural Resource Management firms (near and far) have obviously been eager to undertake 21-02 compliance work for them.

These projects are located almost entirely within floodplains; therefore, the topic of floodplain survey methodology has become a high priority regional concern. This paper addresses assumptions in sampling strategy, specifically in reference to Precontact site locations and resources. This paper is a text version of an in-person presentation. As such, it uses relatively informal language and relies heavily on graphics to convey key information.

To develop a survey strategy, we did what any reasonable archaeologist would do: first, we consulted the academic literature, to see what archaeological methodologies have been developed in floodplains around the world (Brown 1997; Edgeworth 2011); then, we called prolific local geoarchaeologist Charlie Hodges. From Charlie we gained a theme for this presentation, "Floodplains are complicated."

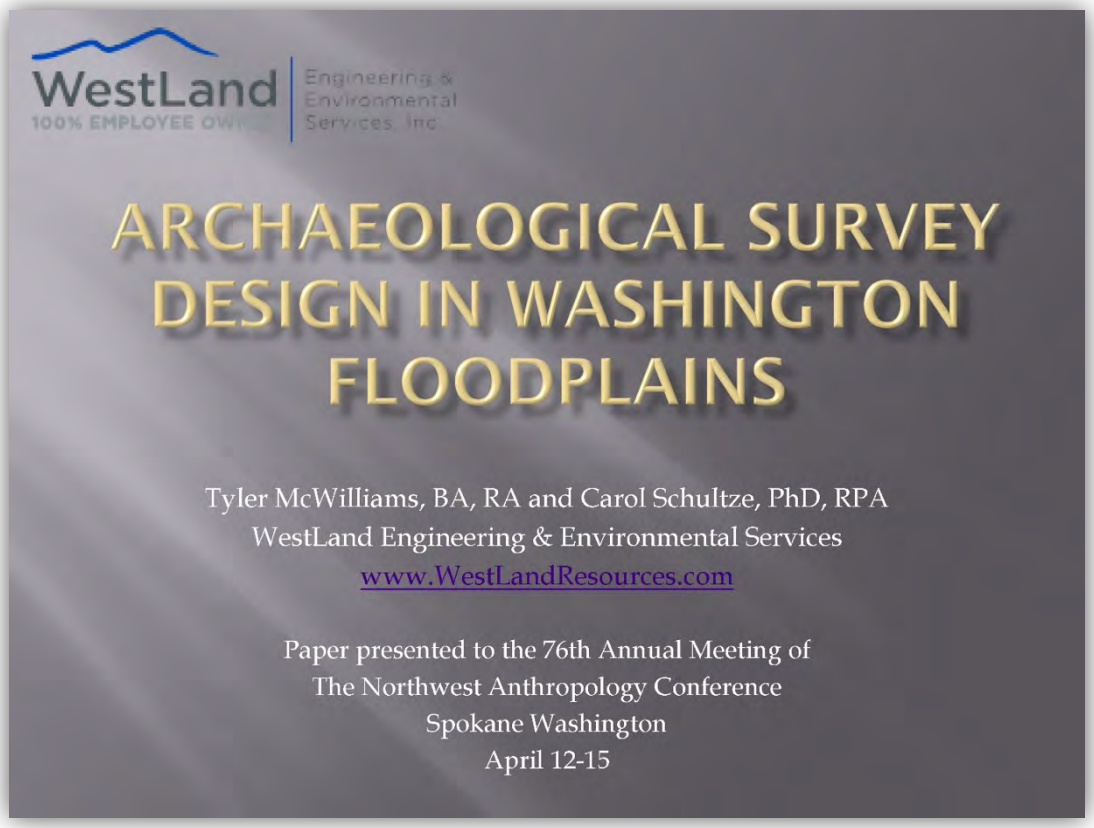

Figure 1. Introductory slide.

Organization of the Presentation

For the remainder of this paper, we review the existing literature to define basic terms (Figures 2 through 8) and draw from previous regional studies (Figures 9 and 10). From these, we develop testable hypotheses that reflect current assumptions that may drive survey methodology (Figure 11). To test these, we compare these assumptions to real world data, gleaned through overlaying recorded site locations from the georeferenced site database maintained by the Washington State Department of Archaeology and Historic Preservation (DAHP) with LiDAR and historic maps (Figures 12 through 18). Based on the results, we refer back to the hypotheses and develop recommendations for floodplain survey work (Figure 19).

Floodplains as Archaeological Study Regions

The first principle in discussing floodplains is to agree on a common set of terms and their definitions. Figure 2 shows a basic sketch of a floodplain. From the perspective of archaeological settlement patterning, the critical issue is that rivers are a source of freshwater, and the margins of rivers are a draw to human settlement. However, the location of this margin changes seasonally and over longer periods of time, so it is difficult to predict (retrodict) where a margin may have been at any point in the past.

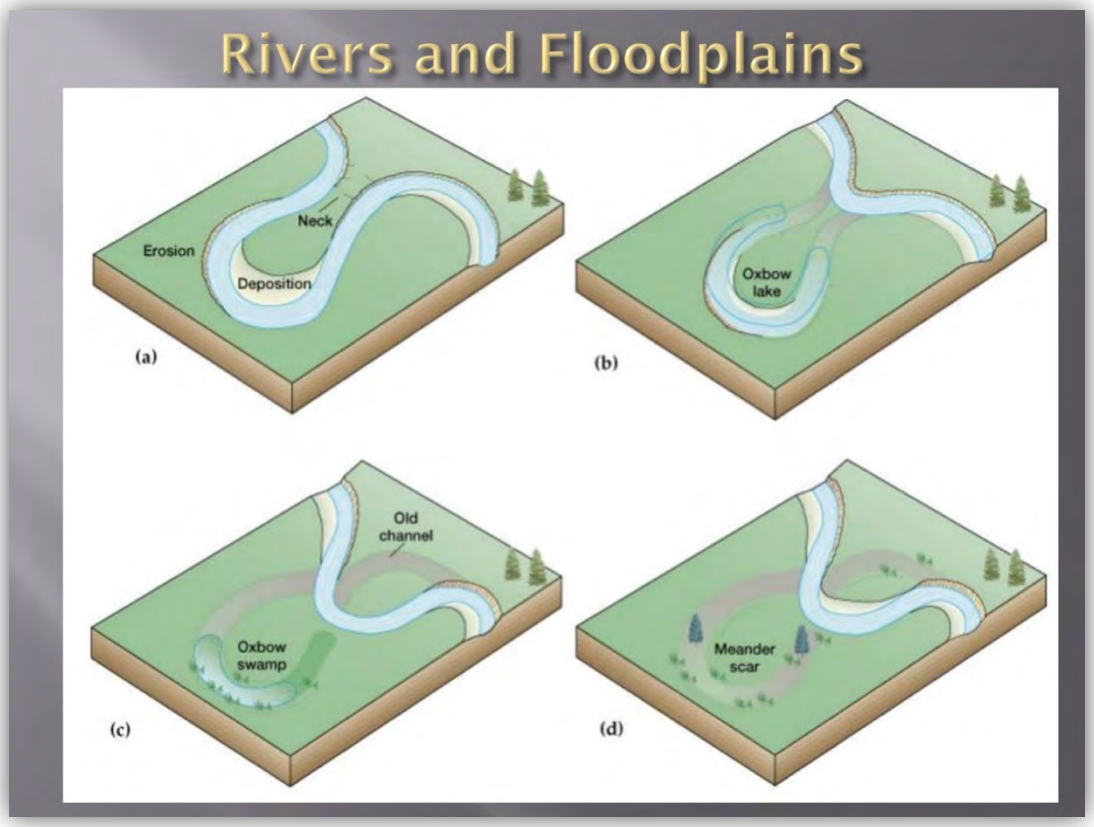

Figure 2. Floodplain illustration (Geocaching 2023).

Figure 3 shows some of the most basic floodplain landscape terms that are in common use and are sometimes abused. This cross-section of a floodplain illustrates the progression from levee to upland. There is an archaeological truism, that older sites will be found in second terraces and uplands. Although first terraces are also likely locations for sites.

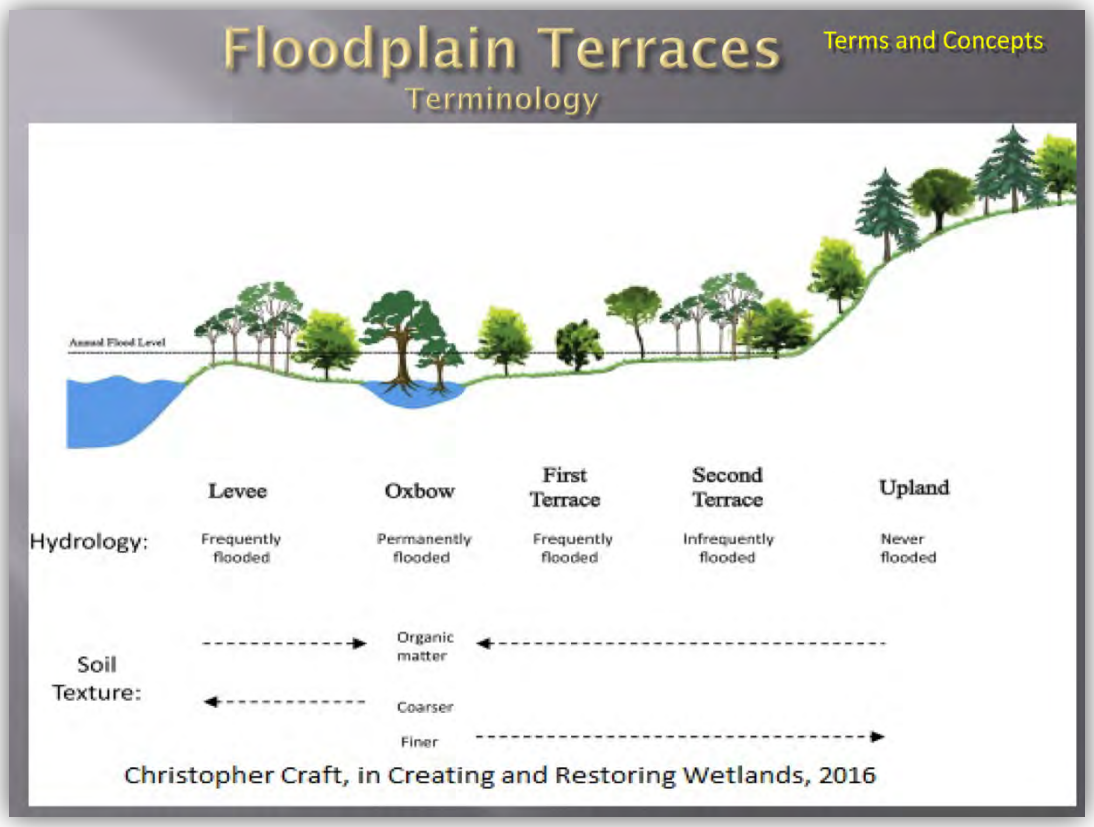

Figure 3. Elevation-related floodplain terms (Craft 2016).

Channel meanders describe the course of a river at any given period. Figure 4 on the left shows how widely a river can travel even over the course of just 200 years. While the graphic on the right illustrates different channel patterns that can develop under various conditions, from straight to meandering to braided. Because of these meandering channels, floodplain stratigraphy doesn't always conform to the classic law of superposition. As Figure 5 illustrates, on the right side of this graphic there is a clean stratigraphic sequence, but to the left the older dates occur higher up than the younger ones due to the downcutting routes of the subsequent river channels.

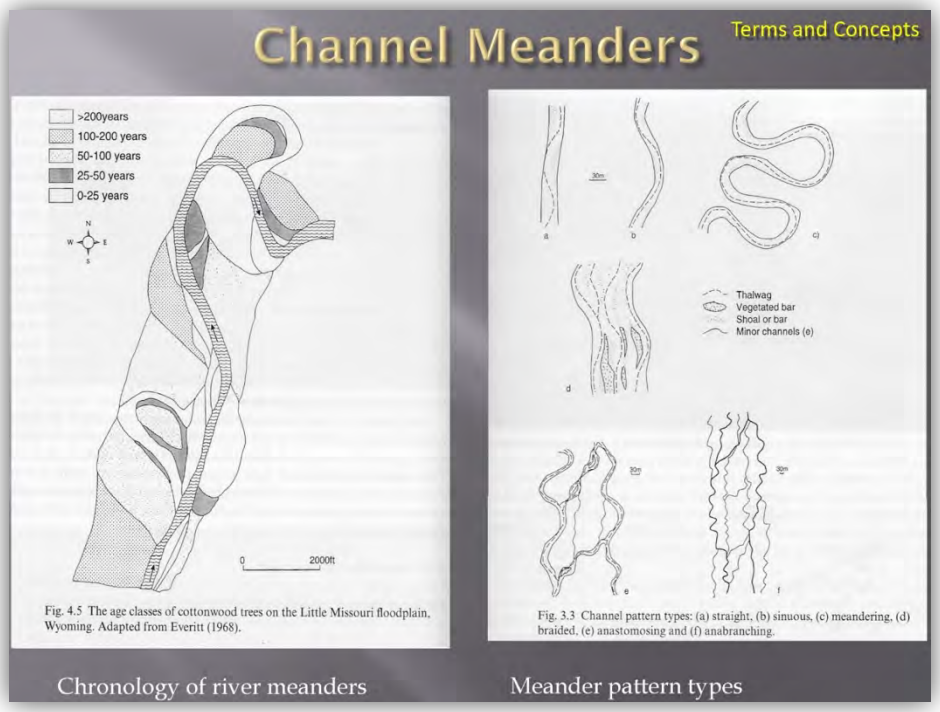

Figure 4. River channel meander examples (Brown 1997).

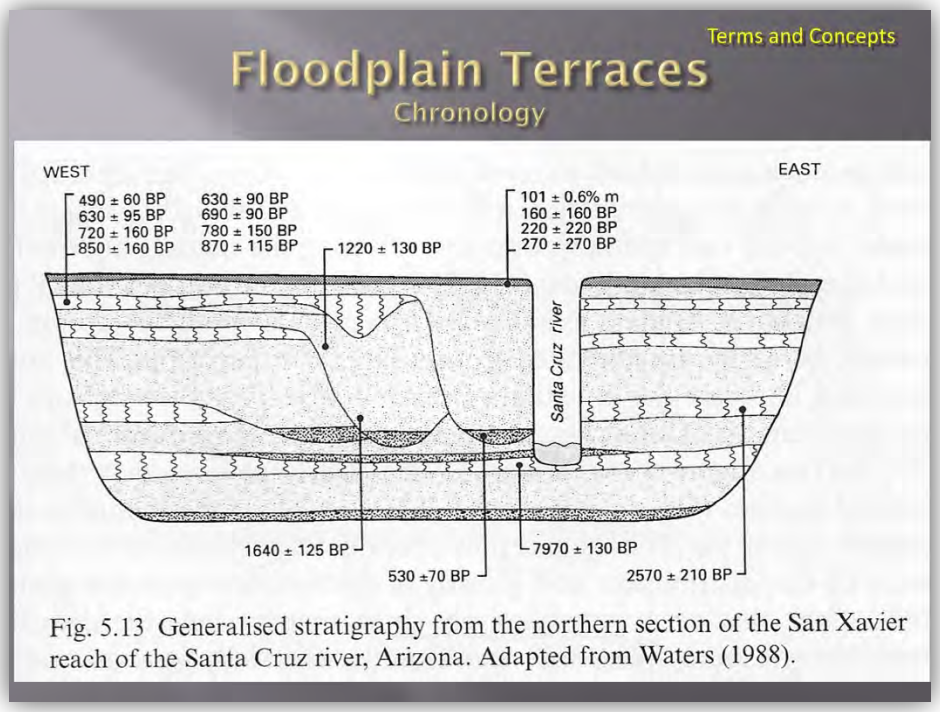

Figure 5. Floodplain chronology example (Brown 1997).

Figure 6 shows a few ways in which the stratigraphy in a floodplain becomes complex. The graphic on the left shows how the rate of sedimentation can affect artifact densities and spatial patterning on sites. On the right, the graphic illustrates how abandoned channels may be buried at unpredictable locations within a floodplain.

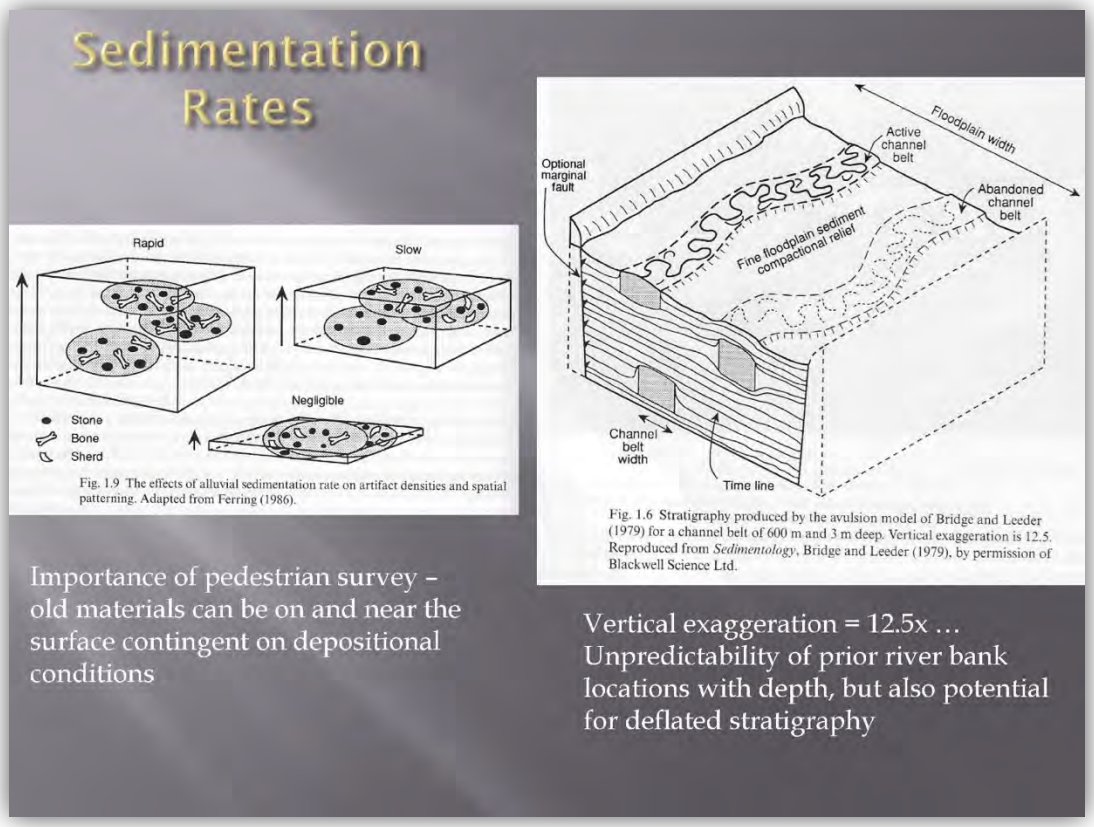

Figure 6. Principles of sedimentation and channel alluvial deposition (Brown 1997).

Figure 7 shows how an active channel was mapped over the course of 70 years. It can be used to help clarify some frequently used terms require more specific definition. The 'channel migration zone,' aka CMZ, is the area along a river channel in which it can be reasonably predicted that the channel may occupy over time, shown here as the bold black lines at the edges. The 'active channel' is the portion of the channel that is inundated at high flows, as shown by the colored lines at different time periods.

The Historic Migration Zone, aka HMZ, is the portion of the channel migration zone that the channel has occupied on historical maps and aerial imagery, delineated by the tight dotted lines that surround all of the previous active channels.

The HMZ is not to be confused with the 100-year floodplain (Figure 8). The 100-year floodplain is the area in which the Federal Emergency Management Agency (FEMA) has identified a 1% annual chance of at least shallow flooding. The area in pink here shows the 100-year floodplain for the Chehalis River, which as you can see covers a very large area. This is an insurance concept, not an archaeological one.

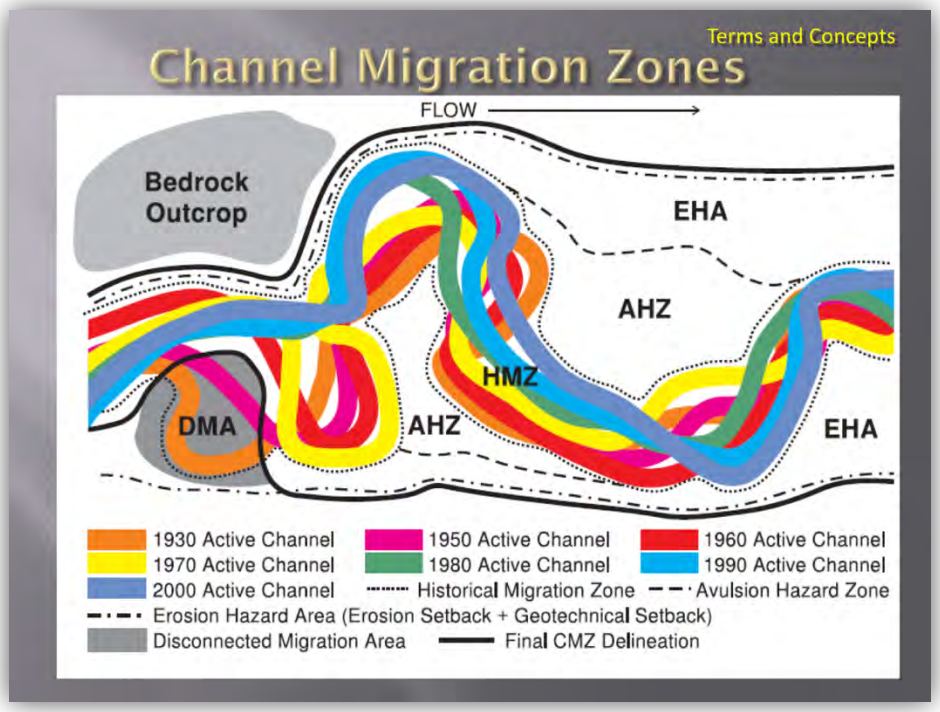

Figure 7. Active Channel and Historic Channel Migration Zone (Salish Sea Restoration 2023).

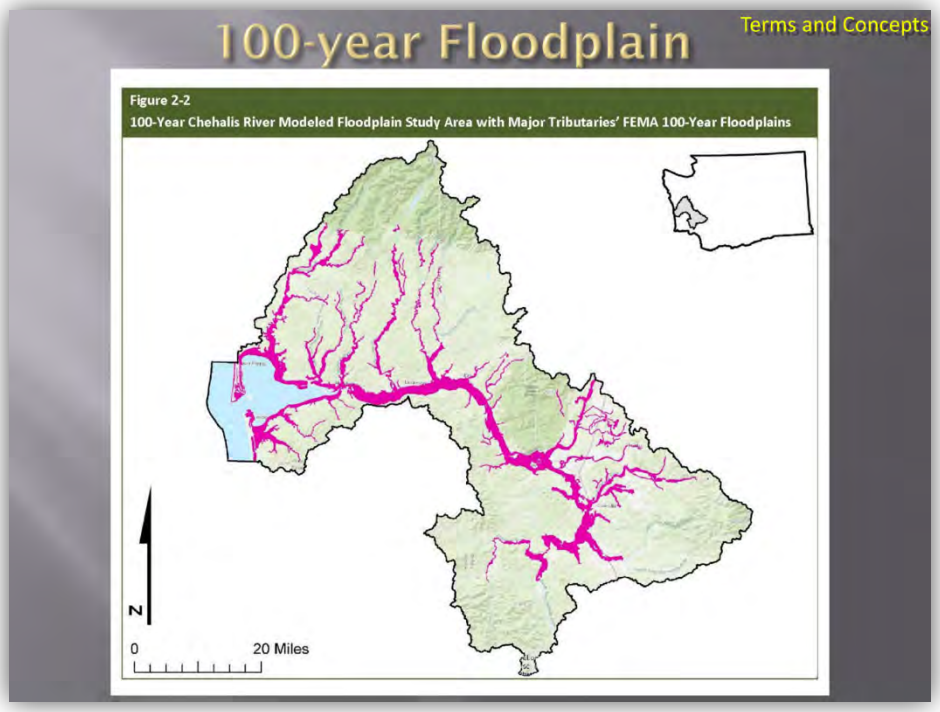

Figure 8. 100-year floodplain depicted along the Chehalis River, Washington (Hough-Snee 2019:11).

Next, we reviewed the literature on the topic within the Washington State region. Of course, Charlie Hodges has done multiple geoarchaeological floodplain studies as a specialist sub-consultant—Figure 9 shows the process of using targeted geoarchaeological trenching, in this case resulting in the discovery of a nearly 500-year-old elderberry processing site at a depth of just over 2 meters in Green River. Charles has carried out additional studies at a landscape level to reconstruct paleoenvironments in several Washington valleys (e.g., Hodges 2018, 2019). Landscape level modeling was carried out for the Hoko River Complex (Croes and Hackenberger 1988), as well as to model possible locations available for late Pleistocene habitation along the Chehalis River (Croes and Kucera 2017). The landscape level settlement and chronology studies include works by Herbel and Schalk (2002), as well as the multi-year Lake Pateros/'Wells Reservoir' project at the confluence of the Okanogan, Columbia, and Methow Rivers, which made use of mapped paleo-stream channels to provide 'bracketing dates' for site testing (Chatters, Butler, et al. 1986). This archaeological district has been restudied more recently to clarify the precontact chronology in relation to the presence of Historic Forts at Cassimer Bar (Rorabaugh 2019, 2020). Additionally, geoarchaeological studies have been used to clarify the chronological sequences at both the Mellon site near Chehalis (Rinck 2011) and in the Tacoma tidal flats (Rinck et al. 2014).

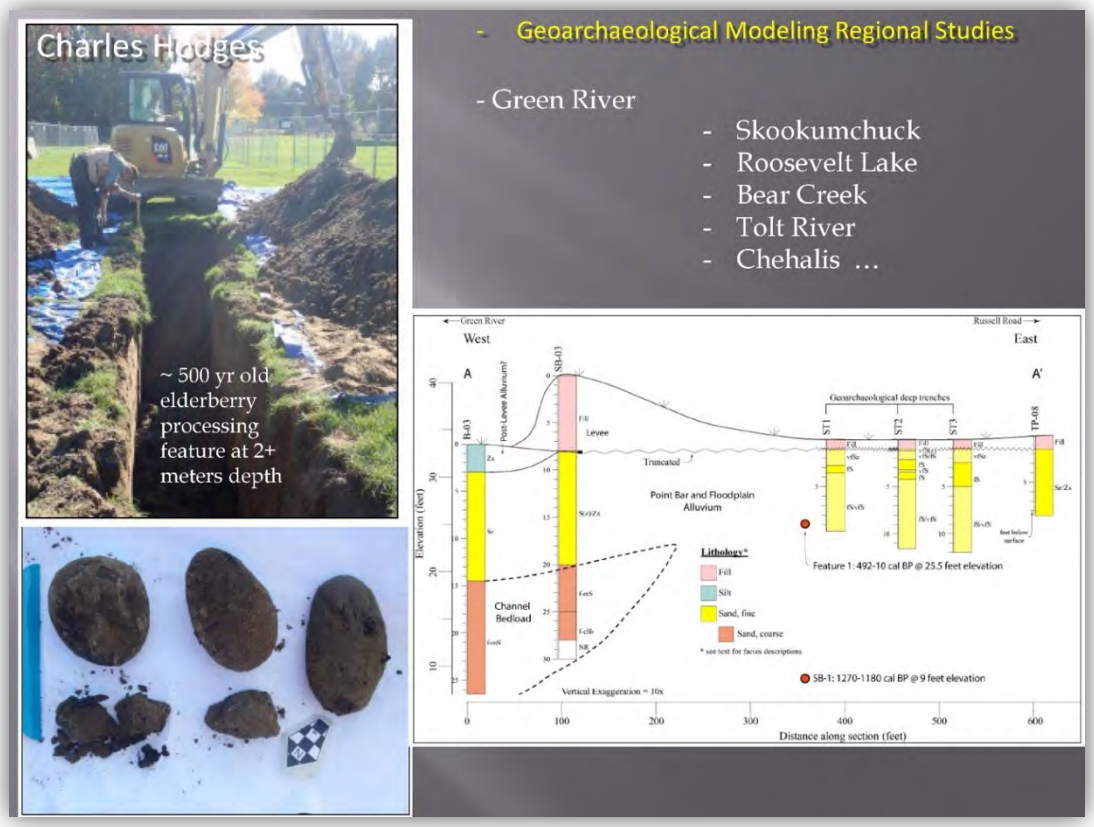

Figure 9. Example of geoarchaeological fieldwork and description (after Hodges 2018).

There has also been experimental archaeology related to the topic. Figure 10 shows the publication by Elder, Reed, Stevenson, and Sparks of their replication study which showed how quickly features within the active river channel are destroyed. They created simulated hearth features within the active channel of the Snoqualmie River and monitored their condition over the course of three months in the rainy season. They found that two of the four features were essentially obliterated, one deteriorated significantly, and one was unchanged. They concluded "if there is evidence that a stream channel has migrated across a portion of a floodplain during the twentieth and twenty-first centuries, then it can be assumed that any archaeological sites that predate the period of channel migration and located within the channel migration zone would have been destroyed." Others have further extrapolated in the gray literature to infer that "the historic channel migration zone is an area that has limited potential to contain intact archaeological resources."

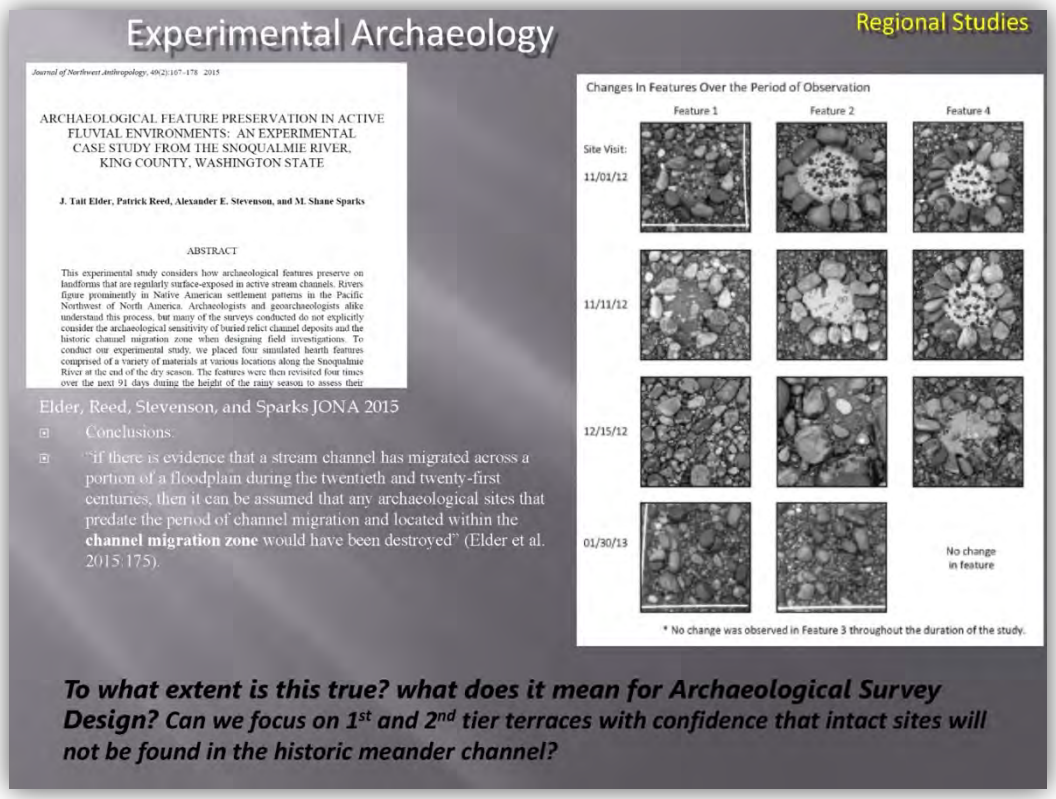

Figure 10. Results and conclusions of an erosion replication study (Elder et al. 2015).

This sounds like a testable hypothesis – how well would this assumption stand up to existing data? At this point, we developed our hypotheses, as shown in Figure 11:

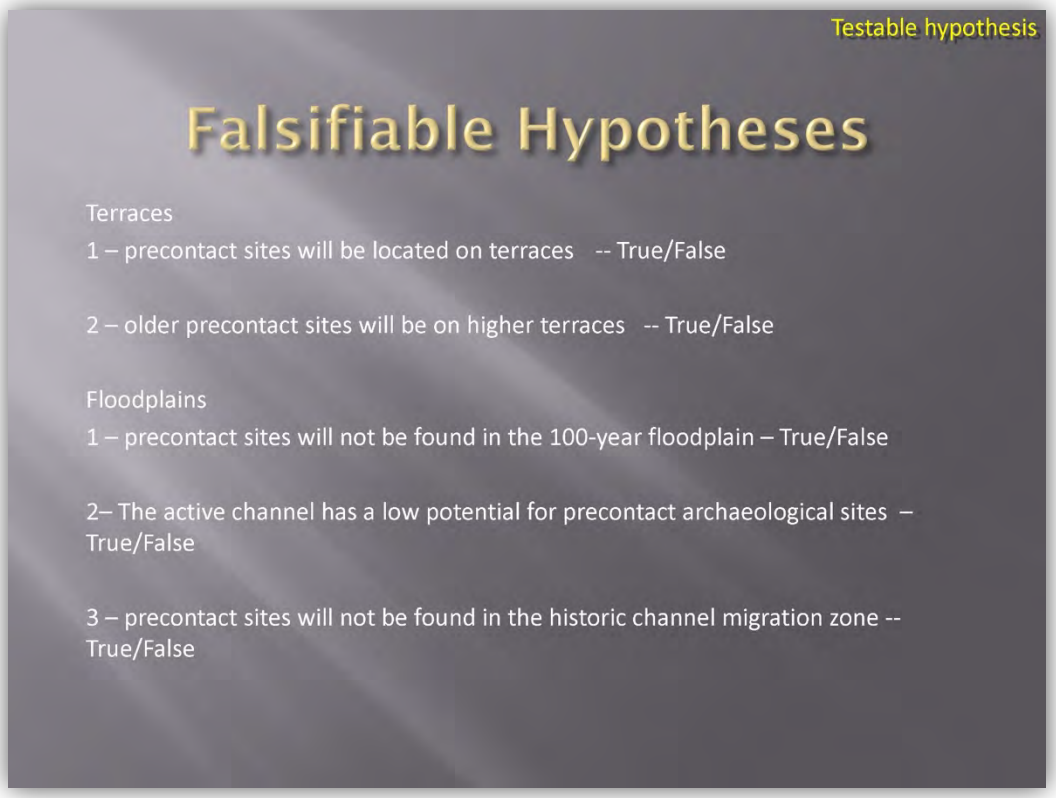

Figure 11. Testable assumptions related to site locations in a floodplain environment.

For terraces:

1. Precontact sites will be located on terraces.
2. Older precontact sites will be on higher terraces.

In floodplains:

1. FEMA maintains a data-set for the 100-year floodplain across the U.S. Perhaps it could be used as a proxy for the historic channel migration zone, and we could say that "precontact sites will not be found in the 100-year floodplain."
2. From the hearth feature experiment, the active channel has a low potential for precontact archaeological sites.
3. And further extrapolated, Precontact sites will not be found in the historic channel migration zone.

To test these, we observed real world data from the DAHP's WISAARD which shows where precontact archaeological sites are located. These were compared to LiDAR imagery and historic maps data.

Figure 12 is an anonymized floodplain with eight previously recorded precontact archaeological sites. I have taken measures to obscure the location of this area to preserve site confidentiality. Note that this data does not represent 100% survey coverage, these are just the sites that have been recorded. Most of these sites were recorded in the early 1970s. As you can see from the LiDAR image, the stream channel has moved significantly over time.

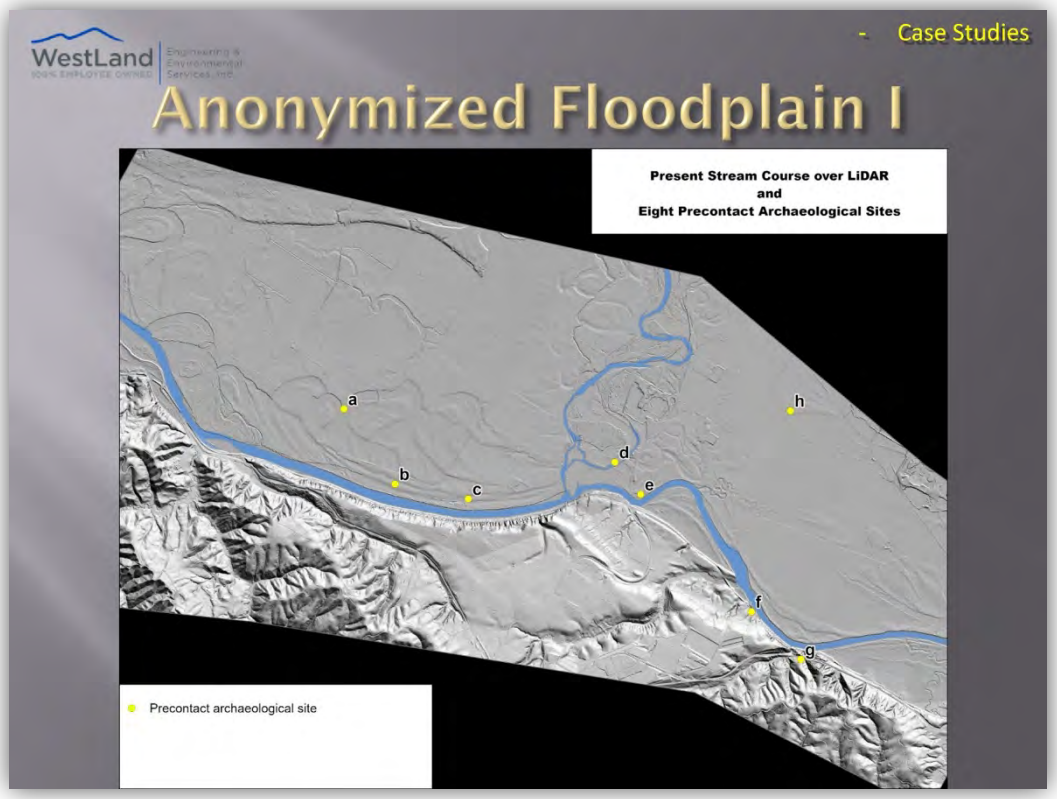

Figure 12. First case study; recorded precontact site locations within a floodplain overlain on LiDAR image.

Figure 13 takes a closer look at sites A, B, and C; they are described as campsites or village sites, with lithics, fire-modified rock, hearths, and groundstone. Site A is located next to an oxbow along a relict channel. Sites B and C are located on the same small rise, described as "inland, separated from the river by a depression." Using the terminology discussed earlier, we would call this a first tier terrace.

Figure 14 shows Site D is located in the active channel. It consists of basalt flakes and a chopper, and it is described as inundated by flooding, among the river cobbles. We interpret this as having eroded out of a nearby bank.

Site E contains a lithic scatter and groundstone. It was recorded at the river-bank during ground disturbance activities. This could be described as a first tier terrace.

Site H is a lithic scatter with fire modified rock. It sits on a mound and is subjected to seasonal flooding. This elevated mound could be artificial or could be a naturally occurring first tier terrace-like phenomenon.

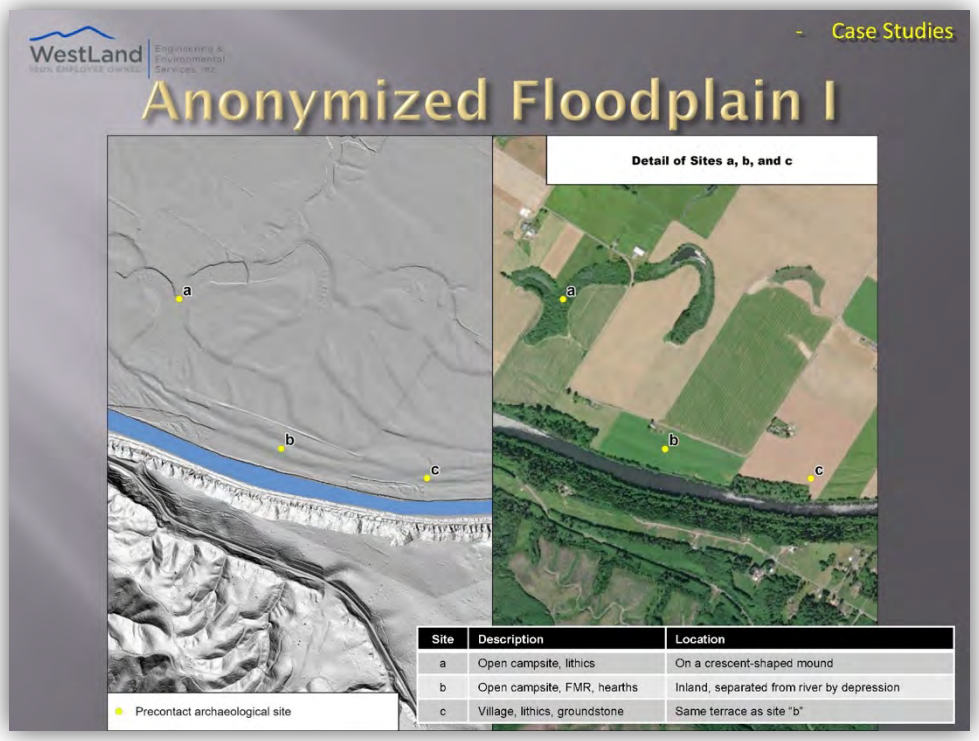

Figure 13. Detail of site locations A–C.

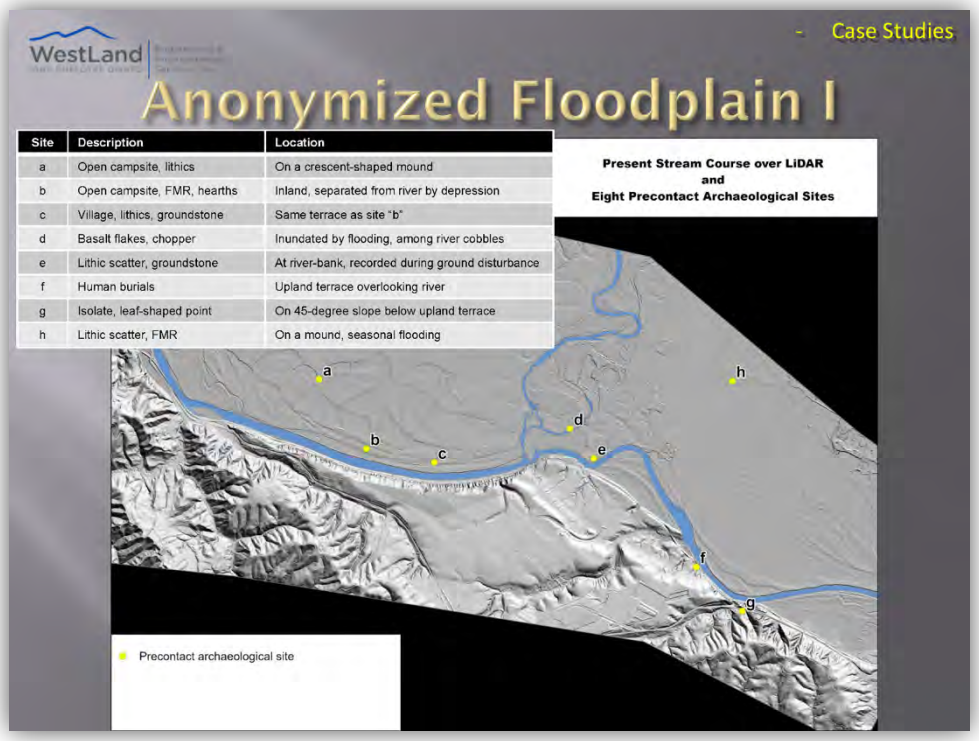

Figure 14. Recorded site locations with details of site contents.

Figure 15 shows detail of Sites F and G which sit up higher than the rest of the sites in the upland. Site F consists of human burials on an upland terrace overlooking the river. Site G is a leaf-shaped point, isolated find. The description matches Archaic period Olcott or Cascade-style. It was found on a steep slope below an upland terrace.

Overall, these eight sites provide a fairly classic representation of the distribution of sites in a floodplain.

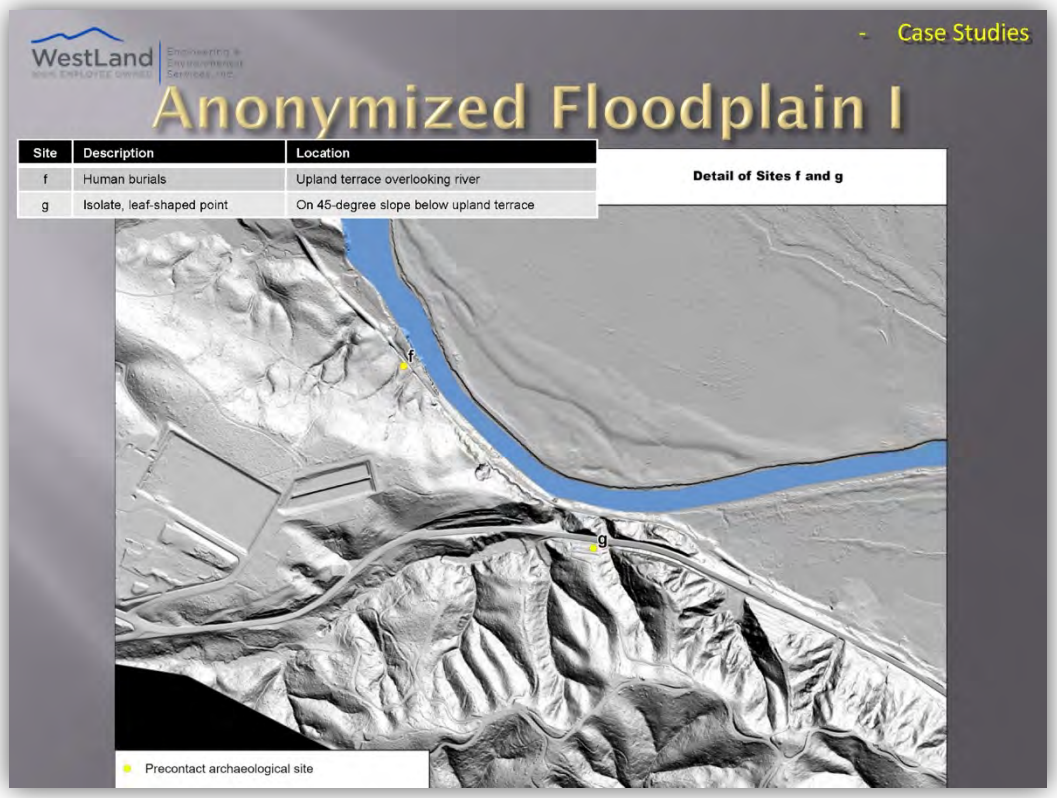

Figure 15. Detail of site locations F and G.

Figure 16 shows there is an overlay of georeferenced historic maps and aerial photographs to attempt to show the historic channel migration zone. The process was fairly complicated and this image highlights some of the limitations and challenges of it. If you look closely at site E, you can see the 1860–1862 channel runs over the site. Directly left and right of site E, the mapped channel jumps the banks that are visible in the LiDAR, providing a fairly unbelievable historic channel. This is a limitation in using older maps; they were often drawn with little precision. It can be difficult to see here, but even the channel attributed to 1940–1941 has some apparently erroneous banks. Due to the lack of precision in the early historic mapping period, the historic channel migration zone can be difficult to define.

Additionally, note the islands in the gaps between the stream channels. Active channels can meander in different ways. Sometimes they move slowly, eroding a bank and shifting the channel over time. Sometimes they change course rapidly, cutting a new channel through the floodplain. Depending on how the river meandered, there may be islands of intact soils between historical stream channels.

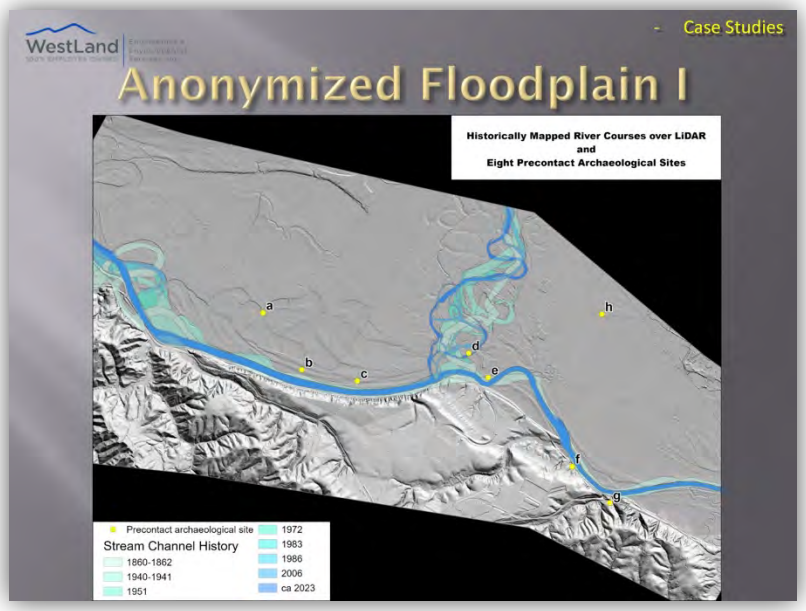

Figure 16. Overlay of river channel locations from historic maps and LiDAR.

Figure 17 shows an overlay of the 100-year flood zone, as provided by FEMA. Although it is a convenient source of data, this figure shows that it would be a wildly inappropriate proxy for the historic channel migration zone. Six of the eight sites in the study area, including all of the occupation sites, are within the 100-year flood zone.

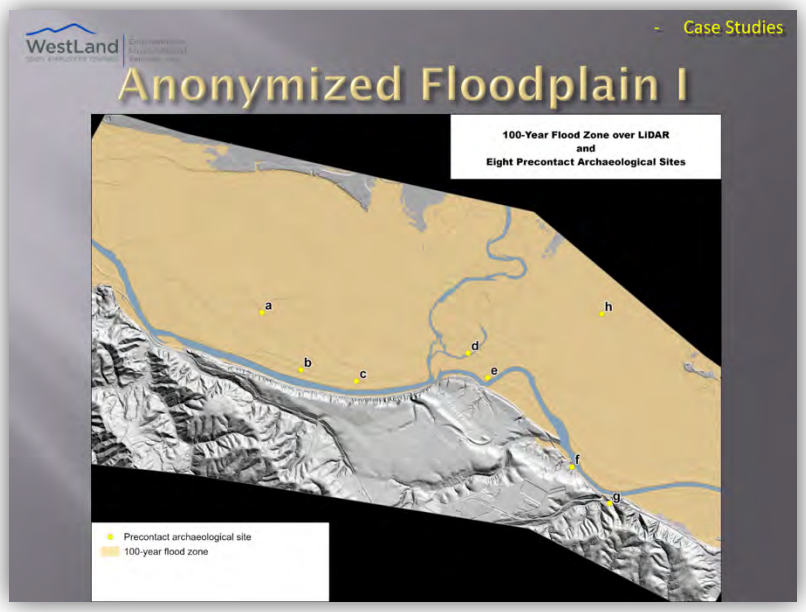

Figure 17. Overlay of 100-year floodzone and recorded site locations.

Figure 18 is a second case study, showing the distribution of recorded sites along an anonymized floodplain. For this area, the attempt to approximate the historic channel migration zone, as had been done for the first case study, hit some more stumbling blocks. In addition to issues with historic mapping precision, the streams here were difficult to pick out on historic aerial imagery. We eventually decided that there would be too much guesswork in the process for it to have any value.

Looking into the topic further, this conclusion was confirmed by the Washington Department of Ecology's recommendations which say "conducting a channel migration assessment is a complex, technical job. The person performing the assessment should be a licensed geologist or engineer—such as a geomorphologist, engineering geologist, hydraulic engineer, or hydrogeologist—with at least 5 years of proven experience in fluvial geomorphology and evaluated channel response" (Ecology 2014:vi).

Leaving that idea behind, it is at least possible to take a closer look at where the sites are located. Most of the sites here are shown close to the active channel, on what appear to be 1st and 2nd tier terraces. However, what immediately stands out as most interesting in this area are sites V and AA. These sites are along a relict channel that is faintly visible on the LiDAR image. The stream appears to have migrated significantly during the precontact occupation period.

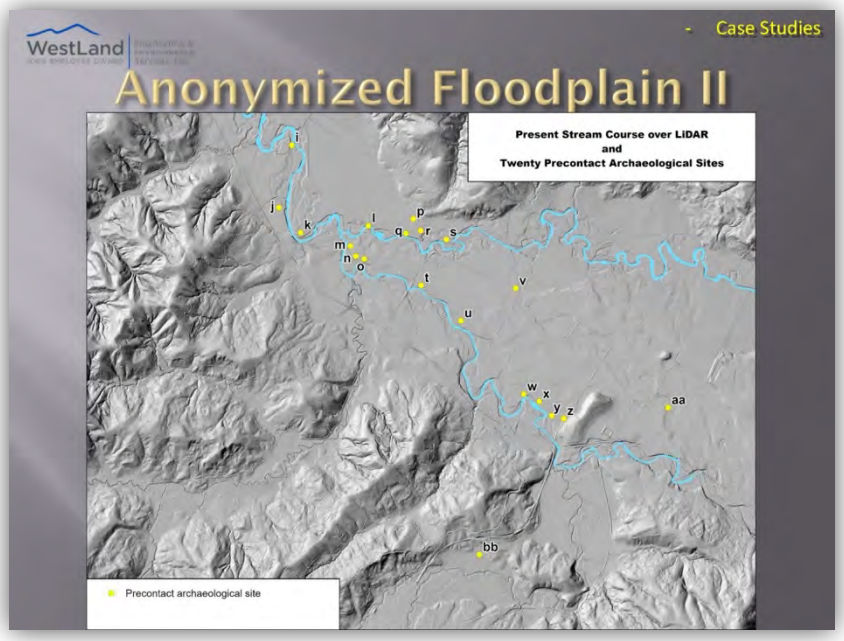

Figure 18. Second case study; recorded precontact site locations overlain on LiDAR image.

So, at this point, we can revisit our hypotheses (Figure 19). The basic truisms that sites are located on terraces and that older sites will be located on 2nd order terraces and uplands has been borne out by the data.

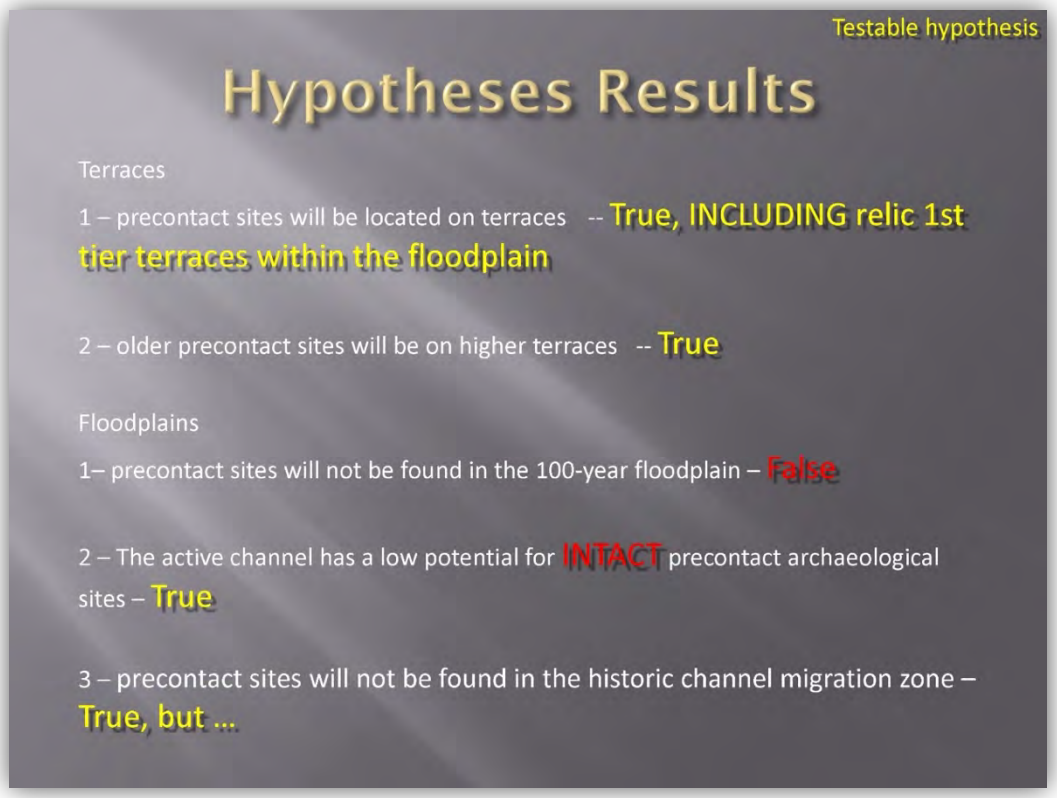

Figure 19. Conclusions.

The idea that precontact sites will not be found in the 100-year floodplain has been shown to be false.

The active channel has a low potential for INTACT sites, but secondarily redeposited artifacts eroding out of nearby sites are found and may be a good source of information about sites nearby—similarly examining cut banks can be an important source of survey information.

Finally—the hypothesis that Precontact sites will not be found in the historic channel migration zone—this one is true but hinges on accurately defining the historic channel migration zone, which the Department of Ecology says should be done by a competent hydrogeologist. I would also add a caveat regarding depth. With a high rate of sedimentation, the historic channel migration zone could pass over a deeply buried site and leave it intact beneath the historic riverbed. Sites at such depths may need to be considered, depending on the parameters of your project.

Finally, takeaways for survey methodology are:

- 100 pedestrian survey should not be overlooked and can be an important source of information wherever there is surface visibility.
- Active channels should be walked if accessible to examine cut banks and look for redeposited artifacts that may lead you to intact sites on the adjacent terraces.
- Oxbows and relict channels that can be viewed on LiDAR or aerial images are good locations to find sites. LiDAR imagery for most of Washington State is publicly available (https://lidarportal.dnr.wa.gov/) and should be consulted during survey design.

- Beyond that, targeted shovel probe survey can be directed at terraces and uplands.
- Any further, more intricate modeling of precontact floodplain landscapes requires specialist hydrogeological and geoarchaeological knowledge.

Acknowledgments

This presentation has benefited from discussions with Charles Hodges, Naomi Brandenfels, Adam Rorabaugh, and Brandy Rinck. Thank you to all who took the time to share your knowledge.

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An Approach to the Systematic Evaluation of Water Wear on Lithic Artifacts

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Abstract

Despite the durability lithic artifacts, they are susceptible to degradation under certain conditions. One such degrading agent is water (and waterborne sediments). When lithic artifacts are exposed to water-transported sediments along shorelines or streambanks, the result is often the rounding of edges and flake scar arrises recognized as water wear. While water-wear is notable when present, it is rarely measured or characterized as part of in-field or laboratory artifact analysis. The degree of wear is correlated with the duration of exposure of an artifact to water-transported sediments. An assemblage of water worn artifacts may provide an indication of the impacts to a site through fluvial or wave erosion. A four-part ranking system based on the width of arris rounding has been developed to assist in the evaluation of past and ongoing impacts to archaeological resources that include lithic artifacts. The system, potential application, and directions for future research are presented.

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Despite the durability lithic artifacts they are susceptible to degradation under certain conditions. One such degrading agent is water (and waterborne sediments). When lithic artifacts are exposed to water-transported sediments along shorelines or streambanks the result is often the rounding of edges and flake scar arrises recognized as water wear. While water-wear is notable when present, it is rarely measured or characterized as part of in-field or laboratory artifact analysis. The degree of wear is correlated with the duration of exposure of an artifact to water-transported sediments. An assemblage of water worn artifacts may provide an indication of the impacts to a site through fluvial or wave erosion. A four-part ranking system based on the width of arris rounding has been developed to assist in the evaluation of past and ongoing impacts to archaeological resources that include lithic artifacts. The system, potential application, and directions for future research are presented.

Introduction and Background

Chipped stone artifacts are among the most durable materials in pre-contact archaeological sites (Andrefsky 2005:1). The high silica content associated with lithic materials used to make stone tools makes them hard, and resistant to decay and weathering. However, these artifacts are not impervious to degradation, and many post-depositional environments will alter chipped stone artifacts over time (Rasic 2004). The deterioration of lithic artifacts is correlated with the loss of some attributes of the artifact, and in severe cases the analytical value of an artifact may be almost completely lost. However, in some cases, the post-depositional effects to artifacts may contribute information that is useful for managing and preserving archaeological sites.

The recognition that lithic artifacts are durable but not impervious to post-depositional agents has prompted some researchers to call for deliberate analysis of these post-depositional changes (e.g. Borrazzo and Borrero 2015; Hiscock 1985; Howard 1999, 2002). The physical and chemical alteration of stone over time is part of a complex relationship between artifacts and their environment. In cases such as obsidian hydration this relationship provides a measure of time. Other post-depositional changes to artifacts may be seen as loses of information or asymmetrical reduction of the information at an archaeological site as the more durable elements persist while delicate ones are lost to agents of degradation (Lyman 1994).

Water wear on lithic artifacts is largely a product of sediment particles transported by moving water that strike and abrade the surface of an artifact, though water chemistry can also play a part. Artifact margins and arrises are typically the most noticeable areas of wear as the once sharp edges and flake boundaries round over. Due to the specific, and likely unknowable, variables associated with the duration and magnitude of exposure to erosive forces at different sites, intersite comparisons of wear are not meaningful. The rate at which wear develops is related to the specific lithology of the artifacts and the sediment that abrades the artifact, and energy of the water. As such, the characterization of wear is best used to assess individual on-site process and relative time of wear among artifacts at a site.

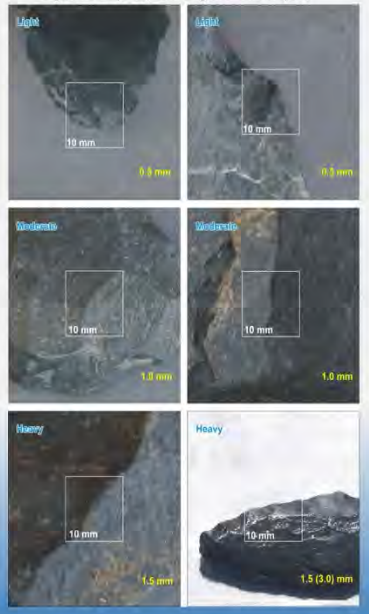
Wear Characterization

For the purposes of this system, four grades of water wear are used. The grades are based on arbitrary uniform ranges of the width of wear visible on flake margins. These divisions are at 0.5 millimeter (mm) increments from 0 to 1.5 mm. Once wear reaches 1.5 mm in width the potential for wear from two adjacent arrises to intersect is high making specific wear grades with greater than 1.5 mm of wear of limited utility in many cases.

Grade No.	Level	Measure
0	None	0 mm
1	Light	0.01 – 0.5 mm
2	Moderate	0.51 – 1.0 mm
3	Heavy	1.01 – 1.5 and above

The measure of wear requires a background in lithic artifact analysis and familiarity with the properties of conchoidal fracture. Wear measurements are taken from the boundary between the concave flake scar surface and convex worn surface across the convex wear to the opposite boundary with the adjacent flake scar (Figure 2).

Figure 1. Examples of Wear Stages on Lithic Artifacts.



Application of Wear Data

This system requires that measurements be recorded for multiple artifacts. Sites that have been eroded with exposed or "lagged out" artifacts may have a wide variation in the number of available artifacts to measure. As with any quantitative analysis the larger the sample of measurements the greater the confidence in the patterns indicated by the analysis. The percentage that each wear type comprises in the sample will provide an indication of the relative time since the artifacts were exposed and indicate if the erosion was caused by a single event, multiple events, or an ongoing process.

The size of the sample used to characterize the wear pattern should be sufficient to be testable and demonstrate a relationship with the strength of the relationship increasing with sample size (Shennan 1988:104-115). With four categories of wear a minimum sample size of 20 artifacts would provide enough opportunity for a pattern to be detected. The distribution of wear among the four categories informs the question, were these artifacts exposed continuously or during a single short period? The question can be answered statistically using a Chi-Squared test. The distributions illustrated in Figure 3 using a hypothetical measure of 20 artifacts would test as:

- 100 % one category: χ^2 (3 *df*, N=20) = 60, two-tailed p = <0.0001
- 75/25 % two category split: χ^2 (3 *df*, N=20) = 30, two-tailed p = <0.0001
- 25 % per category: χ^2 (3 *df*, N=20) = 0, two-tailed p = 1.0

Figure 2. Profiles Illustrating the Measurement Area of Wear on Lithic Artifacts.

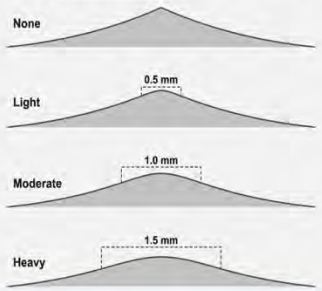
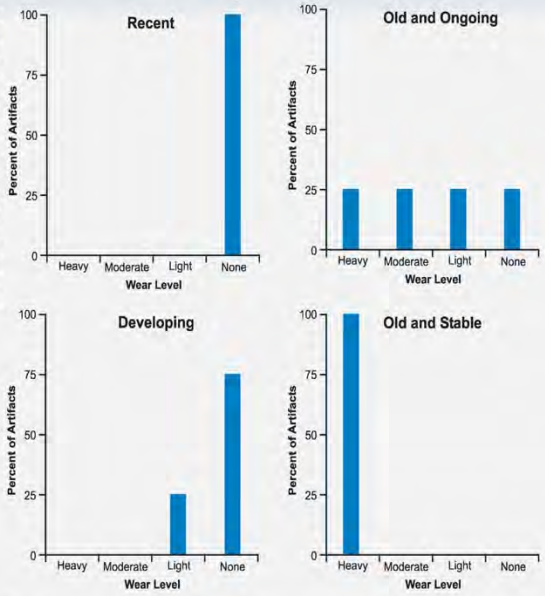


Figure 3. Hypothetical Assemblage Wear Stage Compositions Illustrating Likely Interpretations of Some Patterns.



Discussion

Climate change has resulted in alterations to weather patterns such as large concentrated rainfall events and severe wind conditions that result in stream bank and shoreline erosion in historically unprecedented ways. Erosion caused by flowing water or waves is destructive to archaeological sites and displaced artifacts are often considered to have little or no interpretive value due to their lost context. Wear analysis offers a tool for land managers to use artifacts in this secondary context as an aid in site preservation. A simple analysis of the wear patterns expressed on the exposed artifacts at a site can offer valuable information about the relative timing and duration of destructive site erosion. These patterns can be recorded by archaeologists during routine site monitoring activities to inform decisions about financial and material resource allocation to combat new and/or active erosional processes that may help preserve the remaining portion of a given site.

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Evidence from the Rock Island Overlook Site for Pleistocene Horse Hunting on the Columbia Plateau

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Abstract

Recent re-analysis of selected artifacts from a 1974 archaeological salvage excavation at the pre-contact Rock Island Overlook site, 45CH204, in central Washington State indicates that cultural deposits are much older than previously reported. Projectile point chronology and obsidian hydration dating suggest the Rock Island Overlook site was first occupied 13 to 16 thousand years ago. The assemblage also contains evidence of hunting Pleistocene horses. Horse blood residue was identified on a Windust type projectile point. This result also supports the age estimate for the site as Pleistocene horse extinction occurred about 12,700 years ago. Other data from the site are consistent with a Pleistocene age, although more information is needed to confirm and refine the dating.

Introduction

This paper presents some evidence that Ice Age hunters used a Windust type projectile point to kill a Pleistocene horse of a species that became extinct shortly thereafter. It is based on a report prepared for Public Utility District No. 1 of Chelan County (Chelan PUD) as part of a Memorandum of Agreement (Ozbun and Cowan 2023).

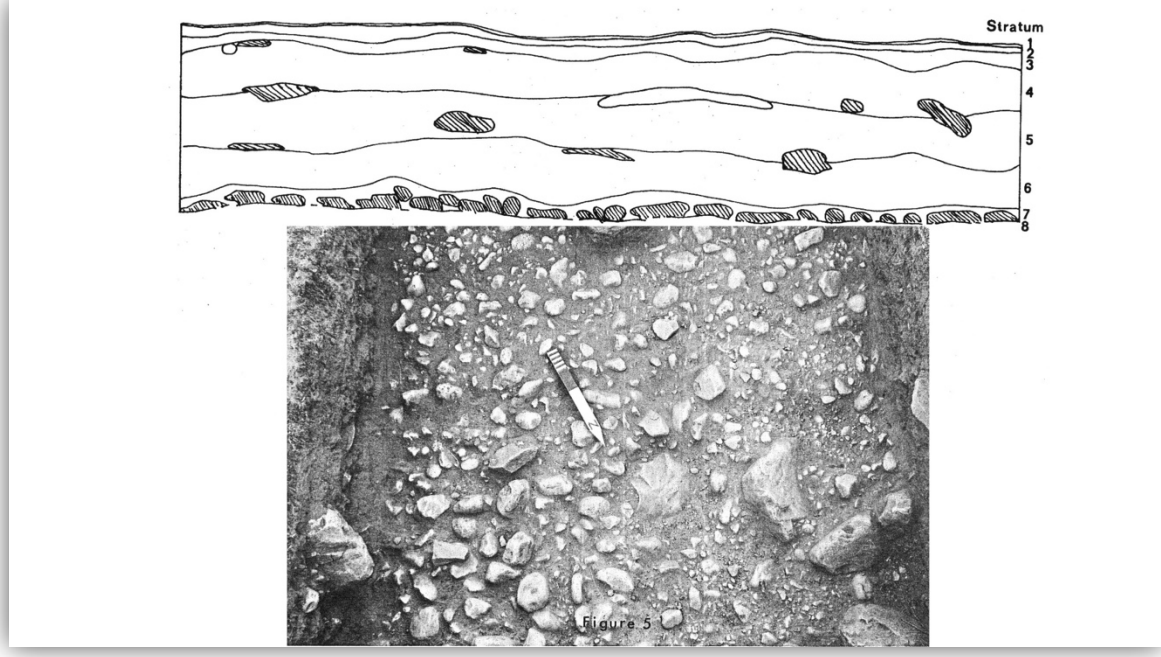
Slide One. Introduction.

Slide Two. Project Location Near Wenatchee, Washington.

This evidence comes from near the city of Wenatchee in central Washington State. Wenatchee, Washington, is the self-proclaimed Apple Capital of the World because of the huge commercial production of apples there, so I have used a red apple to represent the project location in Washington State.

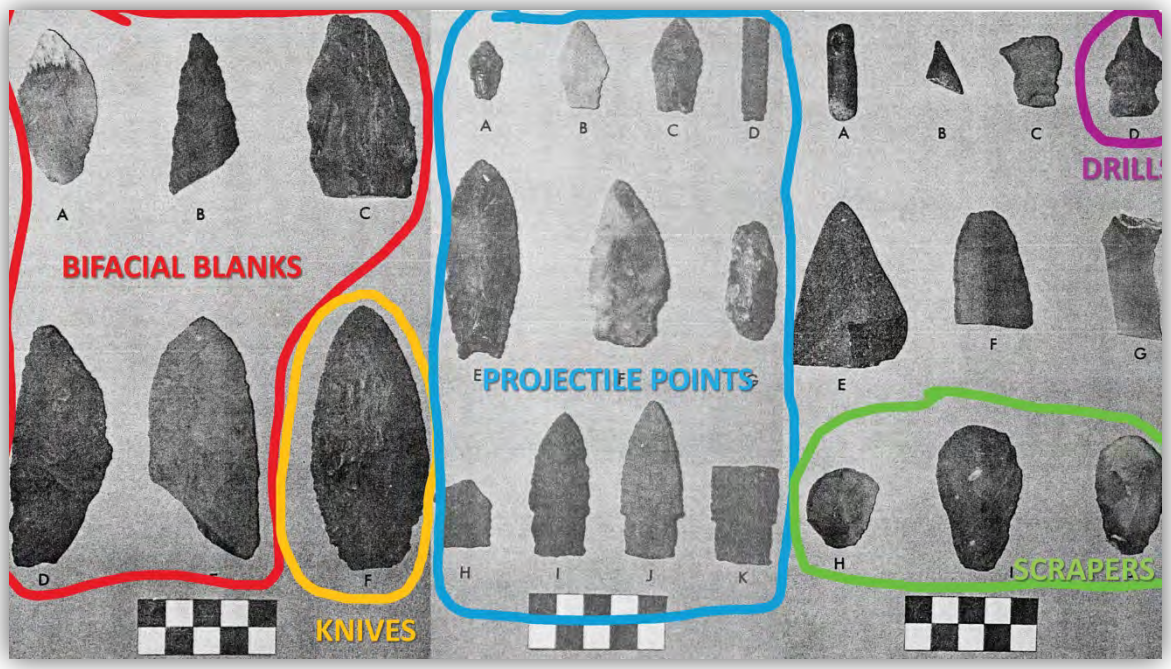
Archaeological site 45CH204, the Rock Island Overlook Site, is located along the Columbia River south of Wenatchee. Back in 1974 when the Rock Island Overlook site was initially identified, it was in danger of impacts related to raising of the reservoir pool elevation behind the Rock Island Dam. Therefore, the same summer the site was found, it was also archaeologically excavated by Derek Valley and crew from Washington State University (WSU) in order to salvage some archaeological data (Valley 1975).

Slide Three. Stratigraphic Profile and Photo of Gravel Underlying Archaeological Deposit.



In total 84 square meters were excavated into shallow windblown sediments over Pleistocene flood gravels. Massive floods at the end of the Pleistocene ripped through this area stripping sediment down to bedrock and leaving gravel deposits such as these behind. These floods ended about 15K years ago, so we think this gravelly stratum at the bottom of the archaeological deposits represents about 15K years B.P.

Slide Four. Recovered Bifacial Blanks, Knives, Projectile Points, Scrapers, and Drills.

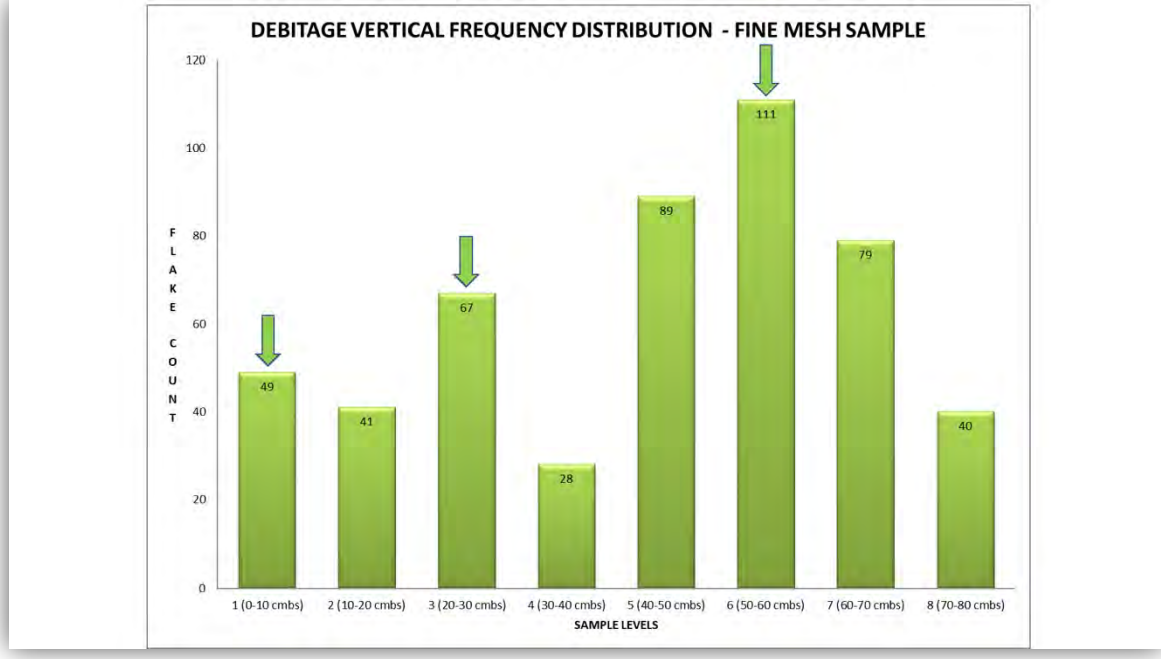


Over 1,500 stone tools such as these bifacial blanks, knives, projectile points, drills, and scrapers were recovered along with uncounted large numbers of flakes. In fact, enough debitage that the site was suggested to be a lithic workshop. In a slim report on the results Derek Valley also suggested that the site was occupied between two and seven thousand years ago based on typological assessment of the projectile points. This assessment is a little puzzling, but the Windust type points (H–K in the middle portion of Slide 4 above, from Valley 1975) were not recognized as such. These Windust points are now known to date from about 11K to 13K years ago or possibly even older.

Excavated sediments were screened with ¼-inch mesh so most of the pressure flakes would have been lost, but Valley had the foresight to screen a sample for each level of one unit through window screen, presumably mesh with about 1 mm openings to capture a sample of the small artifacts (Valley 1975).

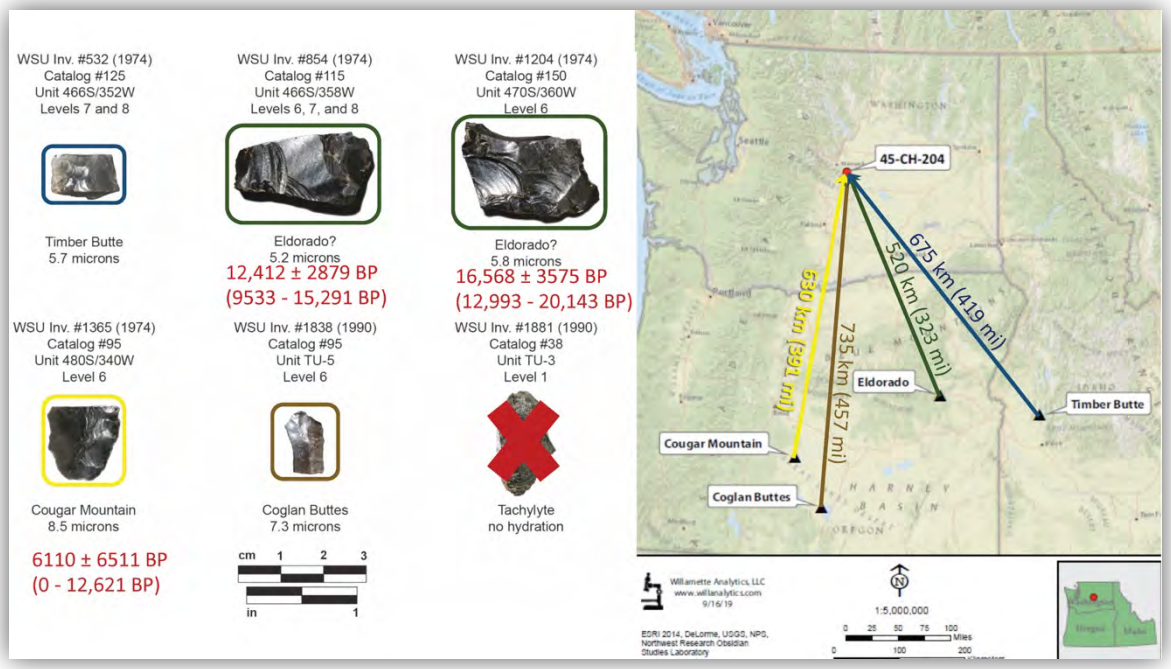
Fast forward 44 years to 2018 and Chelan PUD needed to make some changes to facilities, so they asked us (Archaeological Investigations Northwest, Inc. or AINW) to investigate the project area which we did using background research, Tribal coordination, pedestrian survey, shovel testing, and backhoe excavations in the project's Area of Potential Effects (APE). Results of the survey showed that the project would impact only peripheral areas of the site, and those areas contained sparse distributions of artifacts and disturbed archaeological deposits. The area previously excavated by WSU in 1974 was outside of the APE and would not be impacted. Chelan PUD proposed to minimize site impacts and mitigate minimal site impacts through archaeological monitoring and re-analysis of a sample of materials from the 1974 excavations which had not been thoroughly analyzed since.

Slide Five. Debitage Vertical Frequency Distribution–Fine Mesh Sample.



Analysis of the debitage (n=504 flakes) from the fine mesh samples showed two or three vertical distribution peaks, the smaller of which were at 0 to 10 cm and 20 to 30 cm below surface and the larger being deeper at 50 to 60 cm below surface. This suggests that the more intensive flintknapping occurred early in the site's occupational history. The analysis also showed that the deeper component contained larger flakes and a higher proportion of basalt/andesite flakes, both characteristic of very early assemblages on the Columbia Plateau. Technological analysis revealed that over half (53%) of the technologically diagnostic debitage was from percussion bifacial thinning while about one third (36%) represented core reduction and a small amount (12%) was pressure flakes and this was consistent between the upper and lower components. However, there was a more significant difference between the components with the lower component having a higher proportion of late-stage percussion bifacial thinning flakes which indicates more systematic thinning of bifaces during the time represented by the lower levels. The small proportion of pressure flakes is also characteristic of bifacial tool manufacture rather than resharpening or maintenance of bifacial tools which produces lots of pressure flakes. In this respect, Derek Valley, the original investigator, is supported in the idea that the site represents a tool manufacturing workshop.

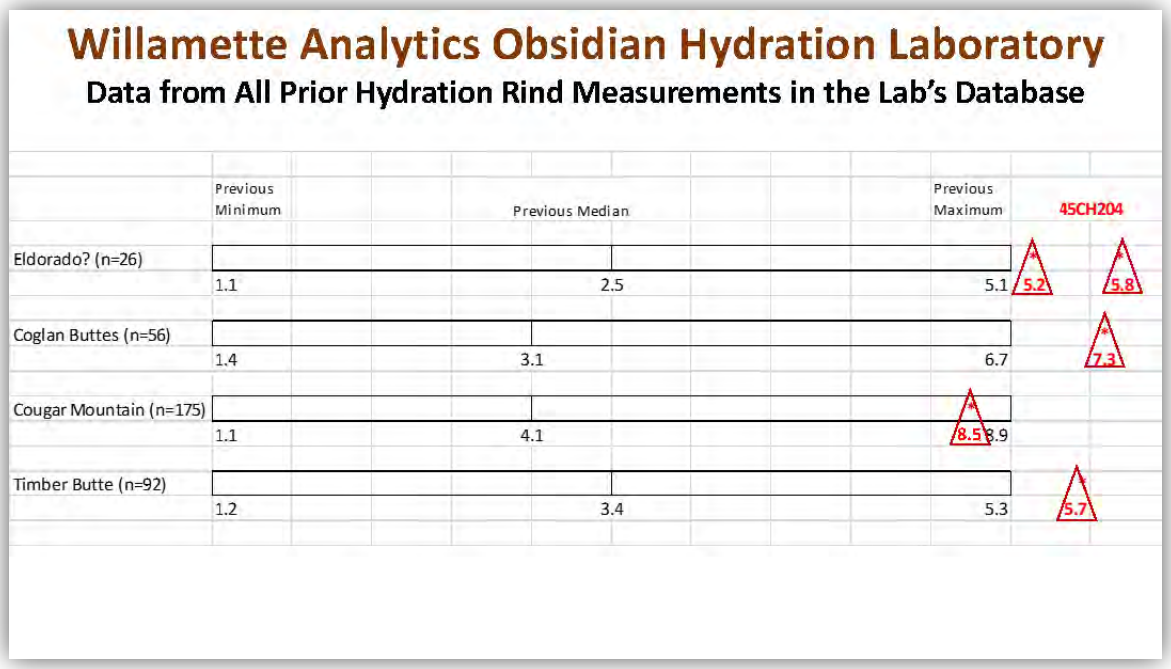
Slide Six. Six Artifacts Selected for X-Ray Fluorescence Analysis.



Six artifacts, representing all of the available volcanic glass from the site that was of adequate size, were selected for x-ray fluorescence analysis. One flake turned out to not be obsidian and was instead a glassy volcanic tachylyte which is available locally in the site area. The most distant obsidian source identified was for a flake from Coglan Buttes, 735 km (457 mi) as the crow flies from the Rock Island Overlook site. A projectile point fragment is from Timber Butte, 675 km (419 mi) southeast of the site. Cougar Mountain is 630 km (391 mi) distant and where another projectile point base originated. The closest source is Eldorado, still 520 km (323 mi) away, and where two flake fragments were sourced.

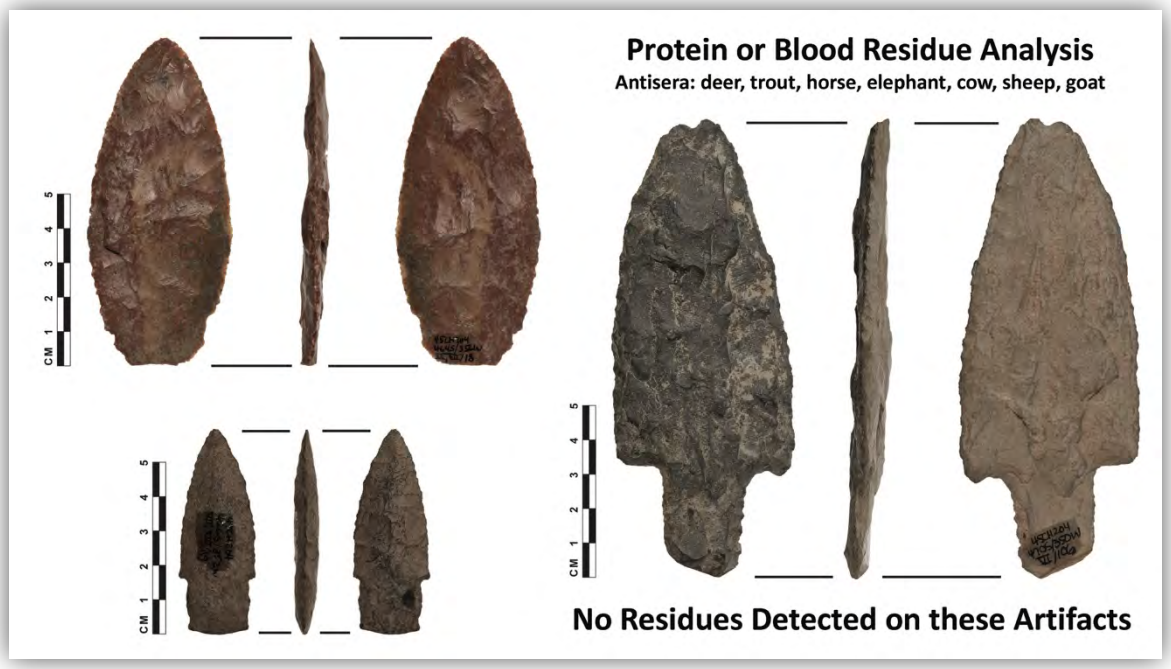
AINW has developed a model for estimating the ages of obsidian artifacts based on obsidian hydration rind measurements, source-specific hydration rates, and effective hydration temperatures for each artifact. We have provisional rates for only two of these sources. For the point base sourced to Cougar Mountain we calculated an age of 6110 ± 6511 years B.P. which is such a large standard deviation that the estimate is almost meaningless (0 to 12,621 years B.P.). We did a little better for the Eldorado source flake fragments for which we calculated an age of 12,412 ± 2879 years B.P. or 9533 to 15,291 B.P. and 16,568 ± 3575 or 12,993 to 20,143 years B.P. These estimates are imprecise, but they do suggest potentially significant antiquity.

Slide Seven. Willamette Analytics Obsidian Hydration Laboratory Data from All Prior Hydration Rind Measurements in the Lab's Database.



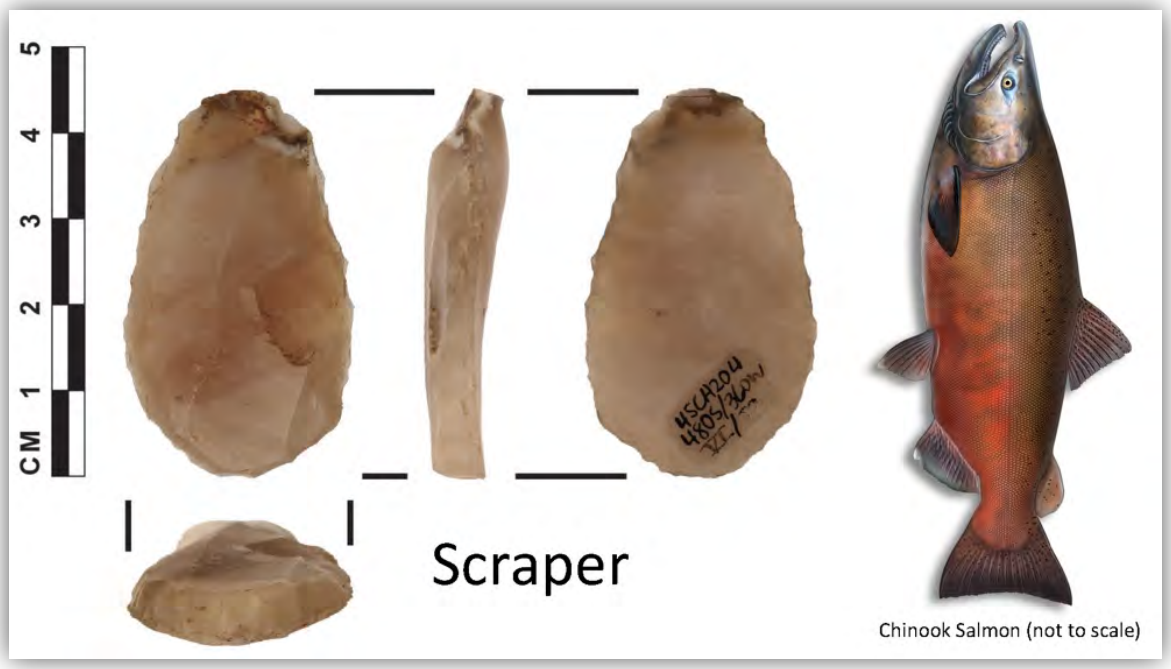
Another way to look at the hydration data is to compare them to previous obsidian hydration rind measurements on artifacts from the same sources. Pips Thatcher of Willamette Analytics, who made the measurements, compared them with all previous measurements from other sites in the lab database. Pips provided these data. Of all 26 previous obsidian hydration measurements on Eldorado-sourced artifacts, the largest was 5.1 microns while the Rock Island Overlook Site artifacts measured 5.2 and 5.8 microns. Of the 56 previous Coglan Butte sourced artifact hydration rind measurements the thickest was 6.7 microns while the Rock Island Overlook Site artifact was 7.3 microns thick. Of 175 previous hydration measurements on Cougar Mountain obsidian artifacts, the largest was 8.9 microns and the Rock Island Overlook Site artifact was 8.5 microns thick. Previous hydration rind measurements on 92 Timber Butte artifacts from other sites maxed out at 5.3 microns while the Rock Island Overlook Site artifact was 5.7 microns thick. These data, while not corrected for Effective Hydration Temperature, suggest that the Rock Island Overlook Site artifacts are older than all of the other artifacts traced to Eldorado, Coglan Buttes, and Timber Butte, and older than most artifacts previously traced to Cougar Mountain.

Slide Eight. Protein or Blood Residue Analysis.



AINW conducted protein or blood residue analysis on five artifacts using an immunological test to see if they react to blood antisera from selected animal taxa. Blood residues can be trapped and preserved in small cracks and crevices of flaked stone tools for thousands of years before extraction in the laboratory by ultrasonic vibration into a weak ammonia solution. Reactions occur at the taxonomic level of family, such that reactions to antiserum from modern elephant, for example, can occur with blood residues from extinct mammoth or mastodon as they are all in the taxonomic family Elephantidae. Antisera used in the analyses reported here are deer, trout, horse, elephant, bovine (cow), sheep, and goat. These all serve as proxies for native species in the same taxonomic families. These three artifacts (two knives and a Windust point) did not react to the antisera used.

Slide Nine. A Scraper that Reacted to Trout Antiserum.

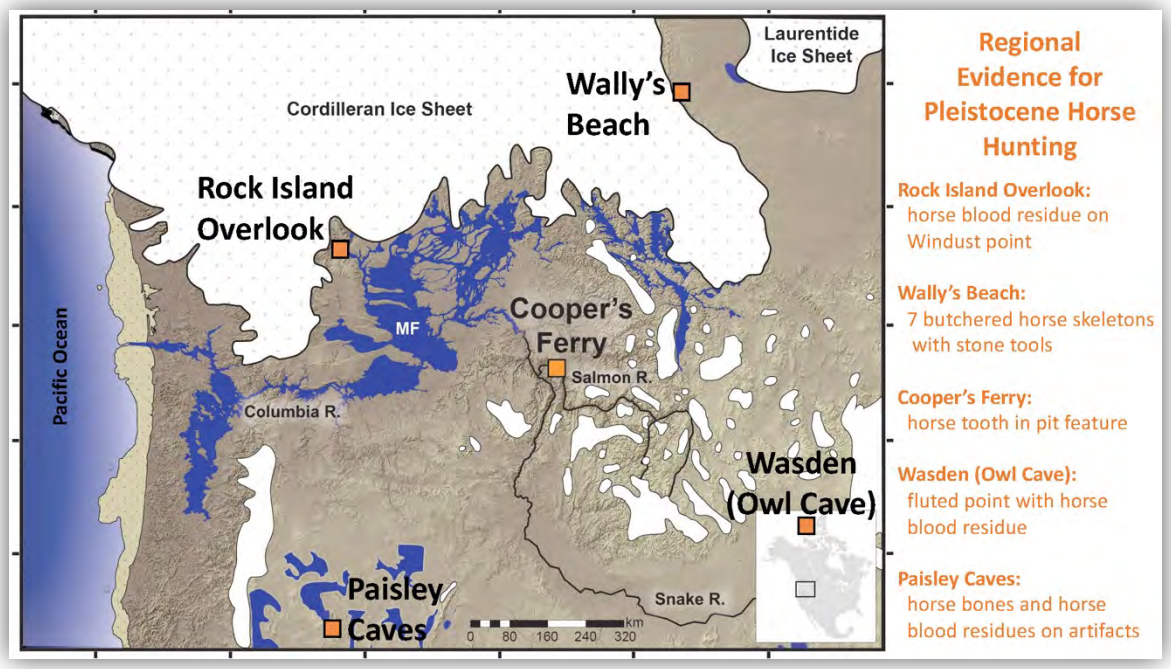


However, this scraper did react to trout antiserum which likely represents salmon given its provenience near the Columbia River. While I don't know how one would use a scraper to process salmon, it is possible that salmon skin was used to make a glue or mastic as part of the traditional technology repertoire known for the region for hafting the scraper onto a handle. It is also possible that salmon skin was scraped for use in packaging salmon dried and processed for storage.

Slide Ten. A Windust Projectile Point that Tested Positive for Horse Blood.

This Windust projectile point tested positive for horse blood. Spanish horses were first introduced to the Columbia Plateau in about AD 1720 or maybe as early as the AD 1600s, but before that there were no horses on the Plateau since the end of the Pleistocene. Windust Points like this are thought to date to between about 11K and 13K years ago or older on the Columbia Plateau (Brown et al. 2019). The site where it was found, the Rock Island Overlook site (45CH204), appears to date to the late Pleistocene, as described earlier in this presentation. Pleistocene horses died out about 12,700 years ago (Waters et al. 2015). These data suggest that this Windust point was used to kill a Pleistocene horse rather than the much more recent modern horses introduced to North America by the Spanish.

Slide Eleven. Regional Evidence for Pleistocene Horse Hunting.



The Rock Island Overlook site is not the only site with evidence for Pleistocene horse hunting in the region. This map (adapted from Davis et al. 2019) showing the Pacific Northwest circa 16KYA shows archaeological sites in the region where evidence of Pleistocene horse hunting has been found. Most notable is Wally's Beach (DhPg-8) in southwestern Alberta, Canada, where seven butchered horse skeletons were found in association with stone tools (bifaces, flake tools, and a chopper)(Kooyman et al. 2006). Radiocarbon assay of collagen from the horse skeletons at Wally's Beach estimated them all to date to about 13,300 calibrated years (cal yrs) B.P. (Waters et al. 2015). Evidence for Pleistocene horse hunting has also been found at other Pleistocene-age archaeological sites including the Wasden site's Owl Cave (10BV30) in southeastern Idaho, where horse blood residue was detected on a Folsom type projectile point (Henrickson et al. 2017). At Cooper's Ferry (10IH73) in western Idaho along the Lower Salmon River, a Pleistocene horse tooth fragment, and other likely Pleistocene horse bones along with lithic artifacts, were found in a pit feature (F143) dating to between 14,260 and 15,000 cal B.P. (Davis et al. 2019). Pleistocene horse bones and protein residues on artifacts were also found at the Paisley 5 Mile Point Caves (35LK3400) in association with other Pleistocene megafauna, human coprolites, and artifacts including Western Stemmed Tradition projectile points (Jenkins et al. 2013). These Western Stemmed Tradition points are similar to the Windust points found at the Rock Island Overlook site.

Slide Twelve. Conclusion.

Conclusion

Evidence from the Rock Island Overlook Site, 45CH204, indicates that it may be one of the oldest archaeological sites in the region, although further analyses are needed to refine and confirm the dating. Protein residue analyses show that early salmon use and Pleistocene horse hunting are represented at 45CH204. Further re-analyses of the large collection from the Rock Island Overlook Site are likely to yield more important information.

Many people helped with this project. In particular, I would like to thank Jennifer Burns and the Chelan PUD who supported this work; Guy Moura and Jackie Cook of the Confederated Tribes of the Colville Reservation who suspected that the Rock Island Overlook site had more to tell and supported scientific analyses of the artifacts; and Jason Cowan (obsidian hydration date estimation) and Cam Walker (blood residue analyses) and others at my employer, AINW.

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Bark to the Future: Initial Findings from a Longitudinal Study of Bark-Stripped Western Red Cedars

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Abstract

What can we learn about site and stand formation processes from making regular observations of an assemblage of recently bark-stripped western red cedar trees? Do they form scar lobes and other features at a consistent or predictable rate? How do strip scars change over time? What features appear, and when, and how can these be used to inform review of potential culturally modified trees in other timber stands? This paper presents initial results from a study of a sample plot of cedars in the Marckworth State Forest from which bark was stripped in June 2020.

Introduction

This paper was written to be spoken, and I have elected not to re-cast it in a more traditionally academic mode because I would like to break down this idea that orality is incompatible with the transmission of serious ideas. Instead I would like you to consider that perhaps the most important ideas ought to be shared orally, and that what you are experiencing, reading this, is a shadow of the actual experience—on the wall, if you will—and the actual experience was the performance of this material on a Saturday morning in April, in Spokane, at the end of the first NWAC we had back in person after the pandemic hiatus. That oration and these Proceedings are two different modes of knowledge transmission, and neither, I would and will argue, is entirely what we're called to as teachers and learners in this moment. But here we are.

Presentation

I am here today to talk with you about the initial results of our study of a plot of bark-stripped western red cedars. Essentially, we've been watching trees grow, and we've learned some things from that that I think are informative regarding the development of culturally modified trees.

I think it's important to start any discussion about culturally modified trees with some thoughts about positionality and what we're currently calling "traditional ecological knowledge." First, we need to remember that these trees aren't "an archaeological feature," they are living beings, and their bark became, and becomes, objects that are part of the heritage and the living cultural present for Indigenous peoples.

Figure 1. Five women at Quinault making baskets, 1926. Photograph from the Seattle Post-Intelligencer Collection, PI-23768, courtesy of the Museum of History and Industry, Seattle (MOHAI).

I like to show these images of Indigenous women with their baskets, these are some Quinault women, and I want us to open our conversation today, and keep in mind throughout this discussion, our aunties and all the people who carry traditional knowledge. I think about the people in my family who taught me to do handwork, and the people who continue to teach me about their handwork, and I think we always need to ground these conversations in that memory of making things with our hands, and that very visceral memory of putting our hands inside the tree and asking it to give to us from its substance.

Second, who should be teaching about these, and where should we be teaching that? I think this hotel is not really that place, and I am not sure that I am the person, except that I am a person who has spent a lot of time with these trees in the last few years.

In December 2019, the Washington State Board of Natural Resources, which oversees the management of state trust lands by the Department of Natural Resources (DNR), approved the Long-Term Marbled Murrelet Conservation Strategy, which meant that lands which the department had held in what we called "deferred" status were released for timber harvest. When we began going into those stands to put timber sales together, what we found was that they were often more complex than the stands we'd been harvesting in previous years, and included remnant old growth which DNR protects under the State Lands Habitat Conservation Plan.

What we have found, in the "deferred" stands, was that they included many, many more culturally modified trees than we were used to seeing on sales. We went from a situation where we might find ten to twenty-five older trees on very steep ground or in the bottom of a drainage, to sites that included a hundred or more trees. We developed some efficiencies in recording techniques and got a lot of practice at setting up avoidance measures that actually protect these trees during harvest.

While many people spent the pandemic growing sourdough starters or binging Netflix, I spent it living in culturally modified tree (CMT) stands, camping out of a pickup truck in all kinds of weather. And that's an experience that has changed me. Going into the hills away from people to avoid pandemic disease was, of course, one of the defining experiences of the colonial contact period for some of the folks that survived that, and while what I've experienced wasn't anything like that bad, I think it's given me some new capacity to think about that experience that I didn't have before.

During this time I've also had many conversations with Tribal elders and colleagues about these trees, and one of the things that's been shared with me over and over, in those conversations, is that this is knowledge that ought to be taught orally, and that ought to be taught in the forest. So generally, when I'm doing this teaching, that's how I try to do it. That framework makes a lot of sense to me, and I find that when I am teaching in the field, I always learn as much as I share, which is very rewarding.

But that is a mode of teaching that isn't really compatible with settler knowledge transmission systems, which ask us to be in this conference room on a Saturday morning, rather than in the woods. I think that as a discipline we need to question these structures. We need to question our pedagogy and think about what a pedagogy that's really grounded in those core experiences, of being present, in the forest, and present, in making things with our hands, what that looks like. What would it look like to learn together, rather than setting up a situation where I'm teaching and you're taking this in?

I don't have answers yet, I'm working through this.

But, as we worked through recording all of these CMTs over the last few years, one thing that became clear to me was that while we see the beginning of the process, in the ongoing cultural practice that is bark harvesting, and we see the mature trees in the timber, sometimes centuries after that initial harvest has taken place, we do not have a great understanding of how we go from point A to point B, because we have not been watching these trees develop. And of course, if we were traditional forest

managers and we were walking these timber stands year after year because this is the grove next to our village, we would have that deep knowledge. But today, we see only little parts. And this means that we do not have a complete understanding, and I believe we actually have some misunderstandings.

So back in 2020, I was thinking about what it would look like if we could create a study plot and watch some stripped cedars and see what they were doing. We identified a good candidate stand in the Marckworth State Forest, in eastern King County. We have very good initial harvest records in the Marckworth, because the county did extensive timber surveys in the early twentieth century and then the timber there was cut in the 1910s and 20s by the Cherry Valley Logging Company, which got folded into Weyerhaeuser, whose archive has recently been acquired and organized by the Forest History Society. So this is an area where we know a lot about the stand history. We also know that this is an area that was inhabited pre-contact, and that bark stripping continued as a cultural practice in the Stossel Creek drainage through the twentieth century.

The study plot stand is in a little wedge between a creek and a forest road, so even after that unit is harvested, it will still be relatively easy to access, because you'll be able to walk up the road and up the creek, which has a no-cut buffer on it. When you're thinking about a long-term study, it's important to think about how the land will be managed over the next few decades and whether it will be physically possible to access.

The oldest tree we cored in the plot had 104 rings at breast height in 2020, and the average on our ring counts was 89 rings. You want to usually add about seven years to that to get the age, so most trees in the plot started growing in about 1924. This is in keeping with the historical documentation we have. It's a cedar-dominated stand, relatively flat, limited understory. That's worth noting because in a traditional CMT stand, in a relic stand, you often see a complex understory with a lot of food plants in it, and you can often see that even after the older timber has been cut out, the persistence of those berries and other first foods. You can really see that it was being managed as a food forest.

Our forest manager, Paul Footen, invited the Snoqualmie Tribe to harvest in the stand in 2020, and discussed with the people doing that harvesting that we were planning to watch these trees and study them post-harvest. We deliberately did not go out with them during that harvest, although agency staff do often go along for harvesting trips, because I didn't want us to influence anything about how they were selecting trees.

The Snoqualmie stripped 17 trees, and then in June of 2020, Paul and I came back through the stand, and we measured the trees and the scars and took notes on their condition. There are a couple of different CMT measuring strategies out there—there's the Canadian methodology, and then there's this methodology that is now coming out of Oregon—and I think these are both good starts, but also somewhat flawed in that they capture some information that I don't think is very meaningful, while not capturing data that I do think is important.

Our mensuration strategy at DNR is really coming out of forestry techniques, because foresters have spent decades now figuring out how to measure trees, and frankly archaeologists aren't good at measuring trees, because it's not something we've usually been trained to do. So we haven't been recording these in ways that make sense or in ways that permit their relocation in the woods in future years, and of course, the entire purpose of recording things is so we can find them again later and we maintain that accountability which is key to good management.

There's probably a whole separate talk I should give sometime on how I want people to record these, because we've put thousands of hours of staff time into figuring that system out, and I think now we're quite good at it.

In the study plot, we recorded more data than we usually would, in part because I'm also checking my own work on the mensuration techniques, but also because we've got a different goal here for this study versus what we normally do in a management context.

Most of the questions we want to answer are about diagnostic features and about age, which is part of fitting these trees into archaeological and legal regulatory systems—I will observe here that, as my Tribal colleagues have correctly noted on numerous occasions, this entire conceptual framework is basically goofy, but it's a key piece of the current legal setup, so we're doing what we have to because we want to be able to address questions about Indigenous land tenure.

So: are these things that people talk about as diagnostic features on CMTs actually diagnostic, and at what point in a stripped tree's life cycle do they develop? So, for example, one of the things people talk about is having bark remaining below the harvest scar is a sign that the scar is anthropogenic. Another thing we see is people saying that if there are a lot of branch stobs protruding from a scar, it may not be anthropogenic. This is fairly readily disproven through modern ethnographic example, so we should not take this seriously.

And a feature I often observe in older stripped cedars is that they put out secondary leaders near the top of the strip scar, which I believe is a stress response. If trees are going to do that, is that something that can give us a clue as to age? Do they do it at a more or less predictable point? And finally, people would really like to argue that scar lobes form at a consistent rate and that they can be cored, or sectioned, to give us a date at which that tree was stripped.

Well, I'm here today to tell you that a lot of these supposedly diagnostic features... aren't. And I'm seeing that after watching one relatively small plot for a relatively short period of time.

The table below summarizes our measurements, and I want to draw your attention to a few things (Figure 2).

First, I want you to look at the variation in a couple of these measurements in scar height and scar base height. You can see here there's a lot of difference—so that right there starts to make us question some of these ideas about shorter scars not being anthropogenic, or about the scar base height being meaningful. These characteristics are really going to be specific to the individual tree. We have a tendency in a settler scientific context, as well as in a modern timber management context, to see trees and other things that are used to make things as "resources" or "commodities" to be "processed." I don't think that's the way the people who are doing this work perceive their interactions with the land. I think that process is much more individualistic.

Another thing that would be very convenient would be if trees formed scar lobes and compartmentalized scars at a consistent rate, so you could take some measurements and calculate an approximate stripping date. But so far, that's not what we're seeing. I want to call your attention to these scar width measurements here.

It does look like, on average, what we're seeing is that over time, the trees start to close up these scars. And much of the time that's what happens. But sometimes, the opposite of that happens—the scar faces actually pull apart and become wider. And you can see that in this line, showing the standard deviation, where that number is increasing as the average decreases. In other words, it's less that the scars close up at a steady rate, and more that, like a lot of us, CMTs get stranger over time because they've experienced trauma.

MCMT	Tree Age 2020 (Raw Ring Count)	DBH 2020 (inches)	Scar Height 2020 (feet)	Overall Tree Height 2020 (feet)	Scar Width June 2020 (inches)	Scar Width Dec 2021 (inches)	Scar Width Dec 2022 (inches)	Scar Base Height 2020 (inches)
1	91	17.3	34	89	8	7.5	7.4	12
2	93	22.4	18	135	8.25	7.8	7.8	32
3	68	19	14	109	5.37	5.5	5.5	19.75
4	72	32.8	22	148	8.25	7.7	7.6	50.75
5	66	34.5	44	136	15.5	16	15.5	51.25
6	75	35.2	12	136	9.25	8.7	8.3	50
7	80	28.9	34	140	8	7.4	7.3	33.75
8	82	20.2	35	129	11.75	12.3	12.5	30
9	100	24.6	31	127	7.87	8	7	33
10	101	25	29	140	13	13	13.5	34.25
11	101	25.7	14	133	7.5	7	6.5	35.25
12	104	23.6	23	135	9.75	9.75	9.2	44
13	98	22.5	11	115	12	12	12.4	43.5
14	101	20.2	31	134	9	9.25	8.7	39.25
15	rot	30	26	130	8.75	8.75	7.6	39.75
16	103	18.1	40	140	11.87	11.75	10.3	43
17	98	28.2	48	138	9	9	8.3	37.25
Averages	89.5	25.2	27.4	130	9.6	9.5	9.1	38.55
Standard Deviation	-	5.643	11.280	14.122	**2.469**	**2.672**	**2.762**	10.412
Min/Max	-	-	11 / 48	-	5.37 / 15.5	5.5 / 16	5.5 / 15.5	12 / 51.25

Figure 2. Raw data and some preliminary statistics on the modern CMTs in the Marckworth study plot.

When we examine the individual scar faces and lobing, which we've been tracking by using a contour gauge pressed up against the face of the tree and in photographs, we see some where, already, there's half an inch or more of lobing that's developed, and we see some that have hardly changed at all since the stripping happened. As of January of this year, almost all of them have grown some sort of scar crusting along their margins, but the depth of the development of that is really quite variable across the sample. This contrasts with, for example, Earnshaw's findings from his destructive sampling up on Vancouver Island.

Another observation that we've made is in relation to that basal scarring. We do see scar formation that is lobing up from the bottom of the scar, which is sort of the classical conceptualization of how that happens. However, there are some trees where instead we see vertical lobing that's coming down internally, below that basal scar, which I believe will, in time, push off the lower bark there.

This is more consistent with what I've observed in older stands in the forest, where I often don't see that lower bark attached, and then there have been questions about well, if there's no lower bark, is this actually anthropogenic, or is it fire or animal damage. I think what we're seeing here is that there's a biological mechanism for shedding that bark, so it's not itself anthropogenic, but that detachment of the lower bark can be triggered anthropogenically. This has some real implications for the field identification of CMTs. In other words, you should not be reluctant to call something a CMT just because it hasn't got attached lower bark.

And I want to emphasize that this is about as close as we could get to a homogenous stand—naturally reseeded, so the tree genetics should be pretty consistent, same soil, same growing conditions, same age. Yet we are already seeing this great variability. So there is the "classical" presentation of a CMT, but there's this tremendous individual variation, and I think that means that we need to be very careful and thoughtful and really work on understanding stand history, the pattern of cedar utilization in the particular drainage you're working in, and put together a complete context for that stand before you start to make calls on whether an individual specimen or assemblage of trees is culturally modified.

If you're thinking that this all sounds very complicated, that's because it is, and it's also a situation where we, as anthropologists, need to be drawing heavily on the knowledge of both our Indigenous colleagues and our colleagues who are trained in forestry and ecology.

To come back to what I opened with, about "traditional ecological knowledge" (which is a weird term, I think it's really much more "how to be a person who understands the world they live in") and how that should inform anthropological practice—we can learn, from the cedar tree, so much of what we need to know to be functioning creatures in a watershed. And central to developing that understanding is this process of sitting back and watching things change over time. I think that's more how cedar trees were traditionally experienced, is across a person's lifetime, and I think that if we can emulate that kind of long-term observation, we're going to learn a lot.

I hope that if you've found this interesting and if you have some cedars you expect to have long-term access to, on public or Tribal land, you'll consider setting up your own study plot or plots and joining me in watching trees grow, so we can learn from them together.

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Indigenous Health as Heritage: Exploring Connections Between Heritage, Health, and Human Rights

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Abstract

For many Indigenous populations, health is closely tied to worldviews, environment, and cultural ways of knowing. The World Health Organization (WHO) and United Nations Educational, Scientific and Cultural Organization (UNESCO) have defined the right to health as a human right. Increasing globalization, privatization of public spaces, and reduction in access to traditional lands and resources have negatively impacted Indigenous Peoples—resulting in significant ramifications for Indigenous health and well-being. As a division of Cultural Heritage Management, intangible cultural heritage, should recognize the negative impacts of globalization for Indigenous populations and support their safeguarding of traditional ways of knowing. Access to natural resources, local ecology, ethno/biomedicine, sacred knowledge, traditional cultural properties, materials, and places associated with health and well-being should be included in proposed protection. The links between culture and health have been well-documented. Indigenous health, as a human right, should be recognized as intangible cultural heritage, thereby safeguarding access to traditional beliefs, spaces, and resources.

Introduction

In 2003, the United Nations Educational, Scientific and Cultural Organization (UNESCO) held the Convention for the Safeguarding of Intangible Cultural Heritage in which they set out to define and apply rights specifically to intangible heritage. UNESCO defines intangible heritage as:

> The practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith—that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. (Article 2, Paragraph 1)

There is no specific reference in the convention to Indigenous groups outside of the preamble, and Native Peoples are subsumed into the term communities. However, the convention is currently safeguarding Indigenous cultural heritage and language (Blake 2014; Scovazzi 2015). Scovazzi (2015:116) also notes that because intangible heritage relates to the social, it does not require universal value, and therefore, it is more inclusive than tangible heritage.

The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) was written into law in September of 2007. Within this document concepts of human rights as they apply to Indigenous Peoples of the world are addressed. Article 11 notes the right of Indigenous Peoples to revitalize their cultural traditions, manifestations, and customs, while Article 23 discusses the right of Indigenous Peoples to be actively involved in developing, among other things, health programs affecting them. Article 31 states:

> Indigenous Peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions. (UNDRIP art 31.1)

This text does not make clear the differences between tangible and intangible heritage. This could be good in the case of health and well-being of Indigenous Peoples as it too does not distinguish between the tangible and intangible. Other considerations not found above revolve around issues of continued colonialism and acculturation.

In 2011, the Faro Convention on the Value of Cultural Heritage for Society was ratified in Europe. This convention emphasizes heritage, human rights, and democracy, while recognizing cultural heritage as a right protected by the 1948 Universal Declaration of Human Rights (Article 27) and the 1966 International Covenant on Economic, Social and Cultural Rights (Council of Europe 2021). Cultural heritage as a human right, however, seems to generate many layers of complexity without much agreement. It is not just about what each group claims as their heritage and right, but how these topics are

entangled with power, idealism, and power relations which are then related to political recognition and legitimacy (Silverman and Ruggles 2007; Smith 2007; Brown 2009; Logan 2012; Gonzales 2019).

Health

Health is defined in many different ways. For some, it is a soundness of body while the others may see it as freedom from illness. Often views are tied to socioeconomic status and may have symbolic importance. From a Western biomedical model, it is narrowly defined as having to do with the soundness of an organism to function optimally or efficiently without disease or abnormality (Oxford English Dictionary 1989; Stedman's Medical Dictionary 2006:854). This definition is not culturally defined. It is, however, medically defined with no consideration of how one interprets health within their own specific communities. Also, it doesn't take into account how some groups have historically defined health and then experienced major shifts as a consequence of Western biomedical colonial practices.

Culturally Defined Health

Cultural determinants of health, according to the DSM–5 (2013), are vital to understanding concepts of health and illness experience (American Psychiatric Association 2013). These are crucial to effective diagnostic assessment and clinical management of disease. While this description is open to cultural identification, it still moves from the Western perspective of diagnostics and management. Many Indigenous People live within an environment, understanding, and belief system that may not involve the need for diagnosis. Health and well-being are based on a balance of domains, and these cannot be separated. Lack of balance in one area will lead to sickness in other areas (Lavallee & Poole 2010). Western biomedical health care systems are often culturally incongruent with Indigenous ways of being and knowing (Henderson and Henderson 2002; Griffin-Pierce et al. 2008; Hulko et al. 2010; Cipriani and Boren 2015).

Well-being

Well-being is a term that is often used when discussing concepts around health. There is, however, a distinction between what is meant by health and well-being from a Western biomedical perspective and Indigenous ways of understanding and experiencing health and well-being. In many Indigenous populations well-being cannot be divided into separate spheres as it is a holistic concept that incorporates all aspects of Indigeneity (Adelson 2000; Kirmayer et al. 2003; McCubbin et al. 2013; Van Styvendale et al. 2021). Indigenous connectedness often includes the family, community, land, food, place, language, and spirit.

Well-being among the Iñupiak of Western Alaska is holistic and intricately tied to the epistemological worldview. Wellness is described as inner harmony and is enacted "through a healthy and happy state of mind, body, spirit, and environment," and without this, well-being cannot be achieved (Topkok and Green 2016:174). For Whapmagoostui Cree Peoples, "Being alive well is to be able to hunt… pursue traditional activities… eat the right foods… and keep warm" (Adelson 2000:15). Karuka (2019:24) defines this as individuality through interdependence.

Well-being embodies contentment, and is a cultural feature found in many Native groups and is not the same as biomedical definitions of health and well-being. According to Naranjo and Swentzell (1989), Tewa Pueblo People see relationships with humans, nature, and the built environment as necessary for healing the body and soul, as well as fostering spiritual and intergenerational connectedness—crucial domains for Indigenous well-being.

Shifts in Disease Due to Globalization and Colonialism

According to the World Bank (2023), the population of Indigenous Peoples worldwide is around 476 million and According to the UN Department of Economic and Social Affairs (2023):

> Life expectancy [for Indigenous Peoples is] up to 20 years lower... over 50 per cent of indigenous adults over age 35 have type 2 diabetes and these numbers are predicted to rise. Indigenous Peoples experience disproportionately high levels of maternal and infant mortality, malnutrition, cardiovascular illnesses, HIV/AIDS and other infectious diseases such as malaria and tuberculosis. Indigenous Peoples [also] suffer from malnutrition because of environmental degradation and contamination of the ecosystems in which indigenous communities have traditionally lived, loss of land and territory, and a decline in abundance or accessibility of traditional food sources. (UN 2023)

This has resulted in an overwhelming rise of these illnesses, that are not traditionally found or found in such numbers, within Indigenous Populations.

In May of 2022, the World Health Organization organized an event at the UN's 21st Session on Indigenous Issues in which they discussed Indigenous health and well-being, both as individual and collective rights, freedom from medical colonialism, and the significance of Indigenous knowledge. They acknowledged that lack of transmission from one generation to the next is a major threat, and that perhaps 99% of Indigenous knowledge has already been lost. In addition, the impacts of climate change, poverty, and dispossession were considered.

The outcome of this meeting resulted in a recognition of the interplay between power, colonialism, imperialism, racism, and the disregard of the United Nations Declaration of the Rights of Indigenous Peoples. In addition, they noted some areas that can be improved upon, including changing the framework from the traditional deficit model by addressing structural foundations and concepts of underfunding, dispossession, and deprivation (WHO 2022). Ideally, these topics will be included in the World Health Organization's World Report on the Social Determinants of Health which will be brought forward in May of 2023.

Health as a Human Right

According to the World Health Organization (2008), "The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition." UNDRIP (2007) states that Indigenous Peoples have the right to be actively involved in developing programs in the improvement of their health, access to traditional medicines, and maintenance of their health practices. In addition, states should take the necessary (or special) measures to achieve realization of these rights (Article 21.1, Article 23, Article 24.1-2). Article 25 of the Universal Declaration of Human Rights (1948) mentions the right to a standard of living that leads to health and well-being. For Indigenous groups this may then encompass all that facilitates, and is related to, how they view themselves and their ways of knowing in the world as it relates to health (Assembly of First Nations 2015; Priest 2022). In other words, if there is a universal human right to health, then all that encompasses one's ability to be healthy should also be included in that right to health. Article 25 addresses this through the listing of related items such as family, food, clothing, medical care, and housing (Braveman et al. 2011; WHO 2017). Considering the above, land should be added to this list.

Indigenous Health as Heritage

For many Indigenous populations, health is closely tied to their environment, cultural ways of knowing, and is intricately connected to multidimensional epistemological worldviews. The World Health Organization (2017) and multiple non-governmental organizations (NGOs) have defined the right to health as a human right. Increasing globalization, privatization of public spaces, and implications from loss of land (or access to traditional lands and natural resources), continue to negatively impact Indigenous Peoples' ability to continue their traditional way of life. In addition, increasing medical colonialism has resulted in significant ramifications for Indigenous Peoples' health and well-being.

Intangible cultural heritage, as a branch of cultural heritage management, should recognize the negative effects of globalization for Indigenous populations and support their choice to safeguard their traditional ways. Access to traditional lands, natural resources, local ecology, medicine, knowledge, and the places associated with their health and well-being should be included in proposed safeguarding protection.

When it comes to notions of health as heritage and human rights, it's important to understand Indigenous Peoples are aware of their own health and how to care for themselves. The idea that Native and Indigenous Peoples are somehow like children needing to be protected and brought along in the empirical Western biomedical sense is both insulting and infantilizing. It does not recognize the systemic colonialism that continues today and leads to mistrust of the dominant medical systems offered. By selecting health as heritage, Indigenous Peoples can protect their own health and well-being as they define it. This will ensure equity within their medical systems, or at least through the use of a pluralistic system, that acknowledges equal validity.

Diabetes, tuberculosis, dementia, AIDS, hypertension, suicide, and malnutrition are often consequences of social conditions and many of these are new to most Indigenous groups (Campbell 1989; Hulko et al. 2010; Jacklin 2012; Bonvillain 2017; Browne 2017). If Native populations have the opportunity to claim health as heritage—and this brings along all that is included in the making of that health including traditional foodways, medicine, language, lands, and beliefs—it may lead to a cultural revitalization of health, greater self-sufficiency and reliance, and stronger Indigenous group sovereignty.

Conclusion

Health is heritage to many Indigenous Peoples. Indigenous groups who choose to select it, do so in an effort to preserve their own health and well-being through traditional means, for themselves, and their posterity. Because it is closely linked to worldview, land, food, language, traditional medicine, and ways of being, it cannot be separated into distinct spheres. We are aware of the health outcomes for Indigenous Populations as a result of nation-state policies. Theories examining how to go about remedying the situation through international protections, such as safeguarding within the intangible cultural heritage conventions, should be further explored.

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Working the Waters of Garrison Creek: The First Post Laundresses of Fort Walla Walla, WA

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Abstract

The Eighth Census of the United States lists twelve married women employed as laundresses at Fort Walla Walla, Washington, in the year 1860. Predominantly of Irish and German heritage, they are listed as the wives of musicians and soldiers and are the first women recorded as employees at that post. Recent archival work conducted in Washington D.C. has provided new information about these women and their experiences as immigrants living and working in the nineteenth century American West. A series of maps and plans of the fort show at least two separate laundress quarters at the post between 1877 and 1893, with the longest-standing building located along the edge of the nearby Garrison Creek. Additional documents indicate that these quarters were torn down sometime between 1893 and 1898 and were either re-purposed or replaced by married enlisted men's quarters and non-commissioned staff quarters. Past archaeological projects conducted at the site, combined with this preliminary documentary research, suggests the remains of these quarters could possibly be located using archaeological survey assisted by modern mapping techniques.

Introduction

The site of Fort Walla Walla is located in the lands of the Confederated Tribes of the Umatilla since time immemorial. The first Fort Walla Walla was established in the 1820s on the site of a trading post known as Fort Nez Perćes, on the banks of the Columbia River. The post was transferred to the Hudson's Bay Company in 1821 and the name Fort Walla Walla first appeared shortly thereafter (Garth 1952:21). The fort moved to the downtown Walla Walla area in 1856 before it was re-located for a third and final time to its present-day location later that year (National Park Service 1974:7).

Fort Walla Walla had four distinct occupation periods between 1856, when the first garrison arrived, and 1910, when the fort was decommissioned. Between 1856 and 1861 the garrison included the 9th Infantry, the 4th Infantry, and the 1st Dragoons (Payne and Schulz 2011:58, 63). From 1861 to 1865, the post was occupied by several regiments including the 1st Washington Territorial Volunteer Infantry and the 1st Oregon Volunteer Cavalry (2011:58–l63). These troops were withdrawn in 1865, and from 1866 to 1873 the post was under the supervision of a U.S. Quartermaster Agent (2011:58–63). The 1870 U.S. Census lists Quartermaster Agent Samuel Dewitt Smith in charge of a "caretaker detachment" supervising the wintering over of U.S. Cavalry horses (U.S. Census Bureau 1870). Following the Modoc War, the fort was reoccupied in 1874 in response to a perceived threat from northern California, and it would remain occupied by U.S. troops until 1910 (National Park Service 1974:9).

Fort Walla Walla served a minor role as a military training station during WWI, and in 1921 the property came into Bureau of Public Health ownership and was established as a Veterans Administration Hospital (Pratt and Howard 2022:23). After WWI, the U.S. military selected Walla Walla for the location of a new airfield, and in 1942 a new training base was constructed at what is now the Walla Walla Municipal airport (2022:26). The McCaw General Army Hospital also operated on the edge of the fort grounds between 1943 and 1946, before being dismantled (2022:27).

Two large-scale excavations were conducted at Fort Walla Walla by Lawrence L. Hussey and Tim Riordan (Hussey 1977; Riordan 1985). Several small monitoring projects have also taken place and have uncovered a small number of artifacts in these areas dating to the earlier occupation of the fort between 1858 and 1874; however, previous projects associated with the site have focused heavily on refuse areas from the post-1873 occupation period (Oliver 2014:49). In 1988, an outlying refuse area was excavated through Washington State University and their Museum of Anthropology in preparation for construction of the Blue Mountain Shopping Mall (Sappington et al. 1988). The materials collected during these projects is currently scheduled for a preliminary analysis in summer of 2023, in preparation for a potential archaeological survey of unexcavated areas of the fort property formerly occupied by two laundress quarters at Fort Walla Walla.

Laundresses at Fort Walla Walla

The laundress quarters at Fort Walla Walla were among several outbuildings that at one time included a post hospital, a band leader's quarters, a bakery, an icehouse, a dead house, stables, and storage buildings (Sappington et al. 1988:18–19). Maps dating from 1877 to 1916 depict these buildings on what is today the Fort Walla Walla City Park and historic site. From the mid-nineteenth to the early twentieth centuries, the Fort Walla Walla military reservation encompassed an approximately one-mile square area that included a central parade ground. Recent primary source research conducted at the National Archives in Washington D.C. and College Park, Maryland has provided several nineteenth century maps

and documents relating to the layout of the fort and insight into the lives of its earliest garrison. This archival research focused on twelve men and twelve women of the 9th U.S. Infantry listed in the 1860 U.S. Census, the first federal census to include Washington Territory (U.S. Census Bureau 1860).

The 9th U.S. Infantry

The 9th U.S. Infantry arrived in Washington Territory from Fort Monroe, VA, in 1856 and assisted in the construction of the post of Fort Walla Walla in 1856 and 1858 (U.S. Returns from Regular Army Regiments 1856). The 1860 census documented three hundred and thirteen residents at the post, including soldiers, musicians, and laundresses from Ireland, Germany, England, and Prussia. From that garrison came the names of twelve laundresses married to twelve of the men serving with the 9th (U.S. Census Bureau 1860). Records relating to these women as employees at Fort Walla Walla include their husband's enlistment records and pension files, marriage certificates, post returns, death certificates, and interment records in military and civilian cemeteries across the western U.S.

Four of the twelve men married to laundresses enlisted prior to the 9th's arrival in Washington Territory and the other eight arrived at Fort Walla Walla as recruits from the company depot. When regular troops were recalled from western outposts to serve the Union in 1861, the 9th Infantry transferred to Presidio San Francisco, California (Brown 2012:90–93). Three of the twelve men remained in the Northwest, eight continued their military service in San Francisco, and one was transferred to the 4th Infantry, Co. E, and was later wounded at the Battle of Antietam (Conolly 1863).

The 9th's bugler, private Michael Hoyard, contracted pulmonary congestion in San Francisco and died on December 17, 1862, and private James Fahey died there of consumption in 1863 (Hoyard 1862; Fahey 1863). Andrew and Augusta Haack were transferred to Fort Vancouver, where they enlisted their thirteen-year-old son, Andrew Haack, Jr., in the post band in 1868. Andrew Haack died in 1869 and Augusta Haack later remarried. In 1880, Augusta Haack is listed as running a boarding house in Vancouver (U.S. Census Bureau 1880).

Two of the laundresses' families from the 1860 census, the Singletons and the O'Neils, maintained their relationships after the men were discharged from service. John and Jane Singleton and Hugh and Margret O'Neil owned land plats in an east Walla Walla neighborhood, and the two women appear as witnesses in each other's pension applications following their husband's deaths (O'Neil 1888; Singleton 1902). The Singletons and the O'Neils are also interred in neighboring rows in the Catholic section of the Mountain View Cemetery in Walla Walla (City of Walla Walla 2019). The Singleton surname appears on several maps into the early twentieth century, and a small street sign marks Singleton Way in present-day Walla Walla.

The U.S. Army Laundress Position

The twelve laundresses at Fort Walla Walla worked in the first paid position for women in the U.S. Army, in a role that was modeled after a British employment system used in the eighteenth century. A laundress employed by the U.S. Army could be attached to a specific post, fort, camp, or hospital and were eligible for monetary payments, rations, medical services, pensions, and other benefits, including the costs of transportation when regiments were transferred (Prechtel-Kluskens 2016:33–37). Occasionally laundresses qualified for their own pensions as well as that of their husbands. They were typically promised full payment from the Army's paymaster department if one of the soldiers they laundered for deserted, died, or refused to pay for services and were provided with official Army employment certificates

if they maintained their good character (2016:33–37). However, payment disputes were a common occurrence. The National Archives includes the Records of Disallowed Claims of Laundresses like that of Fort Walla Walla's E. Sloan, who was caught up in a payment dispute with 2nd Lieutenant W. H. Miller and Private John Tighe of the 1st U.S. Cavalry between 1876 and 1878 (Department of the Treasury 2023). In 1876, the legitimacy of the laundressing position was brought into question and their value became a subject of discussion in a congressional setting (U.S. War Department 1863).

In 1863, the U.S. Army had revised its regulations to prohibit married men with wives or children from enlisting during a time of peace, but those already enlisted were allowed to continue their service with their families in attendance (Holmes 1997:178–179). All twelve post laundresses listed in the 1860 census were married and ten of the families had children. Four women were married to German members of the band including the band leader. Band members and laundresses shared several similarities in their positions within the U.S. Army. Many were married immigrants from western or eastern Europe. Both were given their own separate quarters away from the other enlisted men (Railsback and Langellier 1987:51). A 1907 map of the Fort Walla Walla military reservation shows a separate building marked as simply Band Leader (Crosby 1907). Neither position required formal training in the role before enlistment or service. Only one of the band members listed for the 1860 garrison, band leader Andrew Haack, has musician listed as his previous occupation for his enlistment record (U.S. War Department 1860).

Laundresses and Musicians

Laundresses and band members were also occasionally tasked with serving in various medical capacities during the Civil War. Hospital matrons occasionally had previous laundressing experience (Carded Service Records 1861). Soldiers belonging to post bands assisted field surgeons on the battlefield as temporary members of the hospital corps, where they performed first aid and assisted in carrying soldiers from battlefield to field hospital, as well as performing ambulance drills (Library of Congress 1864). Band members were also tasked with escorting soldiers such as Private William W. Dolman, of the Hospital Corps at Fort Walla Walla, to the Government Hospital for the Insane in Washington D.C. Dolman was suffering from "melancholia" and is labeled repeatedly in official paperwork as "an insane soldier" (Switzer 1888). Private Dolman was officially escorted by Chief Musician Michael C. Meyrelles and Private Emory Brain of Troop E in 1888 (Switzer 1888).

The job of musician was not without risk and buglers, who were separate from the U.S. post band and field musicians, had one of the highest casualty rates of any group in the Civil War (U.S. Army Element 2005:25). Following the war, band-related injuries continued to occur that would be documented in pension applications. Franz Popa, musician, was injured while on parade after he stepped in an unseen hole and fell onto his drum. Popa describes the incident in detail in his later pension application, along with a subsequent injury incurred while delivering post mail on a mule in San Francisco that resulted in damage to his face and hearing loss (Popa 1875).

The Laundress Quarters at Fort Walla Walla

Fort Walla Walla had two separate laundress quarters that are pictured on several plans of the fort between 1877 and 1917 (National Archives 1877). The buildings are shown in low-lying areas west and east of the fort, near the nearby Garrison Creek and an unnamed spring, and they are unique to the post in terms of their physical description. An 1875 surgeon-general's report describes them as quarters for married soldiers, consisting of "two long, low buildings, each divided into seven single rooms, situated in

bottoms on the creeks to the east and west of the garrison." The buildings largely disappear from maps after the late nineteenth century and are noted in a post inspection report as having been torn down around 1898 (A Report of the Hygiene of the United States Army 1898). The earliest appearance of the buildings as laundress quarters to date is 1877.

The quarters are mentioned again in 1879 in an outline description of military posts where they are described as "Laundresses' quarters. There are quarters for sixteen married soldiers, one room (19'x20') to each." An 1889 map shows the west side quarters, and both quarters appear in 1893. There are two small watercolors dated to 1894 that show the laundress quarters labeled as such, in fall and spring with the stables in the background so they can be identified as the west side building (Maney 1894). The state of the buildings is less discernable after the 1890s. An annual inspection report dating to between 1898 and 1903 lists the quarters as "building 8: for use as laundress' quarters. The building formerly used for this purpose was torn down and has not been replaced. Building or buildings to accommodate fifteen (15) laundresses required." To date, no mention has been found to support that the quarters were rebuilt; although both buildings appear as laundress quarters on maps and blueprints between 1903 and 1916, it is more likely these maps are copies of earlier ones, or the name held but their purpose did not. These maps may not accurately reflect the purpose of the buildings since the laundress position was discontinued by the U.S. Army years before. The laundress quarters at Fort Walla Walla appear to have existed for a twenty-one-year time span, between 1877 and 1898, according to the plans of the fort retrieved from the National Archives. The low-lying areas shown on maps depicting the quarters remain relatively unchanged today, and it is likely that they could be located archaeologically.

There is a large area of the former fort grounds that has yet to be developed and is currently protected as a city-owned nature preserve, disc golf course, and hiking and mountain biking area. The area has been largely protected from development aside from a small series of walking trails and the establishment of the disc golf course. A future archaeological survey of the fort's former grounds outside the areas of the two previous large-scale excavations may lead to the recovery of artifacts from the post's earlier time period when the 9th Infantry regiment and its twelve laundresses were stationed there. Several maps indicate the location of the two laundress quarters and several outbuildings. GIS mapping overlays, using the recently uncovered plans of Fort Walla Walla in the National Archives, a project that is currently ongoing, will help to locate the remains of these buildings if they still exist in the modern-day landscape.

Discussion

Documentary research conducted at the National Archives has provided valuable background information and insight into the lives of the twelve men and women of the 9th Infantry Regiment during their service at Fort Walla Walla. Enlistment records, government census records, pension applications, and interment records provide details about their lives in and around Washington Territory during the pre- and post-Civil War eras. The lives of the twelve men and women of the 9th Infantry regiment of the U.S. Army are like those of many other immigrant families that arrived in the United States in the nineteenth century. They took jobs that required no official training or skill to be accepted, moved their families as dictated by the U.S. Army, and applied for pensions following their service. Their lives required hard work, but they were also able to obtain freedom from certain oppressions while submitting to others. While the men and women of the 9th are not of any great historical fame, they are of significant interest to those exploring the lives of residents of Fort Walla Walla during the Washington Territorial Period. Their experiences provide insight into frontier life during the pre- and post-Civil War eras as a predominantly

immigrant garrison gave way to one of American-born men and women whose lives may one day be better understood by the material culture they, or others like them, left behind at Fort Walla Walla.

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Coffee and Chocolate in High-End Food Markets

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Abstract

This paper explores how farmers in producing countries experience the Fairtrade and specialty markets for coffee and chocolate differently. Both crops have a large commodity market segment and a smaller high-value segment which has grown over the last few decades. Both have strong footprints in Latin America and Africa. Small farmers produce much of both around the world. But while coffee has created a large sector that achieves higher prices for producers, better quality for consumers, and more sustainable practices, chocolate has not. Instead, it continues to struggle with accusations of slave labor and deforestation, even within the specialty market. Why has the coffee system succeeded where the chocolate system has fallen short? What lessons do coffee-producing communities and farmers have for chocolate producers? And what can consumers and observers in the United States can do to encourage systems for producing chocolate that are more sustainable environmentally and socially?

Introduction

Chocolate and coffee share a long history tied to the colonial history of Latin America and Africa. Both commodities take off in the nineteenth century as important tropical products. However, in the later part of the twentieth century and the early twenty-first century, the two crops changed trajectories. The specialty coffee market grew sharply, until by some estimates, half the value of the coffee sold is specialty coffee (SCA 2022). The higher value cocoa market, on the other hand, has remained small and limited. This paper explores some explanations for why and how these two markets have had such different outcomes and lays out some research questions for future work.

Chocolate in the World

Chocolate, or cacao as the raw material is known, was domesticated in the Americas, probably in the part of the Amazon near the Andes. For clarity, this paper uses chocolate throughout. Chocolate is made from the seed of a tree, appearing in a large pod containing dozens of seeds within a pulp which has also been consumed at various times. These trees grow best in the tropics at low elevations. The oldest evidence of the use of chocolate by people is from Ecuador 5,300 years ago (Zarillo et al. 2018). Before 1500 B.C., people in Mesoamerica (modern Mexico, Guatemala, Belize, and neighboring countries) are using chocolate as well (Powis et al. 2011). The drink made from chocolate served as an important elite consumable in Mesoamerican societies both before and after European contact. After the Spanish conquest of this area, chocolate production spread to South America for European markets. This history is ably told by Sophie and Michael Coe in *The True History of Chocolate* (1996).

In the nineteenth century, a group of innovations changed the consumption of chocolate. Dutch processing allowed a more standardized product and the separation of cocoa powder from the fat in cacao (Henderson and Hudson 2020) allowed the use of chocolate in baking and the production of milk chocolate and dark chocolate candy. With this new market, cacao production became important in West Africa. Today, over three quarters of the world's chocolate is produced in West Africa, mostly in Côte d'Ivoire and Ghana. Close to 20% is produced in the Americas, with the remainder from the Indo-Pacific (ICCO 2023).

Coffee in the World

Whether coffee was domesticated in Ethiopia or Yemen is a matter of national pride, though Ethiopia is more likely (Wild 2005). While people in those areas consumed coffee earlier, it began to spread widely through the Islamic world in the fifteenth century (Hattox 2014). From there, it spread to Europe in the seventeenth century, arriving in England in 1651 (Ellis 2011). By the late eighteenth century, coffee was produced broadly in the Caribbean and in mainland Latin America (Pendergrast 2010). Today, about 60% of the world's coffee is produced in Latin America, while just under 30% is produced in Asia and the Pacific, and the remainder in Africa (ICO 2023).

The Shared History: A Story of Two Tropical Commodities

Both coffee and chocolate appeared on the world stage in the colonial era and spread around the world. Consumption of both really took off in the nineteenth century, though interestingly each came to

dominate on continents different from their origin. Both are produced around the world in the tropics: chocolate in lower elevations, coffee at higher elevations.

One interesting feature of these two commodities, which makes them unusual even among tropical products, is that both are largely produced by small farmers. In the case of chocolate over 90% of production is produced by small farmers, while for coffee, small farmers produce around 60% of production (Beg et al. 2017; Anderzén and Méndez 2021). Part of this is that both are labor intensive in ways that mean that larger producers do not have important economies of scale. Both crops can be processed on the farm by small producers or in larger batches in larger processing plants. Once processed, the seeds that are the product can sit for weeks or months before they are sold into the market, which allows even farmers who are really isolated from roads and markets to produce and sell these products. A strong connection to markets and to vendors is not necessary for small farmers to succeed in the world market.

Despite these similarities, the trajectories both have followed over the last few decades are quite different. Coffee has succeeded in these high value markets. Large amounts of coffee production have moved into more lucrative markets, and in turn those lucrative markets have shaped production as more and more producers work to meet the standards of those markets. Chocolate has lagged behind. While there is high-value chocolate out there, it's mostly not about production of high-quality chocolate, but about chocolatiers producing art with chocolate that's not much better than commodity chocolate. The market for high-quality chocolate from producers remains small and underdeveloped. The rest of this paper explores this conundrum: why has quality coffee production been so much more lucrative than quality chocolate production?

The author has been doing research on coffee for decades now, looking at its great successes and limitations, in the Fairtrade and high value specialty market. She has recently come to focus on chocolate; this is an exploration of big ideas that should lead to fieldwork as she formulates questions and hypotheses about why and how chocolate remains a less lucrative crop than coffee.

Specialty Markets in Coffee and Chocolate

Both coffee and chocolate have a large commodity market and a smaller specialty market. The commodity market for both is old and well-structured—the specialty market has deep roots but is shifting rapidly for both coffee and chocolate. In coffee, the commodity market is large, but so is the specialty market. Over 10% of the world's coffee, and for some countries, most of their production enters higher-priced markets (SCA 2015; Smith 2009). The production of types of coffee reflects that reality. The international coffee market is largely divided between relatively low-quality robusta—40% of world production—and higher-quality arabica—60% of world production (ICO 2023). However, that arabica production is split into a variety of named varieties that include 1920s hybrid varieties, traditional varieties historically grown in each area, and a handful of varieties, like Geisha/Gesha that have become popular and spread widely. All these varieties are commonly found in the specialty coffee market. A few varieties, like catimors, are perceived to be of low quality and are rarely found in the specialty market. But even some robusta beans are sold in the higher value market. None of these is more than a small part of world production. However, it is striking that for specialty coffee, those varieties as well as locations are often described.

In chocolate on the other hand, the fine or flavor cocoa market is much smaller; around six percent of the world's chocolate production could be sold into this market, but the actual size seems to be closer to one percent (Nieburg, 2016). Chocolate—cocoa—is split up into three "types:" the low-level

forastero is 85%–95% of global production; the most highly regarded variety, criollo, is 1–3% of production; and Trinitario, somewhere between the two in perceived quality, is around 10% of world production (Quelal et al. 2023). While three varieties is the standard story, the reality is more complicated. Varieties within these types—in large numbers—have different flavors and characteristics. Still, those differences are mostly invisible to consumers, even at the highest level of the chocolate market.

Both coffee and chocolate have a substantial footprint in the Fairtrade and other certification systems, like Rainforest Alliance and Utz. While the size of the Fairtrade market is about the same for coffee and chocolate, their relative importance can be seen through a few facts. When the specialty chocolate market is shown (as in the diagram from Nieburg 2016), the Fairtrade market is called out as it substantially increases the size of this chocolate market. In the high-end coffee market, the Fairtrade section would fall toward the bottom of specialty and premium coffee; it's such a small segment that it's rarely called out explicitly within this larger market. Certification is generally part of these higher-level markets. In coffee, it's used as a way of showing environmental friendliness in already premium coffee. In chocolate, these certifications have served as a way of showing that commodity chocolate was free of issues with child or slave labor and was not produced in protected areas (see for example Whoriskey 2019 for a popular press take on this).

The size of the specialty coffee market is easily visible. Driving around any town in the Pacific Northwest, it's easy to see a large number of coffee shops and places to buy espresso drinks. Analysts report Starbucks struggles to find new locations that don't just cannibalize sales from an existing Starbucks (Mourdoukoutas 2018). This coffee market is big enough that observers talk about waves within its historical development. Starbucks is Second Wave, roasters who focus on particular places are Third Wave, while Fourth Wave roasters have come to center producers in important ways. This can be seen in images of coffee packages, like the ones in Figure 1. In addition to country and region, these packages name the farm (Don Mayo—Finca la Loma, Puente Tarrazú), the variety of coffee (caturra, tipica), and even how it's processed ("honey," a term used for leaving some pulp on the beans to dry). Websites even include pictures and information about single farmers who produced that coffee. Chocolate is different. One can find a few bars that name the variety of chocolate, but most just name a place—and essentially never center producers except as anonymous "farmers."

These differences are also visible in how the people who create coffee and chocolate respectively present themselves. For a few decades now, third and fourth wave coffee roasters have presented themselves as adventurers who seek out the good stuff (and its producers) and bring out the best in it. One great example of this genre of self-presentation is Dean Cycon's (of Dean's Beans) book, titled *Javatrekker* (Cycon 2007). More recently, we see even more "teamwork" kind of framing, where people selling coffee present producers and roasters working together to create excellent coffee (see, for example, how Reframe coffee presents its coffee from Don Mayo, with first the producer speaking, then the roaster, at https://www.reframecoffee.com/index.php/product/costa-rica-don-mayo-bellavista-coe-2020-22/).

Producers of chocolate, on the other hand, tend to focus on the chocolatier as an artist who creates something great from raw material. That raw material may vary by quality, but that quality seems to be natural rather than acknowledged as the work of producers who are knowledgeable artisans in their own right. Again, this is not about some difference between coffee and chocolate. The first stages of chocolate processing are done on farms, just as with coffee. In each case, the final flavor is shaped by the fermentation managed by these farmers. But only in the case of coffee is that work valorized and presented to the consumer as part of the process of creating the final product.

Figure 1. Two Costa Rican Coffees. Photographs by the author.

Not surprisingly, this leads to a situation where the amount paid for cocoa—the raw chocolate—is limited to a relatively narrow range. The commodity price usually ranges between $2–3/kg ($3,000/metric ton), the basic fine or direct trade coffee goes for only a little more; farmers can sometimes receive considerably less (Burmudez et al. 2022; ICCO 2023). The best fine flavor or specialty cacao commands price of as much as $5–$10 ($5–10,000/metric ton). (Nieburg 2016). For one chocolate Toʼak Chocolate (Toth 2021) reports paying $13.23/kg.

The prices paid for coffee, on the other hand, vary more broadly. Commodity coffee mostly sells in the $1–$2/lb. range (note that this would be $2.20–$4.40/kg, so a little higher than the price of chocolate). Specialty coffee, though, covers a much larger range. An Emory University project called Transparent Trade identified average prices for specialty coffee averaging $3.50/lb, with a 75th percentile price of $4.48/lb. for 2021–2022 (Transparent Trade 2023). However, they report prices for higher quality coffee as averaging $5.98/lb. with a 75th percentile price of $10/lb. It doesn't stop there. While some specialty coffee is quietly sold out into higher-priced markets, there are also well-publicized competitions and auctions that lead to much higher prices. The Cup of Excellence sponsors international competitions for high-quality small batch coffee that end in auctions. In 2022, they ran auctions in 12 countries; the winning batch sold for over $100 in 5 of those countries, and over $50/lb. in 4 more (data from COE 2023, author's analysis).

These competitions lead to higher prices not only for the winning lots, but for other coffee from these farms and from their neighbors. It has also served to encourage farmers to pay more attention to producing coffee that can compete successfully in this market and give them feedback about where they fall short.

Why Isn't the Chocolate Market Like the Coffee Market?

The differences, though, aren't just about price. Chocolate has come under attack for its use of child labor, forced labor, and its push into previously protected environmental areas. The U.S. Department of Labor rightly calls out child labor in Cote d'Ivoire and Ghana, with detailed infographics like the one included in the study "Child Labor in the Production of Cocoa" (DOL 2023). However, Department of Labor (2022) reporting makes it clear that child labor also is a problem in coffee production; they identified child labor as a problem in coffee production in seventeen countries. Studies of child labor in individual countries in coffee have been funded and are ongoing. Still, child labor and environmental issues in coffee are rarely reported as problematic, except concerns about how global warming is hurting coffee.

That brings us to the big question: what's going on with these differences in how big and how valuable the specialty markets are between coffee and chocolate? This question remains to be answered—the author hopes to be exploring this question through fieldwork soon. But it's safe to say a few explanations come up short: one can say a few things it isn't. Some specialists in chocolate say that the rise in fancy flavorings and additions to chocolate have led to a lack of interest in paying a real premium for quality chocolate. There might be some truth to that, but the coffee market is clogged with sweet additions to espresso drinks that render the coffee all but unrecognizable. Despite that, sellers of that coffee continue to pay a premium for better coffee and advertise their excellence. Buyers similarly seem not at all bothered to pay higher prices for the coffee in those sweet, flavored drinks.

Another story that those in chocolate will say is that the best-tasting varieties like criollo are hugely less productive than the commodity market forastero, but the same thing is true in coffee. The difference between the two is that the prices for the less productive kinds of coffee can be many times the prices of other kinds of coffee. The most extreme example is Geisha coffee. This variety was discovered in Panama on existing farms (Weissman 2008 tells the story). Geisha from Hacienda la Esmeralda, who made Geisha coffee famous, can be found on Amazon—at $70/pound. More select lots go for hundreds of dollars a pound, or even over a thousand dollars, via auction (Smith 2009; Christensen 2022). While other low-production traditional varieties of coffee aren't that lucrative, producers are often paid five to ten times the price paid for commodity coffee. That more than compensates for the lower productivity of these traditional varieties. This compares to perhaps a three-fold difference for chocolate between criollo and forastero, which doesn't fully compensate for the lower productivity of criollo chocolate. The case of coffee says clearly, though, that a greater difference in cost between varieties is possible.

What kinds of features must a different, more lucrative chocolate market have? In the shift in coffee from a field with relatively low-price differentiation to a consumable for which some consumers are willing to pay exceptional prices for exceptional coffee, there are a few key points along the way. The first is the "Starbucks effect:" the shift from selling exceptional coffee by the pound to selling exceptional coffee by the cup, allowing the roaster to make more profit from a given unit of coffee. The second is the rise of the Third Wave coffee roasters, seeking out and rewarding coffee with a wide variety of exceptional flavors (Pendergrast 2010). That competition and new taste-making allowed still higher prices for a wider range of coffees. Finally, the increasing importance of the auctions and competitions working to drive up the upper levels of what people are willing to pay for coffee in ways that follow the patterns for wine—willing to pay over $10—and even up to $100—for a cup of truly exceptional coffee (Smith 2009; Wilson and Wilson 2014).

What might create a similar pattern for chocolate, a situation in which consumers would be willing to pay much higher prices for quality chocolate or in which chocolatiers would work to convince

them that this chocolate really is worth the price? It's difficult to say. But it's clear that chocolate producers around the world are exploring how to follow this path, getting more money for producers and their communities.

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Amenity Migration and Rural Livelihoods: A Case Study of Farmer/Rancher Subjective Well-Being in Teton Valley

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Abstract

Amenity migration is a trend in natural amenity-rich rural areas across the country, however, little is known about how farmer/rancher subjective well-being is impacted by the resultant changes. Amenity-based growth restructures local landscapes and economies, reducing open spaces and causing a shift from traditional extractive industries, including agricultural-based livelihoods, to service and hospitality centered businesses as well as the development of an amenity-based 'gig' economy consisting of short-term, seasonal, and/or contractual work instead of long-term jobs. Amenity-based transitions and the resultant landscape, social, and economic changes positively and negatively influence the quality of life experienced by farmers and ranchers, and thus have the potential to positively and/or negatively impact their subjective well-being. I use a case study of small-scale farmers and ranchers in Teton Valley to understand how these changes impact their subjective well-being and discuss three emergent subjective well-being domains from my research.

Introduction

Amenity migration, a phenomenon which originated from rural tourism (Williams et al. 2016; Özden-Schilling 2019; Sherman 2021), occurs when wealthy individuals from urban areas enjoy escaping stresses of city life by traveling to remote rural areas and then discover that land and housing in those areas is significantly more affordable than land and housing in urban areas (Williams et al. 2016; Özden-Schilling 2019; Sherman 2021), driving their migration to the areas. Comparative affordability combined with the allure and prestige or elevated status involved with living in or owning a second home or vacation property in areas with plentiful natural amenities has quickly propelled the phenomenon (Williams et al. 2016; Sherman 2021). Due to this, and an increased opportunity for remote work, agricultural communities across the United States are experiencing rapidly increasing populations, an influx of incoming "outsiders" or newcomers. Newcomers are often wealthy individuals who come to amenity-rich rural areas with the privilege of greater financial independence than locals, resulting in both small and significant landscape, economic, and social changes which alter the daily lives of locals (Abrams et al. 2012; Williams et al. 2016; Ulrich-Schad 2018; Sherman 2021). These changes impact the quality of life and life-satisfaction of locals, especially those with agricultural livelihoods, which affects their subjective well-being.

Subjective well-being is centered on individual experiences, emotions, and feelings concerning interpretations of those experiences by the individual (OECD 2013; Durand 2015; Zaffar 2021). For my research, I define subjective well-being as the overall happiness of an individual as a result of life-satisfaction and life quality (OECD 2013; Bryant and Garnham 2014; Durand 2015; Zaffar 2021). Both life-satisfaction and life quality for farmers and ranchers are altered in the evolving landscape, economic, and social conditions as their communities shift from agriculturally-focused economies to amenity-based economies as a result of amenity in-migration.

Farmers and ranchers have historically been the primary stewards of these open spaces since colonization and their connections, constructed identity and emotional ties to these landscapes, both worked land and open space, are often overlooked as newcomers move to the area (Taysom 2022). Increased financial strain for rural individuals with agricultural livelihoods, who are vulnerable given the plethora of economic changes occurring in the area, including overall increased cost of living, decreased livable wage employment opportunities, and limited housing options, requires them to "get creative" and find additional sources of income through intensified and population-adapted diversification to maintain their livelihoods (Gosnell and Abrams 2009; Sherman 2021; Taysom 2022). Drastically increasing numbers of newcomers in the area and simultaneously decreasing numbers of longtime locals, who are often priced out of the area as a result of amenity in-migration, and less individuals with agricultural livelihoods in the area, results in changes to the social fabric of the community which can make farmers and ranchers feel like outsiders in the communities they've spent their entire lives building (Krannich et al. 2006; Williams et al. 2016; Taysom 2022). During my research in Teton Valley, I saw that these landscape, economic, and social changes resulting from amenity in-migration evoke a wide range of intense emotions for farmers and ranchers.

Research Site and Design

Teton Valley, which consists of four rural communities located in Idaho and Wyoming, or "Wydaho" as locals call it, is experiencing a transition from an agriculturally-based economy to an amenity-based economy resulting from rapid population growth largely driven by wealthy individuals seeking different

lifestyles and outdoor recreational opportunities in a picturesque landscape. While the national average rate of growth from 2010–2019 was 6.3 percent, Teton County, Idaho, had a growth rate of 19.61 percent and Teton County, Wyoming, had a growth rate of 10.18 percent (Kassel 2021). These higher than national average rates of population growth are consistent with other rural counties that have natural amenities (Kassel 2021). My research uses a case study of small-scale farmers and ranchers in the Valley.

For my qualitative data collection from the summer of 2021 to the fall of 2022, I conducted 13 in-person semi-structured interviews with 23 small-scale farmers and ranchers. I spent 12 weekend visits and 1 month, from June to July 2022, in Teton Valley conducting in-person participant observation of the community. This allowed me to participate in and attend community events, like the balloon festival, local rodeos, farmers' markets, etc...., and observe community behavior on a broader scale by visiting local businesses and popular hiking trails throughout the Valley. This time in the Valley also gave me the opportunity to have casual conversations with various types of people in the area, including longtime locals, newcomers, protestors, and tourists alike. Additionally, I spent over 100 hours conducting online participant observation through public Facebook groups specific to the Valley. I found the online participant observation to be extremely helpful in identifying issues that were impacting the community as a whole, which helped me to be more fluid in the conversations I had with locals in person. Another benefit of the online participant observation was that individuals seemed much more comfortable discussing issues in a more blunt and direct fashion than they would be in person. Most of the people in Teton Valley try to present themselves as being welcoming and friendly. This presentation is important in a rural community that is dependent on tourists for survival. While no one online was blatantly unfriendly or mean, community issues were discussed online in a direct fashion largely without the concern of saving face. Online, feelings about community issues were openly discussed, both positive and negative, and people seemed more confident in expressing their feelings than they seemed to be in a face-to-face setting.

From this data, I extracted salient themes to form subjective well-being domains which identify how farmers and ranchers in Teton Valley define, construct, and experience subjective well-being and show how those domains are influenced by current changes resulting from amenity in-migration.

Emergent Subjective Well-Being Domains

Because subjective well-being is subjective, definitions, constructions, and experiences of different aspects of subjective well-being can vary greatly. Given this, for my research I utilize emergent themes from the collected data to understand how small-scale farmers and ranchers in Teton Valley define and experience subjective well-being. While these domains can be separated for organizational purposes, it is important to understand that they are interdependent and deeply interconnected. Below, I will discuss three of the emergent subjective well-being domains from my research: Livelihood Preservation, Navigating Survival, and Sense of Belonging.

Livelihood Preservation

Livelihood Preservation is constructed on concerns for the stability of the future for agricultural livelihoods in Teton Valley. This includes issues related to their individual operations as well as all other small-scale agricultural operations in the Valley. Aspects of this domain include concerns about newcomers' acceptance of their livelihoods, concerns for the length of time that they will be physically able to continue their work, what will happen to their operation when they're no longer able to manage their workloads, concerns for social connections that are required to continue their operation, what the future

of the community will look like with the decreasing number of farms/ranches in the Valley, and whether their livelihoods are sustainable in the changing economic structure within the Valley given the increasing presence of "Big Ag" operations.

One individual remarks:

> "A changing of the guard is happening a little bit. And that makes us a little nervous for the long term health of this community. You know, I think people who are coming in, I'm sure they have something they can offer to the community. But we do worry about losing hard working diligent, creative people. But I'm sure there's some more moving in. But at the same time, it's just a question mark. How will this community shift as all these new things happen?"

There are differing views on what the future of farming/ranching looks like in the Valley. One view is more optimistic, as shown by this individual's thoughts:

> "I think it looks promising. I think there's gonna be a lot more of it at small scales. I think it's going to increase like crazy, actually. And not because of financial reasons, but because we're going to need it. I do see some farmers struggling for sure. Some farms will be affected. I think the bigger you are, and the more tied you are to intermediaries or commodities, the more struggles you'll have because that's a very vulnerable place."

On the other side of the spectrum, individuals don't feel so optimistic about the future of agricultural livelihoods in the Valley. An individual dejectedly shared:

> "We're a dying breed. There's been a lot of people that have sold out from when I was growing up. Any type of agriculture from farming, to ranching, to dairy, I see some of the other counties and see how their agriculture is still flourishing. It's not happening here. It's nowhere near what it was and what it could have been or should be. But the demographics and the people are changing. And so, what do you do? You make the best of what you got. Especially the last two or three years, you can make way more money selling your property than you ever can selling your cattle or farming. You can't blame those individuals. You can't blame somebody for wanting to try to improve their lives and do better."

Another individual had this to share:

> "We're no longer an agricultural valley because people have not been able to withstand the pressure [to sell] and it's sad. It's really sad to me. There's just housing developments everywhere. I can't stand it. It's really changed."

Honest self-reflection and the reality of mortality also influences their outlooks, as one individual stated:

> "It concerns me how long I can do this, and my age makes me more concerned with the aches and pains, and just getting older. We're killing ourselves to do this. I feel like this work is just always stress."

Navigating Survival

Navigating Survival is constructed on concerns for being able to keep their agricultural operations functioning in the wake of the economic shifts that are taking place. Aspects of this domain include concerns for having the financial means to take care of animals, deciding how many animals to keep because of increasing feed prices, brainstorming ways of intensifying livelihood diversification for additional income sources, deciding what and when to cut back on personal needs in order to maintain their operation, and investing in new skills to increase job options.

Sacrifices are part of survival when finances get tight, especially when you have animals to care for that you are dependent on for income. A participant explains:

> "I'm being a little more careful with the money. Because I just don't know what's going to be happening. And I've got to make sure I have enough to feed my animals and to take care of my animals. So there's things I'm not gonna buy for myself, because I want to make sure I have plenty for my animals. We're going to be butchering off a bunch of them just because of how much feed costs. It breaks my heart to have to do that, but I don't know how else we can survive financially."

Efforts to increase diversification to bring in as much extra income as possible include establishing and building agricultural connections in other states to reach a bigger customer base, teaming up with local businesses to hold combined public events, expanding to online platforms to sell products, embracing agritourism, and finding ways to "get creative" to come up with additional ways of making money with minimal input. One couple I interviewed had five off-property jobs between them just to make ends meet and keep their operation going. They shared:

> "I have no desire to get rich I just want to be able to pay my bills and be comfortable."

The ability to diversify is consistently seen as a make-or-break point of survival in the Valley. As one individual claimed:

> "We've had to get creative. We've had to brainstorm new ways of making it work. You can't expect to just do things the traditional way. You won't make it if you do that. It doesn't work anymore here. It's not impossible to live this type of life, but you have to be flexible and willing to change. Change is inevitable. You can either fight against it and struggle or you can work with it and survive."

Sense of Belonging

Sense of Belonging is constructed on feelings and beliefs concerned with whether they as individuals, or individuals with agricultural livelihoods in general, belong in the rapidly changing Valley that is shifting away from its agricultural foundation. An interesting and consistent variation in the

construction of these feelings or beliefs occurs based on the length of time these individuals have been farming/ranching in the Valley. Individuals who've been in the Valley for under ten years primarily construct their sense of belonging on social ties they have in the area, whereas individuals who've been in the Valley for over ten years primarily construct their sense of belonging on the land ties they have.

An individual who has been farming/ranching in the Valley less than ten years shared:

> "I don't think I belong here quite yet. It's not home yet. I think that will change once we get more of a social group here. It's hard because we work 24/7, you know? It's hard to socialize and make friends with other likeminded people when we're all so busy. I think we're getting that on the right track now that the pandemic is over, but we're not quite part of the Valley yet."

An individual who has been farming/ranching in the Valley for over ten years shared:

> "We belong here. This is home. Our blood, sweat, and tears are in this ground. Our roots are planted here. This is still home, even if it's changing."

Another old-timer stated:

> "We belong here because of our connection to the land. It's a deeply spiritual interaction. Sometimes it's like a friend. Sometimes it's like a benefactor. Sometimes it's like a mother. Sometimes it's like a lover. We get the full range of emotions from our interactions with the land. And that's an amazing richness. When you love the land, you want to do what's best for it. You don't want to harm it. We have a responsibility to take care of it and protect it. That's why we're here. This is where we belong."

Conclusions

The landscape, economic, and social changes taking place in Teton Valley as a result of amenity in-migration impact the subjective well-being of farmers and ranchers in the area. These changes can be seen as a combination of positive and negative, but they result in altered daily lives and experiences for individuals with agricultural livelihoods. Three of the emergent subjective well-being domains from my research include Livelihood Preservation, Navigating Survival, and Sense of Belonging. Livelihood Preservation is constructed on concerns for the stability of the future for agricultural livelihoods in Teton Valley. Navigating Survival is constructed on concerns for being able to keep their agricultural operations functioning in the wake of the economic shifts that are taking place. Sense of Belonging is constructed on feelings and beliefs concerned with whether they as individuals, or individuals with agricultural livelihoods in general, belong in the rapidly changing Valley that is shifting away from its agricultural foundation. While these domains can be separated for organizational purposes, they are interdependent and deeply interconnected. The changing landscape, economic, and social conditions in the Valley influence how each of these domains are experienced and constructed by individuals with agricultural livelihoods, resulting in either positive or negative subjective well-being outcomes.

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The Chemistry of Artifacts Connected to Health and Beauty

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Abstract

Materials associated with historical artifacts recovered in archaeological excavations are often difficult to identify. Even where this is not the case—as with labeled containers—questions may still exist about the exact nature of the contents of these bottles, cans, vials, and jars. Analytical chemistry can be a great help in answering frequent questions like "what is this…?," "what was it used for…?," or "what exactly is it made of…?" Many such artifacts from all across North America have been submitted to our laboratory for analysis. The small selection discussed here consists of materials that were specifically used in medicines and grooming products—stuff we put in, or on, our bodies. Often our findings have been surprising; although, at times the toxicity of various nostrums could be quite hair raising!

Introduction

Artifacts submitted for analysis to our laboratory are usually containers with contents that are either entirely unknown or are recognizable but not well understood chemically. The exercise of shedding light on such materials is complicated by the fact that the substances people manufacture and use undergo changes through oxidation, hydrolysis, polymerization, and other interactions as they are exposed to the environment through decades or centuries. The exercise of identifying them amounts to chemical detective work, closely related to forensics. It not only provides useful information for the archaeologists and collection managers who provide the artifacts (von Wandruszka and Warner 2018) but is also a valuable training tool for the chemistry students who do the work. In addition, as these students study the artifacts and materials, it provides them with a unique historical perspective that they otherwise rarely encounter in their studies.

The Artifacts

I. Snake Oil

The artifact (Figure 1) was recovered from a historical lime kiln in Colfax, California, and provided to the laboratory by James Wood. It was a clear-glass medicine bottle, about 11 cm tall and 7 cm wide. The lower portion contained a yellow solid, above which a dark liquid filled the bottle to the halfway mark. A dark brown crust covered parts of the inside surface.

Figure 1. 'Snake Oil' bottle. Photograph by the authors.

Procedures and Results. The yellow material was found to be of a waxy consistency. Its infrared (IR) spectrum indicated the presence of hydrocarbons, as well as esters. IR also showed that the dark solution was aqueous, and pH measurements indicated acidity. When the solution was freeze-dried, a light brown solid remained, with an IR spectrum similar to that of the waxy material.

The freeze-dried solid was soluble in hydrochloric acid, and atomic absorption spectroscopy (AAS) indicated that the resulting solution contained substantial amounts of magnesium (Mg), calcium (Ca), potassium (K), and sodium (Na).

The melting point of the waxy unknown was around 26° C, and in an open flame it melted and evaporated, but did not burn. It completely dissolved in methanol and diethyl ether.

Discussion and Conclusion. The bottle had a narrow neck, suitable for pouring, which suggests that the original contents were liquid. The chemical evidence indicated that the artifact was an emulsion of a plant oil mixed with a wax, or petroleum jelly, in a water base.

As noted from the IR spectra, the waxy material and the dissolved material were very similar, except that the former had a larger hydrocarbon component (i.e., was less polar) and therefore remained undissolved. There was a strong ester component in both, which is generally the case with plant-derived materials. The acidity probably arose from a slow, self-catalyzed hydrolysis of the ester, resulting in a carboxylic acid.

The bottle type suggested that it was an early 1900s medicine bottle, and the conclusion was that contents were a "snake oil." These materials were emulsions sold as medicine in the old West, often containing 2 or 3 types of oils, shaken with water to make a cloudy suspension. Liquid paraffin wax was also a popular ingredient, since it is colorless, tasteless, and odorless. The plant material, especially the ester parts, probably gave the nostrum a distinct taste. Magnesium, calcium, potassium, and sodium were all common ingredients of medicine at the time. They were likely added in salt form.

Over time, the insoluble wax and oil components of the emulsion separated from the water and sank the bottom of the bottle. It is also likely that some contaminants entered the bottle over time, being responsible for some of the dark color.

Lime kilns were notoriously unpleasant places to work, with little to no precautions taken to protect workers' health. Laborers in lime kilns were constantly exposed to harsh pollutants ranging from lime dust to toxic fumes. Their lungs were seriously affected by this exposure, with many developing chronic coughs, chronic phlegm, asthma, or chronic bronchitis. Because these symptoms were so common, many patent medicines were marketed to "treat" them. Emulsions were especially favored because the oil component would help soothe the irritated tissue.

II. Tooth Powder

The artifact (Figure 2) was provided to the laboratory by David Valentine of Idaho Power. It was a metal bottle with an in-tact label printed directly onto the metal. The bottle had a functioning twist-off closure. The contents were a cream-colored free-flowing powder with some dark pieces.

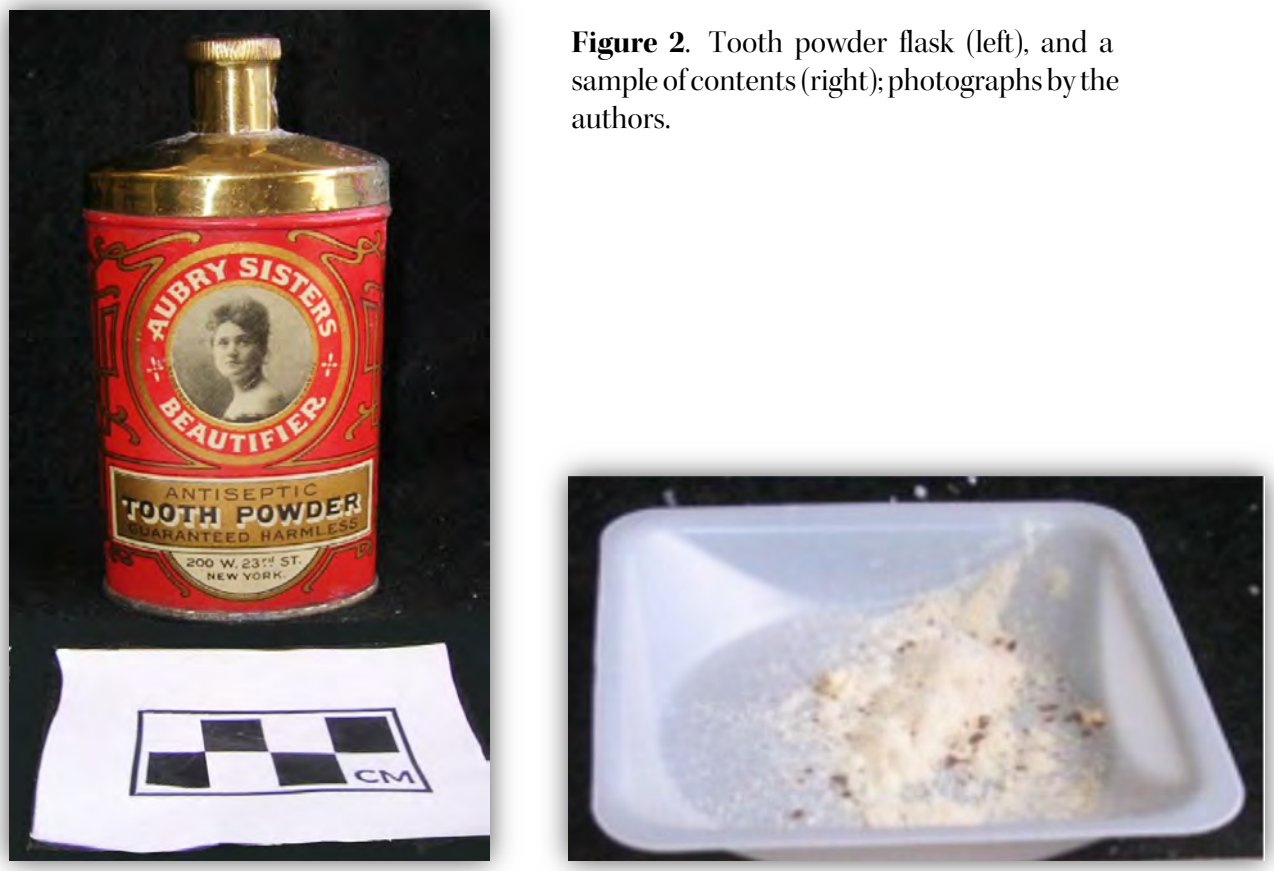

Figure 2. Tooth powder flask (left), and a sample of contents (right); photographs by the authors.

Procedures and Results. The unknown material partially dissolved in both water and methanol. Upon addition of HCl, gas was evolved, indicating the presence of carbonates. When it was placed in a muffle furnace at 800° C for 8h, a 77% weight loss was observed. The IR spectrum of the material showed a substantial presence of alkanes and carbonates. AAS indicated the presence of calcium (Ca) and magnesium (Mg). When a sample was slurried with water and shaken, a foam formed.

Discussion and Conclusion. The contents of the bottle, as indicated by the label, were a remnant of a dentifrice (tooth powder). The bulk material was finely ground limestone ($(Ca,Mg)CO_3$) with a trace of silicate, which provided an abrasive quality to the material. It further contained hydrocarbon and ester components. The foaming properties of the dentifrice were due to a surface active material such as sodium lauryl sulfate (SLS). A flavoring agent, like for instance mint, was also present and gave rise to the ester signal.

III. Arsenic for Health and Beauty

The artifact (Figure 3) was provided to the laboratory by Jade Luiz of the City of Boston Archaeology Department. It was a small glass bottle with residue adhering to the interior surface. The artifact was unsealed upon arrival and was found to contain a small amount of loose, brown, odorless material.

Figure 3. As-containing bottle; photograph by the authors.

Procedures and Results. The IR spectrum of the material in the bottle showed O–H bonds, N-H bonds, and silicates. It was partially soluble in 3:1 HCl:HF, and in aqua regia. AAS showed the sample to contain arsenic (As), magnesium (Mg), sodium (Na), calcium (Ca), iron (Fe), potassium (K), zinc (Zn), and maybe a trace of silver (Ag). A spot test for mercury (Hg) was negative.

Discussion and Conclusion. The discovery of arsenic in the bottle was of seminal importance to the characterization of its contents. It may be surprising, but arsenic has seen fairly extensive use as a medicinal agent. One noted arsenical medicine was *Fowler's solution*, developed by Thomas Fowler in the 1770s (Jolliffe 1993). This nostrum contained 1% potassium arsenite ($KAsO_2$) and was used to treat fever, asthma, syphilis, and many other ailments until the mid-1900s. From 1865, it was even used as a leukemia treatment.

The use of arsenic as a beauty treatment in the nineteenth century seems to have begun after reports were published in the 1850s of Austrian peasants eating arsenic to improve their figures and freshen their complexions. The story became widely known in the English-speaking world when an account of these arsenic-eaters was retold by James F. W. Johnston, a Scottish agricultural chemist, in the second volume of his book *The Chemistry of Common Life*, published in 1855. In 1869, G. Ellington wrote in "The women of New York" (New York Book Co.): Arsenic has held its own until the present time, principally for the reason that it sicklies the brow o'er with the "pale cast of thought," and makes the person look pale and interesting. Arsenic also found use as a topical skin lightener.

IV. Siblin

The artifact (Figure 4) was provided to the laboratory by Mary Petrich-Guy and Stephanie Simmons from the Tri-Cities, WA, area. It was a rectangular metal can, 6.5 cm wide and 8.5 cm tall. It featured a white and red label on the front reading, "1/4 POUND // SIBLIN // A palatable preparation of a highly water-absorbent material from Plantago, combined with Thiamine Hydrochloride."

Figure 4. Siblin can (left), and a sample of contents (right); photographs by the authors.

Writing on the other three sides of the can described dosage, distribution, and other product information. The closure was a round metal press-fit lid. The can was full to the top with a dry product that had the appearance of small yellow/orange husks.

Process and Procedure. The total weight of the material in the can was 115.4 g. A 0.26-g portion of it was heated in a muffle furnace to 800°C, and after 8 h no sample could be recovered.

The water-absorbent properties indicated on the label were tested by leaving 0.6 g of dry Siblin in water for 48 h. The recovered material weighed 7.415 g, corresponding to a w/w water-absorption of almost 1,200%. The water-soaked material resembled a tan jelly in consistency and appearance.

The IR spectrum was collected for the Siblin and showed the presence of O–H, C–H, and ether C-O-C in the molecular structure.

Discussion and Conclusion. The images of the artifact and the general appearance of the material suggested that it was of plant origin. Also, some seeds were found among the otherwise uniform material in the can. Research on the artifact indicated that it was the dried husk of psyllium seeds common in Southern Asia (Slavin 2013). The muffle furnace confirmed the sample was entirely organic and the absorbent properties matched those of the psyllium plant seeds also referred to as Siblin. The IR collected of this Siblin material strongly resembled published spectra of the psyllium seeds, further confirming the analysis.

V. What is Canthrox?

The artifact (Figure 5) was provided to the laboratory by Mary Petrich-Guy and Stephanie Simmons from the Tri-Cities, WA, area. It was a tin box in good condition, labeled "Hair Shampoo". The contents consisted of small off-white pellets. On its outside surface, the box featured a set of instructions, and some marketing information.

Figure 5. Canthrox can (left), and a view of contents (right); photographs by the authors.

Procedures and Results. The white pellets were found to be soluble in hot water but precipitated when the solution cooled down. The aqueous solution foamed when it was shaken. The IR spectrum of the solid material showed that it had an organic content but contained no water of hydration. When exposed to 800º C for 8 h, the material lost 29% of its weight, indicating that some 71% of it was inorganic, and the remainder organic.

A boron test, run on an aqueous solution of dissolved pellets, turned out positive. Electrical conductivity measurements showed that the solution was highly conductive, and atomic absorption measurements indicated the presence of a large amount of sodium (Na).

Discussion and Conclusion. The chemical evidence indicated that the Canthrox pellets were primarily made of anhydrous sodium tetraborate, $Na_2B_4O_7$, a.k.a. *borax*. It also contained a detergent, probably sodium lauryl sulfate (SLS), $NaC_{12}H_{25}SO_4$. Borax is used in various household laundry and cleaning products, as well as some hand soaps and tooth bleaching formulas. It is, however, not a common shampoo ingredient. SLS is a widely used detergent.

Concluding Observations

Toxins not included in this brief account, but frequently encountered in historical medicines and grooming aids include:

- Lead—this toxic metal was a common ingredient in vintage hair dyes. Lead acetate has the property of darkening hair and was often used in conjunction with organic dyes, such as walnut extract.
- Mercury—this metallic poison was the treatment of choice for syphilis before the arrival of antibiotics. In addition, the mercury ore cinnabar (mercuric sulfide) was—and still is!—extensively used in traditional Chinese medicine (TCM) as a remedy for intestinal infections (von Wandruszka and Warner 2021). In the cosmetic realm, mercurous sulfide, a.k.a. calomel (a creamy material), was a popular facial cream in the second half of the nineteenth century.
- Barium—this toxic alkaline earth metal was not purposely added to preparations but was a common contaminant in materials containing carbonate in the form of ground limestone.
- Strychnine—this dangerous organic poison was not only used to kill coyotes, but (curiously!) was also taken internally as a stimulant and a nostrum to "gain muscle strength" (Down 2006).

Acknowledgment

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Anthropology, Indian Boarding School Journals, and Truth & Healing

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Abstract

Recent revelations in Canada have renewed focus on U.S. Indian boarding schools and their legacy of historical trauma. But how can anthropology contribute to the process of "truth and healing"? What obligations do anthropologists have, and what skills or resources can they share? This paper will address these questions from the perspective of a non-Native academic who acknowledges the discipline's past complicity in marginalizing boarding school experiences, but who also supports anthropology's renewed commitment to promoting social justice and anticolonial practices. This paper focuses on early publications produced at boarding schools in the Pacific Northwest, writings that anthropologists ignored or dismissed as inauthentic or incomplete records of Indigenous culture. Anthropologists need to take seriously the historical voices, silences, and experiences of the Indigenous youth who wrote for, printed, and read these documents; this will contribute to a more complex understanding of how we determine the truths of settler-colonial violence in the Northwest. Exploration of these documents can also reveal evidence for cultural resilience and tribal survivance, and thus stories useful for promoting healing. Finally, recommendations are made as to enhanced access to these documents, which have often been forgotten, misplaced, or widely scattered in the colonial archive.

Introduction

This paper is a brief deliberation of the current boarding school crisis in the United States, which is a painful topic to discuss. I am compelled to approach the issue after forty years of witnessing people's accounts of their experiences in both the U.S. and British Columbia, their frustrations of not being heard, and my own frustrations of not being able to do anything about it beyond the classroom. I will present some potential historical resources for thinking about student experiences in the boarding schools of the U.S. and Canada and the subsequent emotional legacy—intergenerational trauma—in Native communities today. My thoughts regarding these resources stem from my own initial efforts to grapple with two fundamental questions. To what extent are anthropologists obligated to address the boarding school issue? How can anthropology contribute to a consensus of "truth" that might facilitate the process of healing and reconciliation?

Anthropology and Schools for Indigenous Children

Most Northwest anthropologists will be familiar with the Canadian Truth and Reconciliation Commission (2015), the discoveries of unmarked graves at residential schools in British Columbia in 2021, and the recent Bureau of Indian Affairs (BIA) Federal Indian Boarding School Initiative (2022). Both the Canadian Commission and the BIA Initiative have issued a "Call to Action" recommending specific things to be done by federal agencies, non-state actors, and Indigenous nations themselves. The BIA, and individual Indigenous communities, are particularly interested in (among other things) identifying and evaluating information related to marked and unmarked burial sites; enrollment records, with names and home communities of students; health and mortality records; documents regarding methodologies and practices of instruction that suppressed Indigenous languages and cultural activities; maps, photographs, and materials relating to school grounds and facilities; and anything that allows former "school attendees and their descendants to formally document their historical accounts and experiences" (BIA 2022:97). The BIA report specifically relates to Federally funded institutions, but encourages the independent release of records by non-Federal entities, primarily religious institutions that administered their own schools. Thus far, archaeologists have been prominent in these activities, from using ground-penetrating radar to more comprehensive collaborations with Native communities, and the resulting publications have influenced by own framing of questions and concerns (e.g., Cowie, et al 2019; Montgomery and Colwell 2019; Surface-Evans and Jones 2020; Montgomery and Supernant 2022; Montgomery 2023).

Anthropologists' involvement in the boarding school crisis is relatively recent. The discipline's interests from the late nineteenth-century well into the twentieth century conformed to the paradigm of the extractive practices of salvage anthropology, with a small Boasian-trained army recovering and categorizing tangible and intangible elements of Indigeneity in the interests of the anthropological sciences. From this data, they could then construct portraits of cultures believed to be on the verge of disappearance. Describing the educational process of coercive acculturation was not part of the Boasian agenda. Even mid-twentieth century acculturation studies tended to ignore the topic of compulsory schooling and, for the most part, failed to implicate the role of schools in profound cultural loss and social change. The vague and passive language anthropologists used in their writing during the first half of the twentieth century is striking: Indigenous communities were "disrupted," their languages and customs simply "disappearing," as though this transformation was naturally occurring. There were few attempts to identify schools as a principal locus for cultural erasure, and there was virtually no concerted effort to

confront or intervene in government policies to remove children from families and communities in the name of benevolent assimilation.

Yet anthropologists were certainly aware of Indian boarding schools. They visited individual institutions, consulted with administrators, gave lectures and occasionally taught students, wrote textbooks for classes, collaborated with schools to curate exhibits at World's Fairs, and recruited students as consultants or research assistants. Moreover, anthropologists frequently visited families and communities from which the children came, and despite being trained observers of small group dynamics, they routinely failed to witness—or at least write about—the potentially traumatic consequences of separating children from parents for lengthy periods of time. Indeed, one of the only anthropologists to write about this practice, and its potential for traumatizing experiences, was the Métis/Salish scholar, D'Arcy McNickle, and the only way he could do so was through fiction, in his 1936 novel, *The Surrounded*. His portrait of Mike and Narcisse, as two young boys compelled to attend a distant boarding school, their changes in behavior and eventual escape, is a thinly veiled portrait of abuse and its consequences. In short, through much of the twentieth century, anthropologists were willfully silent on formal education's suppression of Indigenous culture, a systemic process that Indigenous scholars today commonly identify as another form of settler violence, or "ethnocide." Particularly illustrative is British Columbian Provincial Anthropologist Wilson Duff's use of one photograph (Duff 1964:49) to discuss schools briefly in his monograph on the history of settler-Indigenous relations, an image that shows happy, smiling children at a Vancouver Island residential school. Given what is known today, it is a disturbing example of an anthropologist employing settler-colonial state propaganda.

Whether one believes anthropology's omission of boarding school influences on Indigenous cultures was due to blind professional ambition (i.e., structural indifference) or to some deliberate complicity in the wider colonial project, many practitioners today agree the discipline has an obligation to confront this past and contribute to the broader process of determining truth and facilitating healing. Among the "Calls to Action" in the U.S. and Canada are requests for the recovery of documents that detail student experiences at schools, a textual record that can be readily accessed and contribute to an emergent consensus of established truths. This body of evidence would also serve as a bulwark against the "denialism" that has already reared its ugly head in Canada: denials that schools had traumatizing impacts on Indigenous children; denials that the intent of compulsory education was anything but strictly benevolent; an insistence that public reports of abuse and unmarked graves were, in fact, the product of shabby journalism or "fake news" (e.g., Carleton 2021; Glavin 2022; Supernant and Carleton 2022; Giesbrecht 2023). Left unchallenged, such denialism in the public sphere risks retraumatizing both individuals and communities.

Indian Boarding School Journals

In terms of textual documents useful for establishing a foundation of truths, I would like to suggest that boarding school journals, containing writings by and about Native students, could provide helpful information about attendee experiences, and would supplement the ongoing collection of archaeological and oral data. The goal here is to expand the ethnohistorical archive (Harkin 2016) by considering temporally specific and textually fixed historical documents that originate from a known educational context. These documents would serve as a valuable supplement to (but by no measure a replacement for) the more fluid body of social memory, as in oral testimonies about school experiences, that is filtered

through an emotional realm and constructed through social acts of private and public discourse (Million 2000; Harkin 2016).

Between 1881 and the 1950s, Indian boarding schools throughout the Pacific Northwest (and elsewhere in North America) published thousands of pages of text about school life and students' Indigenous heritage, often materials written by students themselves [see Appendix 1]. Anthropologists of the past ignored these publications as incomplete, inauthentic, or uninteresting records of Indigenous cultures. However, in recent years, scholars of Indigenous Studies have recovered these writings and examined them in light of new understandings of coercive education and Indigenous authorship (e.g., Emery 2017; Jacobs 2017; Griffith 2019). This textual record constitutes a remarkable historical archive containing a wealth of information on these diverse educational institutions and about Native youth living under difficult circumstances. The existence of these publications raises several questions. How do we take these documents seriously? What information or perspectives do print sources from the past offer that more recent oral testimonies do not? How might these documents contribute to an ethnohistorical understanding of settler-colonial violence in the region—specifically the targeting of Indigenous homes, families, extended kinship networks, and tribal communities—all formations deemed hostile to the settler state, as Nez Perce scholar Beth Piatote (2013) has argued? How can we value this resource in a way useful for Truth and Healing?

We can briefly explore two examples to illustrate the potential value of these journals. First, consider the *Youth's Companion*, published from 1881–1885 at the Tulalip Mission School, a Catholic institution, founded by the Oblates of Mary Immaculate and Sisters of Providence. Each issue contained samples of catechism, priest's homilies, and information on the Church calendar, all typical of other Catholic mission publications. There is news on the extended Tulalip school community, but no information on runaway students, punishments for improper behavior, or complaints about how administrators treated Indigenous youth. However, each issue does contain information pertinent to Indigenous communities of the Puget Sound area, most importantly lengthy rosters of student names, and names of employees. There are also valuable descriptions of the mission landscape, including buildings, gardens, and places for athletic contests. There is at least one description of a student burial in a "grave-yard," and details about physical spaces just beyond school grounds, empty fields and cutover where students gathered flowers and berries. There is even an account of visiting Skayou Point, a Tulalip burial site.

Perhaps most revealing are the letters from Coast Salish students describing school activities and their emotions as they embrace a new faith, while also poignantly conveying their loneliness and sorrow at peers who have died from illnesses. [These letters are not just from local youth, but also from other Catholic schools in the Northwest, as far away as western Montana.] In short, the *Youth's Companion* provides detailed accounts, from an Indigenous first-hand perspective, of life, health, death, and the physical and social environment at a church-administered school. Much of this material is the type of information about Indian boarding schools (in both the U.S. and Canada) that Catholic authorities have been reluctant to release over the years.

Second, take the *Chemawa American*, published at the federally funded boarding school located initially at Forest Grove, Oregon, then at Salem, and most widely known as the Chemawa Indian School. While the school administration used this publication to broadcast its success at educating Native youth, and a means to bolster student morale, it was primarily a vehicle to teach students specific skills for employment, such as the craft of printing and the mastery of writing for a public audience; indeed, the school had its own print shop, through which it trained some of the Northwest's first Indigenous printers

and journalists. Again, as with the *Youth's Companion*, the pages of the Chemawa journals were replete with lists of student and employee names; descriptions and photographs of the school landscape, both inside buildings and out; reports of those in the infirmary or notices of those recently deceased; and information on lesser-known regional schools, such as Fort Simcoe or Siletz, for which there is poor documentation of student enrollment. Additionally, the *Chemawa American* contained numerous student-authored writings on tribal traditions and history (Walls 2021).

Through these pages, the formative years of young Native individuals come to life. Take Martin Sampson, an Upper Skagit man who would become a leader at Swinomish known for his political expertise and concern for cultural preservation, and who would eventually write two significant books on Puget Salish history. Issues of the *Chemawa American* between 1906–1908 provide snippets of Sampson's routine contributions to the school's musical life. There are almost one hundred notations of Sampson playing instruments and singing—often "Indian songs," sometimes in the Lushootseed language—at social events and to the sick in the infirmary. His singing prowess culminated in a commencement speech and performance, in both English and Lushootseed, for students and the administration. These brief but evocative descriptions of Sampson's musical and linguistic agency provide a revealing illustration of Indigenous intervention into the soundscape of an institution the federal government had designed to suppress and erase expressions of Native language and culture.

There are many autoethnographic qualities to the journals from Tulalip and Chemawa, in their descriptions of place, expressive culture, and social interactions between students, and between students and the outside world. Every page of these two publications provides details that are simultaneously evidence of a human presence at that school, an Indigenous name that can be traced to a life lived long or cut short; evidence of a story, in the writing itself, or in how the writing came into existence through the agency of a student intellect; and evidence of relations, a student's connection to other students, to a family, to a physical and spiritual homeland. These journals are a textual record of the experiences of suffering, loss, incarceration, and attempts to shame Native youth into forgetting their ancestral language and traditions. However, they are simultaneously a powerful record of those moments where students refused domination, as in the case of Martin Sampson's singing. If we take these journals seriously, as many Indigenous scholars and ethnohistorians are today, we can see them as "objects of survivance," material testimony to Indigenous resistance and survival, and useful for our present need to determine the truths underlying school experiences and narrate stories of strength and pride necessary for healing (Montgomery and Colwell 2019; Kretzler and Gonzalez 2023).

Conclusion

Native people, as Dakota scholar Vine Deloria, Jr. (1978) once noted, have a "right to know" about their past; what was done to them; and what their ancestors said, wrote, and did in the interests of tribal survival. However, if people can't access the documents containing this knowledge, then the knowledge remains unavailable as a useful resource. The boarding school record is infamously incomplete, dispersed across multiple archival sites, and occasionally deliberately hidden from inspection. For example, the journals from Forest Grove and Chemawa are scattered, with significant portions at five institutions: the University of Washington, University of Oregon, the Oregon State Library, Whitman College, and Yale; some issues do not appear to be held by any institution and may never be recovered. Copies of other journals, such as the *Puget Sound Indian Guide*, from the Puyallup Indian School, appear non-existent, and the publication is known only through articles that were reprinted in the journals of other schools, such as

Carlisle. Many Catholic Indian school documents—and entire archives—remained off limits to researchers for years; only in the past year have church authorities begun to open some parts of their collections to research.

However, utilizing their archival skills and connections to regional document collections, Northwest anthropologists can both identify these underutilized materials and work to enhance access to them. The author's current project seeks to locate, copy, and digitize Northwest boarding school journals and make them accessible to researchers, though this will likely require a collaborative effort. Preferably, any textual collection of relevant materials should go beyond boarding school journals and include additional information about associated documents (published and unpublished) that are available through regional institutions. These items would include student letters and autograph books; articles and letters about students and schools published in obscure newspapers; school artwork; and publications from Indian hospitals that had previously been boarding schools (e.g., Cushman Hospital in Tacoma; Coqualeetza Hospital in Sardis, B.C.).

Boarding school publications give voice to stories that need to be heard, listened to once again, with a new purpose in mind. They also provide context for those historically situated voices. Granted, there was a type of editorial violence in the way school administrations censored and selectively chose content to present a decidedly positive view of compulsory education. But tribal communities, and anthropologists, have the skills to read these documents with care, reading with the grain for directly stated information, and reading against the grain, between the lines, to interpret the silences for what is missing. Moreover, these documents can help in the critical assessment of how we are determining "truth" at this difficult moment. We can juxtapose writings from the past with more recent statements by school survivors, some of whom emphasize the positive benefits of Indian boarding schools, while others describe traumatizing experiences. The contrast between these memories and opinions, and the complications it causes, will need to be more thoroughly understood when Indigenous voices are used in the search for justice in any future Truth and Reconciliation proceedings (Million 2000; Colwell-Chanthaphonh 2007; Harkin 2016).

As Indigenous scholars are now routinely reminding us, the heart of decolonizing methodologies entails the centering of Indigenous voices in our research, treating them with respect and a sense of responsibility to remember both the stories of painful victimization and the stories of perseverance and survivance that are so necessary for healing today. Boarding school journals will be a valuable source to recover these voices, and information on the context in which they existed, and can serve as material witnesses for a troubled past.

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Digitized Indian Boarding School Journals

Youth's Companion, Tulalip, WA, 1881–1885

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https://archive.org/details/youthscompanionj05boul/mode/2up

Weekly Chemawa American; *Chemawa American*, Salem, OR, 1901–1915. Incomplete.

https://oregonnews.uoregon.edu/

Carlisle Indian Industrial School publications, Carlisle, PA, 1879–1918. Incomplete.

https://carlisleindian.dickinson.edu/

Appendix 1.

Not all Indian boarding schools issued their own publications. This is a partial list of known boarding and residential school journals in the Pacific Northwest (including Alaska and British Columbia) containing information on Indigenous youth as students:

Youth's Companion (Tulalip Mission, WA, 1881–1885),
Puget Sound Indian Guide (Puyallup Indian School, WA, c1901–1904),
Around the Camp Fire (Sacred Heart Mission, DeSmet, ID, 1929–1930),
Indian Citizen (Forest Grove/Chemawa Indian School, OR, 1884–1887),
Weekly Chemawa American (Chemawa Indian School, OR, 1890s–1981),
The Glacier (Fort Wrangel Tlingit Training Academy, AK, 1885–1888),
North Star/Thlinget/Verstovian (Sitka/Sheldon Jackson School, AK, 1887–1971),
Northern Light (Fort Wrangel Presbyterian Missions, AK, 1893–1902),
Eskimo Bulletin (AMA Mission School, Cape Prince of Wales, AK, 1895–1902),
The Mid-Night Sun (Cape Prince of Wales Government School, AK, 1905–1906?),
Northern Light (Unalakleet Eskimo School, AK, 1913–1917),
New Native (Hydaburg Indian School, AK, 1919–1920?),
Institute News [within Wrangell *Sentinel* newspaper] (Wrangell Institute, AK, 1933–1955),
All Hallows in the West (All Hallows School, Yale, B.C., 1899–1911),
The Crusader (St. George's School, Lytton, B.C., 1925–1931),
Coqualeetza Annual (Coqualeetza Indian School, Sardis, B.C., 1914–1934).

This is a partial list of Indian boarding school journals published outside of the Pacific Northwest, but which contain information on Indigenous students from the Northwest:

The Arrow/Endle Keatoh Toh/Indian Helper/Red Man, and other titles (Carlisle Indian Industrial School, Carlisle, PA, 1879–1918),
The Native American (Phoenix Indian School, Phoenix, AZ, 1900–1931),
Sherman Bulletin (Sherman Institute, Riverside, CA, 1907–1984),
The Indian Leader (Haskell Indian School, Lawrence, KS, 1897–present),
Southern Workman (Hampton Normal and Agricultural Institute, Hampton, VG, 1872–1939).

A Life of Labor: The Socio-Politics of Pandemic Living with Chronic Illness

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Abstract

The threat the COVID-19 pandemic presents to chronically-ill individuals is multiplex: economic precarity, bodily risk, and biopolitical violence endanger livelihoods. Using multi-modal data gathered from a series of semi-structured interviews, this research explores the various modes of livelihood labor enacted by the chronically-ill in the intermountain U.S. during the COVID-19 pandemic. Results demonstrate how chronic labor extended well beyond the market: increased vulnerability engendered social labor through "mental contact-tracing" and the hyper-regulation of social and clinical landscapes. Chronically-ill participants politicized their own livelihoods in response to the institutional disregard for chronic illness within pandemic policy. Moreover, the liminality that exists as we transition into the "post-pandemic" provides an opportunity to reflect on disproportionate risk. While many have progressed past the pandemic into socioeconomic renewal, biological, socio-political, and economic inequity continue to threaten the livelihoods of vulnerable populations.

Introduction

Reaching a global "critical moment" (Han 2012) in late 2019, the COVID-19 pandemic emerged, acting as an incendiary event that severely exacerbated pre-existing socioeconomic inequity. It quickly became evident that government preparedness failed to account for the multidimensionality of the pandemic: specifically, the economic, social, and health inequalities that compounded the virus' effect, amplifying the adverse experiences of marginalized populations. While some nations implemented immediate lockdown policies that sacrificed economic prosperity in order to protect population health (Ecks 2020b), many western states favored a neoliberal approach initially, prioritizing a free market (Han 2012). However, with rising mortality rates, the United States and United Kingdom governments were forced into a belated lockdown (Ecks, 2020b; Tooze 2020, 2021). The delay was costly. Inflation and job precarity threatened livelihoods across social, cultural, and economic divides, while infirmity and death threatened chronic lives. Restricted access to care (Manderson and Wahlberg 2020), increased risk and exposure (Ecks 2020a; Manderson and Wahlberg 2020; Sabatello et al. 2020; Fonesca and Fleischer 2021; Topriceanu et al. 2021), and pre-existing socioeconomic precarity (Booker et al. 2020; Witteveen 2020) compounded the pandemic's effect on marginalized communities' lives. The chronically ill experienced overlapping forms of COVID risk through bodily, socio-economic, and political vulnerabilities.

Background

While the impact of COVID-19 has been immense, it has not been uniform. COVID-19's multisystemic pathway of infection is much more likely to cause protracted symptoms or fatality in hosts with pre-existing chronic health conditions (Ecks 2020; Manderson and Wahlberg 2020). Pre-existing health conditions are compounded by the socioeconomic and political context they are situated within (Manderson et al. 2016b). The pandemic operates within this intersection of vulnerabilities, creating multiple forms of risk for these communities. Such risk comes in the form of increased infection, mortality rates, and ever-increasing long-term health effects. One of the strongest predictors for COVID-19 mortality is the existence of chronic illness prior to viral contraction; subsequently, socioeconomic disadvantage is highly correlated to co- or multimorbidity (Ecks 2020b). In this way, the pandemic has demonstrated Weber's concept of *Lebenschancen*; quality and access to care is dictated by one's "economically determined social class" (Grøn and Meinert 2017:169). The working and living environments of low socioeconomic status, as well as restricted access to adequate healthcare reduce positive health outcomes. Economic poverty both precedes and follows health poverty: a process that increases the risk posed by COVID-19 immensely.

'Livelihoods' is used herein simply to refer to the various ways in which individuals and households make a living (Miller 2019). Livelihood health determines wellness far beyond economic security, for the economy is socially-embedded (Granovetter 1985). Rather, as Ethan Miller eloquently articulates it, an economy is "neither a force nor domain, but rather a relational space of sustenance, a normative aspiration built around the specificity of people and place. It is a composition of habitat, the enactment of livelihoods" (2019:150). The COVID-19 pandemic affected many livelihoods across the globe, but the United States' economy was hit critically, the impact of which was felt most severely by populations with pre-existing vulnerabilities (Booker et al. 2020; Fonesca and Fleischer 2021). Pre-pandemic figures establish that individuals with chronic illness are more likely to experience poverty than their healthy counterparts (Jan et al. 2012; Manderson et al. 2016b; Booker et al. 2020). Specifically, chronic illness is associated with a

significant reduction in weekly working hours (Booker et al. 2020) and increased capital spent on medical treatments. In general, exploratory research, one interviewee discussed the ramifications of having a chronic condition upon their working capacity:

> *CY (Author): Were there any days where you had to stay home because of your chronic illness?*
> *SL: Absolutely. I actually take quite a bit of sick days for my chronic illness. Sometimes getting to work is just not possible.*

Factoring in the pandemic, with precarious job security and threat of exposure, the stress these communities experience is exacerbated. SL continued, discussing the stress their combined paid time off (PTO) and sick leave induced amidst COVID 'scares': "what will happen if I run out of time?" (00).

Just as illness and socio-economic position (SEP) interact to synergistically produce health outcomes, so too do illness and sociopolitics (Fonesca and Fleischer 2021). COVID risk and infection interacted with the United States' political response, manifesting in particular forms of ill health. In contrast to the HIV/AIDS pandemic wherein men-loving-men (MLM) populations suffered disproportionately, or the twentieth century Spanish Flu pandemic, wherein the disproportionate mortality rate amongst the labor force caused economic collapse, the COVID-19 economy is resulted from the early triumph of capitalism over biopolitics, followed by a left turn into radical biopolitics after the health system was overrun. The neoliberal status quo was disrupted by the extreme stress placed on the healthcare system, with the U.S. government turning to radicalized biopolitics in order to preserve population health.The negative impact radical biopolitics has on economy led to a fast return to neoliberalism (Ecks 2020a). However, in Ecks' great battle of neoliberalism versus biopolitics, the violence inherent in biopolitics is left unaddressed (2020a). Biopolitics governs life through the protection of the social body by enacting a biosocial hierarchy, through which the governing body 'lets live or lets die' individual bodies, based on their socioeconomic value (Foucault 2000; Rouse 2021). The United States Government's deferred biopolitics compounded the bio-economic vulnerability of marginalized communities. This type of pandemic biopolitics does not serve the population as a whole, but rather engenders a hierarchy of who deserves to live (Foucault 2000; Rouse 2021). In this way, biopolitics in the time of COVID converges with necropolitics (Mbembe 2019; Fonesca and Fleischer 2021). Necropolitics was conceptualized to address more contemporary forms of control over life, death, and the in-betweens (Mbembe 2019) that traditional biopolitics (Foucault 2000) fails to. The ways in which chronic illness and COVID-19 intersect, including Post-COVID Conditions and Long COVID, influenced by State policy, are examples of this.

Not only did the United States' neoliberal policy coincide with biopolitical policy in targeting pre-existing socioeconomic vulnerabilities, neoliberal policy created pandemic vulnerability at the state-level, as economic globalization and the privatization of healthcare hobbled transmission-reduction responses. Globalization, and its spread of neoliberal and economic austerity policies, reduced the response capacity of its governments (Navarro 2020). Unregulated globalization increases international mobility-of both labor forces and commodities, thereby increasing communicability, while significant cuts in social services increase popular vulnerability to contraction, communicability, mortality, and economic crisis (Navarro 1989, 2020). The fluctuating policy the United States enacted in response to COVID-19 demonstrates the varying logics that dominated politician and population opinion during the pandemic. Such logic is influenced by "tempo," and allows "for the incorporation of new information that is constantly being added,

embodied, and acted upon in concert" (Cartwright 2013:252–253). In this way, the flow of time, with its associated sociopolitical, biological, and economic movement, informed U.S. pandemic policy. The industrialized and privatized healthcare system in the United States was unprepared for the preliminary influx of COVID-19 patients (Navarro 2020; Geyman 2021). From the outset of the pandemic through early 2020, the Trump administration employed a "negationist" stance (Abutaleb et al. 2020; Fonesca and Fleischer 2021) in order to preserve the free market economy in the U.S. The public were told that "the productive workforce would acquire immunity" (Tooze 2020) by retaining socioeconomic normalcy. However, when the human and economic consequences of the pandemic's death toll could no longer be negated without increasing risk, the U.S turned to radical biopolitics, which resulted in a brief, yet severe economic recession. This recession, while short-lived, acted upon pre-existing economic vulnerabilities. Mid and upper-class populations experienced mild economic stresses while livelihoods with pre-pandemic precarity were threatened more severely (Booker et al. 2020; Fonesca and Fleischer 2021).

Study Design

Subjectivity, often problematized scientific disciplines, is actually *necessary* in anthropocentric pursuits, as the human experience is, by its very nature, subjective. Thus, a phenomenological study is necessary in order to become versed in the lived experiences of the socially vulnerable, and to accurately evaluate how best to ameliorate the adversity the pandemic has created for these individuals. A core goal of this study was the thick description (Geertz 2008) of the lived experiences of chronically ill individuals. As an underrepresented and underserved population, it was imperative that participants retain agency over their narratives. As such, methods were established with phenomenology in mind.

The sample for this study was defined by the existence of one or more chronic illnesses, an age within the range of eighteen to twenty-nine years, and residence within the U.S. intermountain West. Fulfillment of these demographic requirements were established solely through self-report. Study collaborators were recruited through a combination of networking and targeted advertisement. Contacts at on-campus resources, such as the Counseling Center and Disability Services, as well as local medical facilities that could inform their clients of the research opportunity were sent study and researcher's contact information.

As the first in a series of interviews, collaborators participated in a brief, semi-structured interview over Zoom. Interview one focused on gathering oral data from interviewees regarding their overall experiences during the pandemic, with an emphasis on economic security and health outcomes. During this interview, a general interview guide was used in order to elicit interviewee narratives. The interview guide addressed interviewees' livelihoods through proxies regarding occupation and workplace COVID hygiene regulations, ability to maintain housing, ability to attain necessary medications/medical equipment, and access to needed care. Ethnographic interviewer's notes were taken during each interview, and audio recordings were transcribed using Otter.ai programming. After transcriptions were completed, audio recordings were deleted to ensure collaborators' anonymity and privacy. The resulting anonymized transcripts were coded qualitatively using the Hyper Research program, implementing an integrated inductive-deductive technique (Fereday and Muir-Cochrane 2006). Codes were generated from interviews as well as from the author's theoretical approach. Intercoder reliability (Schensul et al. 1999) was ensured, as all data was coded by the Primary Investigator, the author.

Following the completion of the semi-structured interview, interviewees co-created interview two: the ethnographic timeline. Interview two included the researcher-participant partnership constructing an "'ethnographic timeline." Prior to meeting for interview two, participants were sent

instructions for media discovery. Participants, following these instructions, curated a file of multi-modal media that was either created or consumed during the pandemic, defined for this study's purposes as between the years 2020 and 2022. During the second meet, the collaborators' media files were presented using screenshare programming, discussed, using photo elicitation methodology (Wentworth 2017), and then placed in chronological order along a template timeline. Using interviewees' verbal descriptions, media files, and ethnographic observation, the "ethno-timeline" was constructed to demonstrate chronically-ill individuals' temporal experience of the pandemic.

Each timeline was constructed using the online software, *Sutori.* Images, primarily in the form of social media screenshots, memes, and cellphone photographs, were ordered chronologically and assigned brief descriptions. Videos were significantly less common, but Tik Tok videos and other consumed media were arranged in the same method as still images. Other forms of media were arranged on a case-by-case criteria. For example, *Ethnotimeline 004*: *"Vel"* displays a Spotify link to artist Orville Peck's song, "Roses are Falling" adjacent to a screenshot image of participant 004's Spotify Wrapped (an annual summarization of users' type and quantity of music streamed), wherein the aforementioned track is listed as "#1" in "Your Top Songs" (004). This particular artist is significant to this individual's experience of the pandemic: not only was listening to his music comforting during quarantine, and the associated socio-emotional turmoil, participant 004 and their partner were forced to skip attending a concert due to contracting COVID (004). Each piece of media is matted on a white background, while the socio-politically significant landmarks identified by the author are layered in red. Broad markers for culturally-significant emergences of COVID variants are displayed on a green background. This allows for the visual-schematic juxtaposition of institutional versus individual experiences of the COVID-19 pandemic.

Two notable limitations affected this study. First, due to limited time and resources, the sample size of this study reduces its impact. Results, while providing rich, ethnographic data, are not accurately extrapolated to broad populations. Second, the demographics collected from participants demonstrated a lack in ethno-racial diversity. While gender and sexuality were diversely represented, participants were primarily white. In this manner, further research with non-white chronic individuals in the Intermountain West-and beyond- is needed.

Analytical Framework

Critical medical anthropology's "syndemics" model (Singer 2009) provides a basis for understanding the relationships between health, disease, and social environment. "Syndemics" (Singer 2009) addresses lived reality as a product of the interaction between biological and social forces. Within the scope of this study, the former focuses on the pathogenic properties of chronic illness and COVID while the latter centers labor economics. In tandem, the two interactionist theoretical perspectives provide an analytical framework suitable for an inherently biosocial issue. Social reproduction theories attempt to explain the maintenance of the modes of production, and its workforce (Marx 1867; Vidal et al. 2018; Cashbaugh 2021). The focus of this study, in regard to social reproduction, is on the reproduction of labor power within the U.S. pandemic economy. The increasing neoliberalization of the U.S. has created what Fraser calls the "social-reproductive contradiction" (Fraser 2017). The forms of subsistence required in order to access labor power are being deprioritized, which impacts the reproduction of labor power in the working-class populations (Marx 1867; Fraser 2017; Cashbaugh 2021). The pandemic threatened social reproduction. After an initial crisis for U.S. neoliberalism caused by "the problem of 'unexploitability'—the inability to exploit the labour-power of a significant share of the population—it has not been a crisis for all

and has not undermined the core working principles of neoliberalism" (Mezzadri 2022). The U.S.' neoliberalization of healthcare, a necessary form of subsistence upon which labor power is founded, created structural vulnerabilities that led to the loss of labor power through the mass infirmity, mortality, and quarantining of vulnerable individuals (Marx 1867; Navarro 2020; Cashbaugh 2021). Traditional social reproduction theories fail to fully address "pandemic neoliberalism," the intensification of neoliberal logics that resulted from the pandemic (Mezzadri 2022); "It is not a case that the pandemic, whose deadly effects were amplified by neoliberalism, generated a hike in the incomes of the super-rich; a fall in income for labouring classes; and a deepening of economic, social and existential inequalities," but that the pandemic exacerbated these symptoms of neoliberalism (Mezzadri 2022). Pre-existing neoliberal logics worsened the pathogenic properties of COVID while the pandemic deepened neoliberalism in the U.S. (Mezzadri 2022). The worsening socioeconomic inequity the U.S. is currently experiencing originates with capitalist logics, not the pandemic. However, the pandemic's effect on the socio-economy necessitates new ways of thinking about economic inequity. Through disembedding workers from social networks (Granovetter 1985), dispossessing labor power (Cashbaugh 2021), and deprioritizing subsistence (Marx 1867; Cashbaugh 2021), the pandemic deepened neoliberal logics.

Upon this shifting stage, a class struggle takes place. The chronically ill grapple with the policymakers within governing bodies such as the Center for Disease Control (CDC); local, state, and federal governments; as well as their employers. The conflict between the chronically ill and policymakers leads to social "penetrations" (Willis 1981) wherein the state's devaluation of chronic lives are revealed to the chronically ill. In this way, "penetrations" serve the chronically ill both to unmask the "conditions of existence" as chronic laborers as well as to act as a form of resistance (Willis 1981:3). However, "the tragedy and the contradiction is that these forms of 'penetration' are limited, distorted, and turned back on themselves, often unintentionally, by complex processes ranging from both general ideological processes" (Willis 1981:3). I utilize this conceptualization of "penetrations" to two ends: first, in order to demonstrate how neoliberal logics pervaded pandemic policy and culture, which led to the chronically ills' implementation of pandemic counterculture. Second, to explain how chronic "penetrations" exposed institutional biopolitical (Foucault 2000) and necropolitical (Mbembe 2019) logics and protected chronic livelihoods from pandemic risks; yet, "penetration" simultaneously re-embedded chronic livelihoods within the neoliberal capitalist enterprise that predicated the exploitation of their labor-power to begin with. In doing so, I address the processes through which chronic labor was "subjectively understood" and "applied objectively" (Willis 1981:2).

Willis argues that penetrations are limited by one's own submersion in their culture, thereby unable to evolve into radical class consciousness (1981). Moreover, these limitations engender freedom by affirming the working-class identity and empowerment through rebellion, eliminating the need and possibility for change (Willis 1981). However, in this study, I employ a model of "penetrations" that does not limit "penetrations" to failed revolution and the maintenance of the status quo. This neo-traditional model refocuses dialectical materialism; conditions of life are produced through the contradictions in class relations and labor (Marx 1867). Chronic realities during the pandemic are determined by "penetrations" and their interactions with both chronically ill and policymaking entities. Therefore, "penetrations" are not simply coping mechanisms enacted in order to avoid class consciousness, but radical acts of micro-revolution through which the chronically ill transform their labor-power. This model is further supported by the expansion of "penetrations" into the digital domain. Social media provides working class populations with powerful tools for unionization, resource dissemination, and outreach. This can reduce the power employers and others with ownership over the means lever over their

employees in order to reproduce the capitalist structure. So, in this way, digital "penetrations" do hold significant potential for radical class consciousness (Marx 1867; Willis 1981). It is from this conceptualization of labor, political power, and class that the *ethnotimeline* methodology arises. Digital, multi-modal data regarding enactments of chronic labor-power, visual representations of "penetration," and chronic perceptions of "pandemic neoliberalism" (Mezzadri 2022) are integrated in order to portray the lived experience of pandemic living with chronic illness. Participants' consumption and recirculation of political messages on social media is one example of digital 'penetration.'

Findings and Discussion

The COVD-19 pandemic became highly politicized in the United States. Mask mandates, quarantines, and vaccine compliance became politically-charged. Pandemic practices became political practices.

> *"It was very political. You could look on a map and you could see where people were getting vaccines and it was very much politically based. So, there was a big blue circle...where people were getting vaccinated, and everywhere else out of that people who are not getting vaccinated. Right. And as far as values go, I think people who have people in their life with chronic illness did value it more. But I think unfortunately, it became construed with political values, which is so fucking stupid" (004).*

Pandemic practices became political practices. Below some of the ways those with chronic illness were impacted by these socio-politics are reviewed.

Hyper-Regulation of Socio-Medical Landscapes

Adjacent to risk management, a common political mechanism for protecting livelihoods among participants was the extreme regulation of the landscapes they occupied. The social and medical environments, in particular, were hyper-regulated in order to mediate risk. Grey described to me a division amongst their working community, between those who were playing it safe and those who denied the pandemic's threat. Grey limited their social activities outside work to a group they trusted, that valued their safety:

> *"Yeah, I mean, everyone that I spent time with outside of work, was very responsible, and making personal sacrifices as well as just trying to be as safe as they possibly could for themselves on their families" (001).*

Grey regulated their social environment by excluding certain individuals and including others, on the basis of individuals' and their own social groups' socio-political practices.

In order to protect their livelihood, Vel conducted a similarly exclusionary sociality during the pandemic. Vel described to me a specific manifestation of social hyper-regulation: mental contact tracing:

> *"I have been doing contact tracing mentally, in my head, the entire pandemic. Like, who's hanging out with who, like, before I would hang out*

> *with any of my friends. I'd be like, hey, what have you done the last couple of weeks. And I felt like an asshole for because a lot of people were just ready to be like over it. But I was pretty uptight about who was in my bubble and who was in their bubble" (004).*

Vel's "mental contact tracing" is not as odd or uncommon as it may sound. As readers, many of you will have received or know someone who received a call from the local public health center: a contact tracer investigating potential routes of transmission. Chronically ill individuals were conducting similar investigations inside their minds. In the face of increased vulnerability and limited institutional regulation of shared landscapes, the chronically ill individuals must take on an increased socio-political workload in order to protect their livelihoods and health (Mattingly et al. 2011; Manderson et al. 2016a). Mental contact tracing and restrictive sociality in this way demonstrate pandemic counterculture (Willis 1981). Popular politics and culture characterized pandemic hygiene as anti-American; masking stifled freedom, quarantining destroyed the market, and so on. In this way, pandemic safety practices became a form of cultural resistance for chronic individuals. Masking, distancing, and working from home (WFH) served as "penetrations" to protect chronic livelihoods while also contending popular pandemic culture's depreciation of chronic lives (Willis 1981).

Participants enacted similar hyper-regulatory mechanisms within clinical landscapes. Chronic illness management often include non-pharmaceutical treatments, which are often delivered by intermediaries through the mail system. When the pandemic hit, supply chains were disrupted. Which resulted in delays, and as James discussed, even companies' inability to fulfill prescriptions. Cora talked about experiencing delays in receiving her treatments. Cora responded to these dangerous delays by ordering her supplies a week earlier than necessary in order to receive her treatments when she needed them (006). Navigating the labyrinth of insurance networks, healthcare providers, and pharmacy fulfillment is nebulous on the best days; with the stress the pandemic placed on the U.S.' delivery industry, the medical supply system began to fail. Vel receives the bulk of their supplies through mail couriers. Vel and I discussed the pandemic's effect on mail delivery, which proved enlightening for me. Vel's response to their medical supplies' delay was to stockpile:

> *Vel: I had been doing, yeah, like mail delivery before the pandemic. And I also am in a fortunate position where I had a stock pile of supplies beforehand. So even in times where like if it would be a week or so late, it didn't really affect me. Fortunately, yeah.*
> *CY: Okay, and your stock pile, was that something that you consciously did or was that like, a reassurance for the pandemic, or it just kind of happened that way?*
> *Vel: It was intentional (004).*

Vel continued, describing to me how they had to over-request the quantity of their supplies from their provider in order to create an emergency supply (004). In doing so, Vel avoids relying on the various supply and delivery intermediaries to provide their necessary treatment. Comparatively, Cora's preemptive ordering compensates for delayed delivery. Both these mechanisms protect Cora and Vel from the threats posed by "pandemic neoliberalism" (Mezzadri 2022), by circumventing treatment scarcity.

Grey, Vel, and Cora protected their livelihoods by enacting regulatory mechanisms within their socio-medical landscapes. Even with these precautions, participants contracted COVID. When I asked Cora about how she felt regarding her community's pandemic safety practices, she was reticent to outwardly admonish, but emphasized her personal choices.

> *Author: Do you know if your community had masking mandates for most of the pandemic?*
> *Cora: Yes, they did.*
> *Author: And do you feel like they were followed by the majority of your community?*
> *Cora: For a little while, and then they started not being followed so much after maybe a year.*
> *Author: Okay. And you know, like, how did that make you feel, you know, having chronic illnesses. Do you feel safe with that or not so much?*
> *Cora: I still try to mask up whenever I can. And I don't really go out so much anymore, so I'm not really as safe as I probably could be. But I do my best to just minimize as much chance as I can (006).*

In this way, Cora focused on variables she could control: her own behavior, the environments she entered. Contracting the virus, even with all the hyper-regulatory mechanisms they had enacted, was upsetting for Vel:

> *I was pretty upset because I work from home. I was—I'm probably one of the more careful people that I know, in my community, and I got it because my partner has to go to work (004).*

Cora's micro-level approach focuses on individual responsibility while Vel's macro approach assigns culpability at the institutional-level. Despite the hyper-regulation of their environments, participants were unable to control their entire communities' pandemic practices, indicating structural vulnerability.

Politicized Livelihoods

Hyper-regulation of socio-medical landscapes was enacted in order to protect individual livelihoods; however, livelihoods were enacted themselves. "Pandemic neoliberalism" (Mezzadri 2022) became a domain wherein processes of precarization occurred under capitalism, and capital and state structured access to livelihoods (Menon and Sundar 2019). Bodies then became political centers of negotiation between institutions, individuals, and pathology. The institutional neglect for chronically ill individuals led to the politicization of chronic livelihoods.

> *"A lot of people [were] floating around survival of the fittest mentality that only emphasize the word that the only the elderly and immunocompromised would be at risk, as if that is not an issue or concern for the broader community" (002).*

All participants felt as though information disseminated by the CDC, their local public health, and employers were deficient; messages circulated lacked significant coverage of the chronically ill as a population, while trivializing marginalized populations' disproportionate risk, spreading the message that **only the vulnerable are being killed by COVID, and that is okay** (coding notes).

> *"I remember the big controversy of when there was a statistic being spouted that it was like people with comorbidities are four times as likely to contract, to have COVID complications. So, you don't need to worry about it was the public health message; it was like don't be scared of COVID, only people who are already ill are going to die... super fucked up. But there really wasn't information that was like, this is how it's going to impact this illness specifically, and there wasn't really much else done that was like, oh, because our community has people with comorbid conditions, or it has people who are elderly, like we should be more careful. It was definitely more geared towards people who were 'healthy'" (004).*

Vel responded to the inattention of chronic lives by becoming a committed media activist. They used their social media audience to increase awareness of the chronic experience of COVID-19, posting images and infographics. Further, Vel turned the chronic body into a political body: by continuing to mask and practice COVID hygiene beyond the general population, they prompted discussion and sent a political message to their community regarding the lives of the chronically ill (004). Here, Vel demonstrates an extension of "penetration" (Willis 1981) beyond the current model; Vel is engaging with resistance and recognition of chronic neglect; however, Vel is not reaffirming their own exploitation. Diverging from Willis (1981), Vel's efforts do have potential to turn into radical class consciousness. Rather, Vel, and their audience, embody class consciousness through their circulation of political materials. More, Vel is enacting a sort of social reproduction through caring for the chronic community, digitally.

Clem discussed how all the unknowns adding up contributed to pandemic fear:

> *"I guess heightened fear of what COVID looks like in chronically ill body is unknown, understudied. Fear of the unknown, you don't know if it's gonna affect you more drastically, if you're going to be out of work for longer? Or if you're just going to be hospitalized, or what?" (002).*

Fear of SARS-CoV-2 affected individuals across demographic divides; however, it was amplified within populations with comorbidities. The pathways through which COVID pathogenically interacted with pre-existing susceptibilities were uncharted, which veiled the biological threat and its associated socioeconomic ramifications. Chronically ill individuals, in this way, were forced to reconcile increased threats with reduced data. While the lack of scientific knowledge cannot easily be remedied, public health, employers, and federal organizations can provide more chronically-centered informational materials.

James, when I asked how he felt about his at-the-time employer's pandemic policies, presented his perspective on why vulnerable groups like the chronically ill were disregarded by institutional policy:

> *"I also think that came with what position of power they were in, because people making policy and regulation for COVID protocol and*

> *responsibilities weren't necessarily people who had to follow those themselves. And so the people enforcing that really didn't have an understanding... We understood things and acted differently" (007).*

Higher-ups created company policy regarding the pandemic: paid or unpaid leave, on-campus masking mandates, WFH opportunities. However, these individuals' experiences of the pandemic were mitigated by differential resource access and proximity—in short: power. Individuals, like James, who were working in sub-managerial positions experienced pandemic risk more viscerally. The policy implemented by managers and owners, and its associated efficacy and security, became embodied by workers. Such imbalances in power between populations with wildly different pandemic experiences spurred the politicization of chronic livelihoods. Chronic labor-power, within livelihoods, were enacted in response to political inattention (Marx 1867; coding notes).

While discussing his experience of COVID, Clem posed an interesting point on the politics of pandemic vulnerability. While Clem by American Disability Act (ADA) standards has a chronic illness and disability, the CDC had not categorized his illness as vulnerable to COVID-19.

> *"I had a longer recovery period than most. But I mean, it's hard to say whether that's just due to the strain I had, or a lot of other factors; it's hard to say if it's due to being chronically ill. My illness is not technically under an immune compromised subset by the CDC" (002).*

By stipulating what type of illnesses are vulnerable to COVID-19, the CDC further politicizes the chronic body. Despite experiencing protracted symptomology, Clem's access to vaccines and care were limited because he was not vulnerable enough, or in the right manner, according to institutional regulation. The chronic body becomes a political site through the interactions between and amongst institutions, environment, and the "body itself," as it is "politically inscribed and is shaped by practices of containment and control" (Brown and Gershon 2017:1). U.S. pandemic policy enacted body politics, "subjecting the body to systemic regimes—such as government regulation," maintaining hierarchal survival amidst COVID (Brown and Gershon 2017:1). In this way, the pandemic engendered embodied political responses. The protective mechanisms implemented by chronically ill individuals, like hyper-regulation, are subversive forms of resistance against U.S. body politics.

The rate of success or failure of these "penetrations," hyper-regulation, environmental risk management, politicized livelihoods, cannot readily be determined. The complex nature of "penetrations" (Willis 1981) as forms of resistance, recognition, and conformity, as well as the novelty the pandemic introduced into social reproduction, complicates qualifying outcomes. Vel's hyper-regulation succeeded in revealing their social conditions, yet failed to protect them from contracting COVID (004); Grey's avoidance of care during COVID successfully protected their health from infection, but limits social reproduction of labor-power (001), which will ultimately affect their livelihood negatively within the capitalist society (Fraser 2016; Cashbaugh 2021). As such, the role of "pandemic neoliberalism" (Mezzadri 2022) in shaping chronic experiences is undeniable: care, labor and livelihoods, and politics were all influenced by neoliberal logics and the "social-reproductive contradiction" (Fraser 2017). The inherent contradictions and interactions within capitalism generate realities; the conditions of life are produced through the contradictions in class relations and labor (Marx 1867), while chronic realities during the pandemic are determined by "penetrations" and their interactions with both chronically ill and

policymaking entities (Cashbaugh 2021). The processes within "penetrations"—interactions between resistance, identity affirmation, and class consciousness—produce chronic social conditions (Marx 1867; Willis 1981; Cashbaugh 2021). Moreover, these social conditions interact with biological processes—interactions between pathogenesis, chronicity, and multimorbidity—to produce the lived experiences of the chronically ill (Singer 2009).

Conclusions

The threats, obstacles, and infirmity experienced by participants during the pandemic were entirely idiosyncratic: Each individuals' bodily experience of illness from the SARS-CoV-2 virus was the result of localized interactions among pathology, biology, and social environment (Lock and Nguyen 2018), which were compounded by the phenomenological products of interactionism among localized institutions, policy, and labor (Marx 1867; Tsing 2011). While each experience remains unique, barriers to health shared among participants demonstrate structural deficiencies, that if left unaddressed present infrastructural vulnerabilities for the future. For, "it is neglected people who have neglected diseases, and this social problem cannot easily be addressed by vertical biomedical interventions. Indeed, top-down delivery mechanisms are as likely to reinforce power relations as to undermine them" (Manderson et al. 2016b:141). The pathogenic and political products of COVID and chronic illness, as long as they remain neglected, pose a threat to the livelihoods of marginalized populations, and therefore to broader social integrity.

Finally, the structural violence enacted by ignorant policy implementation necessitates that we question our social, economic, and political priorities. The impacts of COVID-19 upon chronically ill populations demonstrates a tiered chronology of violence. First, the virus itself threatened vulnerable populations through pathogenic means; increased risk of contraction, severity, and mortality rates posed bodily risks (Ecks 2020; Manderson and Wahlberg 2020). Next, pandemic politics created structural vulnerabilities within the U.S. healthcare system, which longitudinally affected chronically ill individuals disproportionately; initial neoliberal priorities increased transmission while biopolitical rhetoric trivialized chronic mortality (Abutaleb et al. 2020; Navarro 2020; Tooze 2021; coding notes) all culminating in reduced health outcomes for vulnerable populations (coding notes). Now, as much of the U.S. enters the "post-pandemic," the chronically ill are left behind to struggle with financial debt taken on as a result of the pandemic; to enact socio-political labor in compensation for institutional neglect; to recover slowly from extended symptomology (coding notes). Chronic lives in the time of COVID are produced by the interactions amongst a web of risk and response enacted by various agents: SARS-CoV-2; U.S. federal, state, and local governing bodies; employers; providers; and patients. Risk and negative response mechanisms can and must be mitigated, through critical research and informed policymaking.

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76th Northwest Anthropological Conference

RENEWAL

April 12-15, 2023
Centennial Hotel, Spokane, WA

Hosted by

EASTERN WASHINGTON UNIVERSITY
start something big

Archaeological & Historical Services
AHS
Eastern Washington University

Theme: Renewal

Renewal has several definitions that are meaningful for the Northwest Anthropological Conference (NWAC). Perhaps the most obvious connection to the concept is the timing of the meeting in the spring of each year, during the season of new life. In 2023, we also are returning to an in-person format after a long period of distance due to the COVID-19 pandemic. Our venue is the recently remodeled Centennial Hotel. We will gather together in Spokane, which has also emerged from the pandemic with a downtown core of restaurants and businesses that have a greater number of local owners than we have known in decades. The Northwest Anthropological Association (NWAA) has used the past few years to turn a corner as well with a new focus on equity and representation. We look forward to bringing people together in 2023 with a focus on the future of anthropology, and recognition of the importance of change and growth. We are pleased to welcome the members of our society to Spokane for the first in-person NWAC since 2019.

Thank you for supporting the Northwest Anthropological Conference.

Northwest Anthropological Association

PROGRAM

76th Northwest Anthropological Conference

April 12 – 15, 2023

Centennial Hotel
Spokane, Washington

CONFERENCE COMMITTEE AND VOLUNTEERS

Co-Chairs
Brian Buchanan
Christopher Casserino
Christopher Noll
Julia Smith

Planners
Brian Buchanan
Rene Campbell
Christopher Casserino
Anna Coon
Tiffany Fulkerson
Michelle Hannum
Lindsay Kiel
Jamie Litzkow
Beth Mathews
Kristina McDonough
Keith Mendez
Christopher Noll
Mary Petrich-Guy
Julia Smith

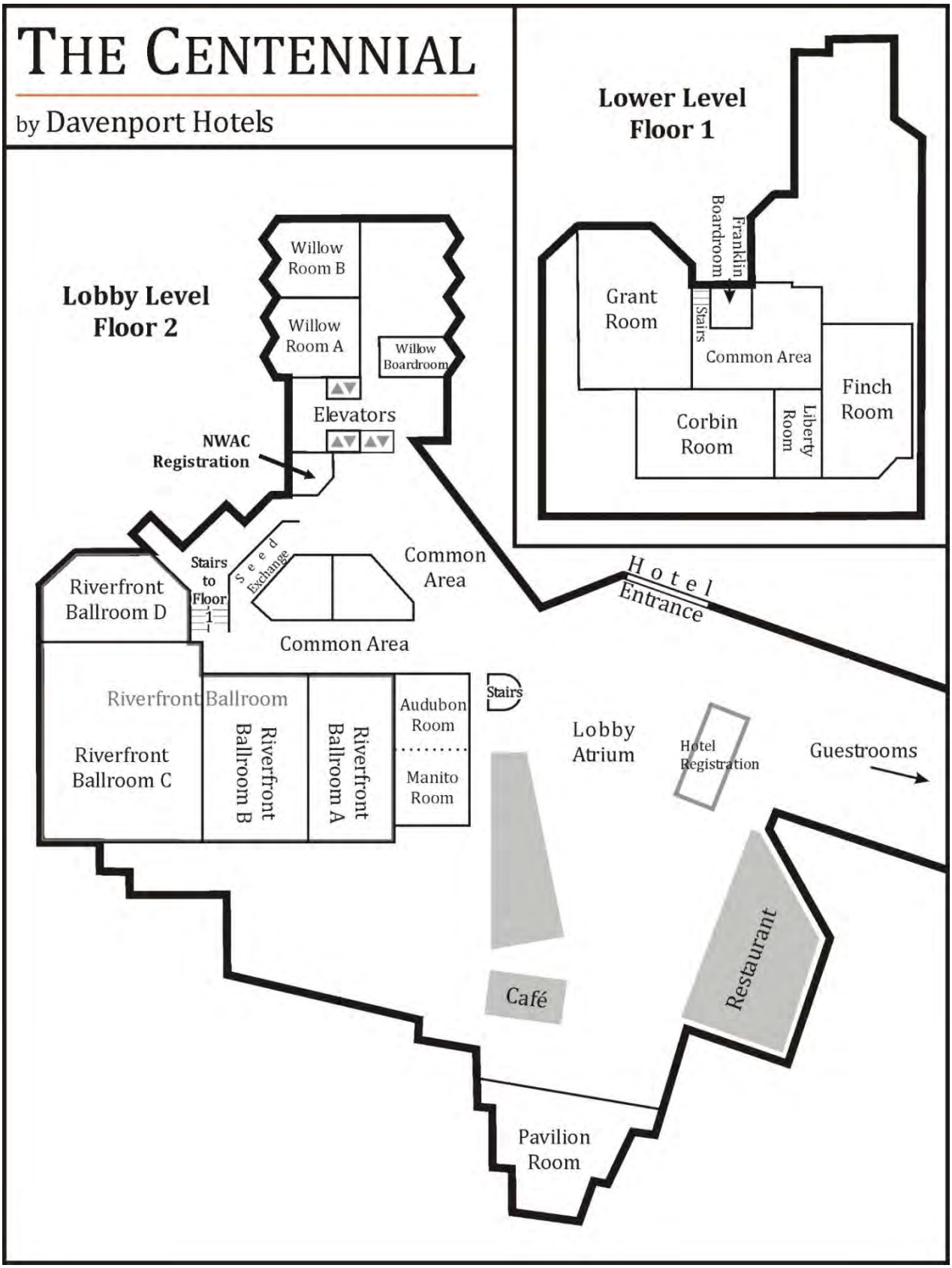
Student Volunteers
Corey Barry
Elizabeth Dyess
Josh Kearney
Aiden Kieffer
Charles Lott
Kylie Pepperman
James Quevedo
Arrianna Smith
Sarah Sprague
Lynsey Wilson

NORTHWEST ANTHROPOLOGICAL ASSOCIATION

President	Christopher Noll
Vice President	Mary Petrich-Guy
Treasurer	Molly Swords
Secretary	Vacant
Last Conference Chair/Member-At-Large	Sydney Hanson

FUTURE CONFERENCE

Portland, Oregon
Building Bridges: Consultation and Community Engagement
March 6 – 9, 2024
University Place Hotel & Conference Center
Hosted by
Warm Springs GeoVisions and
Portland State University


THE CENTENNIAL
by Davenport Hotels
Lower Level
Floor 1
Franklin Boardroom
Grant Room
Stairs
Common Area
Finch Room
Corbin Room
Liberty Room
Lobby Level
Floor 2
Willow Room B
Willow Room A
Willow Boardroom
Elevators
NWAC Registration
Stairs to Floor 1
Seed Exchange
Common Area
Hotel Entrance
Riverfront Ballroom D
Common Area
Riverfront Ballroom
Riverfront Ballroom C
Riverfront Ballroom B
Riverfront Ballroom A
Audubon Room
Manito Room
Stairs
Lobby Atrium
Hotel Registration
Guestrooms
Café
Restaurant
Pavilion Room

ETHICS AND INCLUSION POLICY STATEMENT

The Northwest Anthropological Association (NWAA) is committed to ensuring the safety, well-being, and inclusion of all our members and guests at the Northwest Anthropological Conference and associated events. We request that all participants at our annual meeting, including guests and other attendees, follow our **policy on harassment** as well as verify that they have not been cited or censured under Title IX, by the Register of Professional Archaeologists, or by any other adjudicating body, such as a college or university, nor are they subject to a current restraining or no-contact order issued by a judicial authority that will be violated by attending this conference. Questions about this policy can be directed to the NWAA President.

COVID-19 PREPAREDNESS

We are committed to doing everything we can to making sure that this year's conference is enlightening, enjoyable, and safe. With that in mind, we encourage all attendees to be fully vaccinated against COVID-19 prior to attending the conference.

Host

Eastern Washington University and Archaeological and Historical Services

Proceedings Publication

Journal of Northwest Anthropology

Supporters

Aqua Terra Cultural Resource Consultants
Archaeological Investigations Northwest
Association for Washington Archaeology
Association of Oregon Archaeologists
Central Washington University
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Lower Columbia Research and Archaeology
Oregon Archaeological Society
Paleowest
Plateau CRM
Portland State University
RLR Cultural Resources
WA DAHP
Willamette Cultural Resource Assoc.
WSDOT

Thanking Our Teachers

The 2023 Cultural Resource Protection Summit marks our 16th gathering, and as we continue to consider carefully the health and safety of our Summit family and our Suquamish hosts, it will be our 2nd "hybrid" Summit, as well, with both in-person and virtual participation options. The Summit family is still hard at work fulfilling the mission we have had since the Summit's inception: *The primary goal in organizing the annual Summit has been to facilitate amongst all affected parties an open, frank discussion about the intersection between cultural resources and land use. The Summit is designed to promote collaborative cultural resource planning as an effective means of finding resolution to issues before they escalate into emotionally-charged, divisive, and expensive stalemates or law suits.*

This year, the Summit agenda includes an engaging array of cutting-edge topics that will encourage attendees to remember and thank all the Teachers who have helped us on our path to seeking innovative solutions for today's most pressing challenges to effective cultural resource protection, thereby raising the bar on our practice. Panel discussions, *lightning* talks, and experiential activities will highlight useful examples of the links between CRM and responsible land use. We will also reserve time for great food and general socializing! We are working hard to ensure the 16th Annual Summit will be another valuable boost for our community and a chance to say Thank You to the Teachers who have shaped us and our work.

Please join us in-person at Suquamish, virtually on Zoom, or "hybridly" (a little of both) for two days of engaging conversation and reflection that will help you improve your technical skills while deepening your connection to why we do this work. Then, with renewed commitment, move forward with helpful tools for collaboratively protecting and caring for our irreplaceable cultural resources.

-Registration is now Open! Visit www.theleadershipseries.info for adjusted rates and to register online

-Student Rates available! Email Mary Rossi (mary@eppardvision.org) for information. Be sure to submit a contest form, too (see next item)

-Free Registration opportunity! Go to the Summit website and enter to win a free registration! One award will be made in each of these categories: Tribes, agencies, consultants, and students

THANK YOU TO OUR 2023 SPONSORS TO DATE!

WSDOT · Willamette · Cultural Heritage Partners · Anchor QEA · ESA · Perteet · Granite · Historical Research Associates, Inc. · A&A · Burke Museum · AWA

Event Producer EPPARD vision · PAW · Host The Suquamish Tribe · Paleo West · ACRA · Event Support Jones-N-Jones Web Design | Network Support

MEETINGS

Thursday

Association of Oregon Archaeologists
Thursday April 13, 2023
Time: 4:30 to 6:00 PM
Location: Riverfront Ballroom C

Friday

Northwest Anthropological Association
Friday April 14, 2023
Time 12:00 to 1:30 PM
Location: Pavilion Ballroom

Association for Washington Archaeology
Friday April 14, 2023
Time: 4:30 to 6:00 PM
Location: Riverfront Ballroom C

RECEPTIONS AND SPONSORED EVENTS

Welcome Reception
Wednesday April 12, 2023
Time: 5:00 to 7:00 PM
Location: Skyline Ballroom

Ice Cream Social
Thursday April 13, 2023
Time: 4:00 to 5:30 PM
Location: Floor 2 Common Area

Central Washington University Alumni
Thursday April 13, 2023
Time: 5:00 to 6:30 PM
Location: Skyline Ballroom

Pub Crawl
Association for Washington Archaeology
Thursday April 13, 2023
Time: 6:00 to 10:00 PM
See the AWA Book Room Table for details

NWAC Banquet
Friday April 14, 2023
Time: 6:00 to 10:00 PM
Location: Skyline Ballroom

TOURS

Northwest Museum of Arts and Culture
Group tour of the museum and Campbell House
Capacity: 20
Cost: Free
Date and Time: Wednesday, April 12, 2023; 2:00 PM
Duration 2 hours
Location: 2316 West First Avenue, Spokane, Washington 99201
Website: https://www.northwestmuseum.org/

Downtown Spokane Walking Tour
Group East Downtown Spokane walking tour
Capacity: 40
Cost: Free
Date and Time: Wednesday, April 12, 2023; 4:00 PM
Duration: 1.25 hour
Location: Looff Carousel, Riverfront Park, 525 W Spokane Falls Blvd, Spokane, WA 99201
Website: https://www.google.com/maps/d/u/0/viewer?mid=11d4BGmeZt9Z2kjtRPX-uhKmnbq-tkIve&ll=47.659617634725585%2C-117.41598359999999&z=15

OTHER EVENTS

NWAC Environmental Sustainability Seed Exchange

Join your garden enthusiast colleagues at the first annual NWAC Seed Exchange to score some great plants and new garden friends. On Thursday, at 9 AM we will do a live seed swap in the conference registration check-in area. Attendees can drop seeds off for a passive trade all day Thursday. On Friday we will open the exchange up to all attendees for donation. Donations benefit the NWAA Environmental Sustainability Committee initiatives, one of which is aimed at reducing the carbon footprint of NWAC. Native and heirloom seeds encouraged. Don't forget to pack your seeds!

EMPLOYMENT EXPO FOR CULTURAL RESOURCE MANAGEMENT

The Northwest Anthropological Association is excited to be hosting an Employment Expo. The event is geared towards helping students and early career professionals find entry-level job opportunities within the region's cultural resource management industry. The Employment Expo will be held from 8:30 AM to 5:00 PM on Thursday, April 13 and Friday, April 14, 2023 with focused meet-and-greet events from noon to 1:00 PM on Thursday and 9:30 to 10:30 AM on Friday. Be sure to visit everyone in the Grant Room!

- Antiquity Consulting
- Archaeological and Historical Services, EWU
- Archeological Investigations Northwest (AINW)
- Bonneville Power Administration (BPA)
- Bureau of Land Management, Oregon-Washington (BLM OR-WA)
- Confederated Tribes of the Umatilla Indian Reservation Cultural Resources Program
- Chronicle Heritage (Formerly PaleoWest)
- Environmental Science Associates (ESA)
- Equinox Research and Consulting International (ERCI)
- GeoVisions
- GRAM Northwest
- Plateau Archaeological Investigations
- RLR Cultural Resources
- Stell Environmental Enterprises
- Tierra Right of Way Services
- USFS Colville National Forest
- USFS Umatilla National Forest
- Washington Archaeology Mentorship Program
- Westland Engineering and Environmental
- Willamette Cultural Research Associates

BOOK ROOM

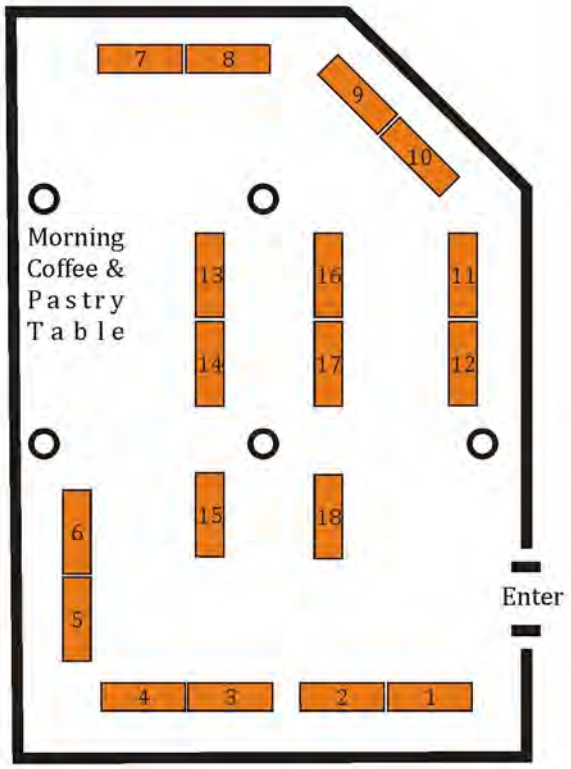
The Northwest Anthropological Conference Book Room is a space for companies, organizations, and conference attendees to learn and network. The Book room will be open from 9:00 AM to 5:00 PM on Thursday, April 13 and Friday, April 14, 2023. Be sure to visit everyone in Riverfront Ballroom D!

- American Cultural Resources Association
- Archaeological Investigations Northwest
- Association for Washington Archaeology
- Association of Oregon Archaeologists
- Journal of Northwest Anthropology
- Northwest Anthropological Association
- AEO Archaeology Screens
- Bureau of Land Management, Oregon-Washington
- University of Idaho Anthropology and History
- University of Idaho Asian American Comparative Collection
- University of Idaho Lithic Technology Laboratory
- Washington Recreation and Conservation Office

EMPLOYMENT EXPO

GRANT

1. Antiquity Consulting
2. GRAM Northwest
3. Archaeological and Historical Services, EWU (AHS)
4. Chronicle Heritage (formerly Paleowest)
5. Plateau Archaeological Investigations
6. Confederated Tribes of the Umatilla Indian Reservation
7. Tierra ROW Services Ltd.
8. USFS - Colville and Wenatchee National Forests
9. USFS - Umatilla National Forest
10. Environmental Science Associates (ESA)
11. Archaeological Investigations Northwest (AINW)
12. RLR Cultural Resources LLC
13. Equinox Research and Consulting International (ERCI)[Thursday]; BLM OR-WA [Friday]
14. Willamette Cultural Resources Associates
15. Stell Environmental Enterprises
16. GeoVisions
17. Westland Engineering and Environmental Services Inc.
18. Bonneville Power Administration (BPA)

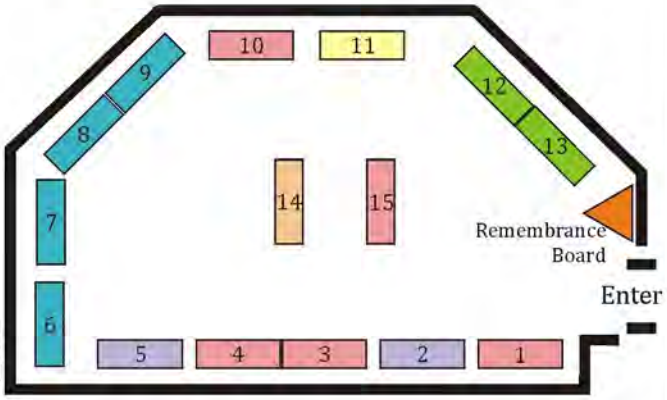


BOOK ROOM

RIVERFRONT BALLROOM D

1. Northwest Anthropological Association (NWAA)
2. Washington Recreation and Conservation Office (RCO)
3. Association for Washington Archaeology (AWA)
4. Association for Washington Archaeology (AWA)
5. Oregon-Washington Bureau of Land Management (BLM)
6. University of Idaho Anthropology and History
7. University of Idaho Asian American Comparative Collection (AACC)
8. University of Idaho Lithic Technology Laboratory
9. University of Idaho Lithic Technology Laboratory
10. Association of Oregon Archaeologists (AOA)
11. AEO Archaeology Screens
12. Journal of Northwest Anthropology
13. Journal of Northwest Anthropology
14. Archaeological Investigations Northwest (AINW)
15. American Cultural Resources Association (ACRA)

Organization
University Program
Publisher
Service Provider
Agency
Merchandise



PRESENTER GUIDE

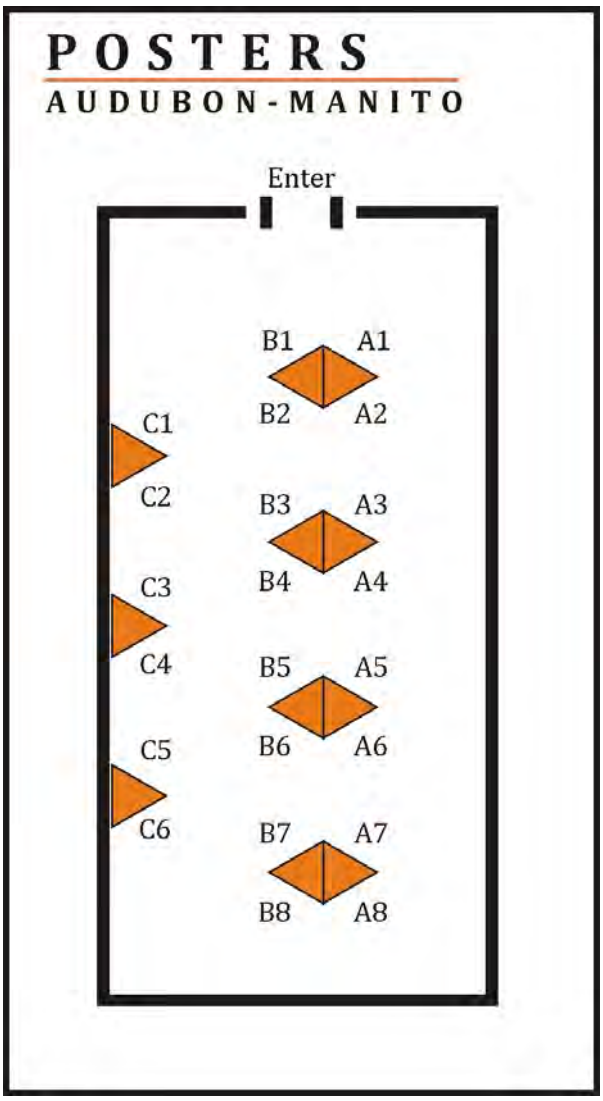
Timekeeping

The time for orally presented papers is 20 minutes (including questions and transition to the next speaker). Please be mindful of the schedule and present your material in the time provided. A chairperson will oversee each session and will assist with timekeeping. If a cancelation occurs, **DO NOT** move or change the order of presentations. Take a 20 minute break and resume with the next paper as scheduled.

Meeting rooms will be open at 8:00 AM Thursday, Friday and Saturday prior to the start of sessions and during scheduled breaks to provide an opportunity for presenters to connect presentation computers and test view presentations. Please upload presentations in advance of your session and take time to become familiar with the technology and room layout.

Poster Sessions

Poster sessions have been scheduled for full days on Thursday, April 13, 2023 and Friday, April 14, 2023. Posters will be on display from 9:00 AM to 4:00 PM and this represents the session time. The posters must be attended by their authors at a minimum during the periods of 10:30 – 11:30 AM **AND** 2:00 – 3:00 PM during the session. Poster presentations have been assigned to a specific board within the poster room. Note the alphanumeric designation next to your presentation title and locate that board in the poster room. Plan to arrive 10 to 20 minutes prior to your session for setup. Poster stands are fabric covered. All mounting velcro will be provided. Be sure to retrieve your poster and other materials by the end of your session all remaining items will be stored at the registration desk and discarded at the end of the conference.



2023 NWAC Proceedings

published by the
Journal of Northwest Anthropology (JONA)

The 2023 NWAC Proceedings will be available open access on the JONA website. Anyone who presents a paper or poster at the 2023 NWAC is eligible to participate. The deadline for submitting your paper or poster for publication in the 2023 NWAC Proceedings is 11:59 pm on Wednesday, May 31, 2023. The Proceedings will be published by JONA on September 1, 2023.

For additional information and instructions for submitting your paper or poster, please visit: https://www.northwestanthropology.com/nwac-proceedings.

76TH NORTHWEST ANTHROPOLOGICAL CONFERENCE
BANQUET KEYNOTE SPEAKER

Jeffrey H. Altschul

President, SRI Foundation; co-President,
Coalition for Archaeological Synthesis

Meeting the Moment: Thoughts on the Economics of CRM, the Training of Heritage Professionals, and Leveraging CRM Data to Address the Issues of our Times

Jeff Altschul (PhD, RPA) is the co-founder of two cultural heritage management (CHM) consulting firms—Statistical Research, Inc. (1983, U.S.A.) and Nexus Heritage (2008, U.K.). He also co-founded the SRI Foundation (2001, president) and the Coalition for Archaeological Synthesis (2018, co-president). Since 1975, he has served as principal investigator on more than 1,000 CHM projects in North America, Latin America, Europe, Africa, and Asia. He is a past-treasurer and past-president of the Society for American Archaeology and a past president of the Register of Professional Archaeologists. He has published widely, including articles in the Proceedings of the National Academy of Sciences, American Antiquity, Advances in Archaeological Practice, Ex Novo, Conservation and Management of Archaeological Sites, Public Archaeology, Heritage Management, and Ancient Mesoamerica. Jeff has a long standing interest in the economics of CRM and its relation to training, employment, and archaeopolitics. In 2010, he published, with Tom Patterson, "Trends in Employment and Training in American Archaeology" for the 75th SAA anniversary volume and in 2022, with Terry Klein, 'Forecast for the US CRM Industry and Job Market, 2022-2031". The latter forms the backdrop to the 76th Northwest Anthropological Conference keynote lecture.

WELCOME

Spokane Tribe Chairwoman Carol Evans

THURSDAY, APRIL 13, 2023
Riverfront Ballroom B
Time: 8:30 AM – 9:00 AM

PRESENTATIONS

THURSDAY, APRIL 13, 2023

Posters

Audubon-Manito Room
Posters on display from 9:00 AM to 4:00 PM
Posters attended by their authors: 10:30 – 11:30 AM **and** 2:00 – 3:00 PM

POSTER SYMPOSIUM

Northwest History and Historical Archaeology

Chair: Beth Mathews
Abstract
In this general session, participants present posters on the results of historical and archaeological research into the recent history of the Northwest. In honor of the 2023 NWAC theme "Renewal" this session establishes a space for in-person dialogue on the complex history of colonization in the Northwest.

A1 ***The Status of Northwest Historical Archaeology: An Analysis of Representation***
Bethany K. Mathews and Michelle R. Lynch

A2 ***Women Homesteaders of Northeastern Washington: Orcharding in the Okanogan Highlands***
Beth Mathews

A3 ***An Expression of Polish-American Settler Colonialism on the Colville Reservation***
Robert A. Sloma

A4 ***Creative Mitigation and Future Investigation of a Mining Town on the Upper Twisp River***
Aidan Gallagher

A5 ***The Bridal Veil Lumbering Company: Indications of Advancing Technologies and Improved Residential Conditions at Camp A***
Luciano Legnini, Brittney Cardarella, Bobby Saunters, and Chris Donnermeyer

A6 ***This Old (and New) Hatchery House: 3d Visualizations of the Historic Soos Creek Hatchery***
Adam Rorabaugh

A7 ***Bridging the Gap: A Survey and Assessment of Bridges on the Kittitas Division Main Canal, Kittitas County, Washington***
Kate Hovanes

A8 ***Eastern Washington and our role in the 1962 Cuban Missile Crisis***
Anne Boyd

THURSDAY, APRIL 13, 2023, CONTINUED

B1 ***Exclusion and Belonging in the Willapa: Preliminary Fieldwork Seasons at the Nikkei Community of Walville, WA***
Benjamin Akey

B2 ***The Relationship between Hiroshima University and the University of Idaho***
Emma Warner

B3 ***Sachiko 'Janet' Bennett, Her Life and Times***
Isabella Taylor

General Poster Session

Historical Documents

B4 ***Xiongnu Official Titles Shanyu (單于) and Qieju~Qiequ (且居~且渠)***
PenglinWang

General Poster Session

Lithic Technology

B5 ***Projectile Points of the Grand Coulee Dam Project Area – Mainstem***
Brenda Covington

B6 ***Analyzing Biface Use Wear and Chronology at the Manastash Pines Site (45KT346)***
M. Raelynne Crow and Patrick T. McCutcheon

B7 ***Identifying and Mapping Indigenous-Use in Stone Tools Across Space and Through Time at 45KI263***
Maria Kovach and Patrick McCutcheon

B8 ***An Evaluation of Olcott Biface Production***
Christopher Noll

C1 ***Building a Model for Inclusive Study of Obsidian Trade and Exchange***
Cody C. Roush and Patrick T. McCutcheon

C2 ***Technology and Subsistence Patterns in the Dietz Basin, Lake County, Oregon***
Megan McGuinness

C3 ***Connections and Chaos: Exploring the Grissom (45KT301) Site Collection***
Nik Simurdak and Patrick McCutcheon

C4 ***To and Through: The Grissom Site (45KT301) as a Nexus for Chipped Stone Lithic Diversity***
Nik Simurdak and Patrick McCutcheon

C5 ***The Average Point***
Thomas Brown and Paul Solimano

THURSDAY, APRIL 13, 2023, CONTINUED

WORKSHOP

Association for Washington Archaeology's Continued Conversations on Belonging in Washington Archaeology

Corbin Room
Time: 9:00 – 10:30 AM
Organizer: Brandy Rinck
Abstract
As a follow-on to the Association for Washington Archaeology's Frameworks for Social Justice Workshop that occurred during NWACs in 2022, the AWA Board is hosting this session to keep our conversations around race, diversity, justice, equity, and inclusivity going. Please consider joining AWA at this session, even if you did not attend the 2022 workshop.

During the workshop, we will consider our identities and how they impact decision making. Then, in groups, we will discuss answers to questions centered around belonging and inclusivity. Examples of the questions include: How can AWA get a deeper knowledge of those that we want to be a bigger part of our community and organization? How can AWA reach out further/better/more to diverse communities? How does AWA prioritize efforts to increase diversity in a capacity that is reasonable for the volunteers we have available? And how can AWA encourage additional volunteerism? Can AWA identify partner organizations that might help AWA gather voices from marginalized and/or underrepresented community members from both within AWA and beyond?

Let's find out what connects us and revel in our differences to bring us closer, give us a world of shared values, and hopefully build our community in a meaningful way.

GENERAL SESSION

Socio-Cultural Studies

Riverfront Ballroom A
Time: 9:00 AM – 3:10 PM
Chair: Joseph P. Feldman

9:00 AM ***Elitism and White Supremacy in U.S. Animal Shelters: How the Impoundment and Re-homing of Dogs is policed using the White Savior Complex***
Tina Hope

9:20 AM ***"There's No One 'Right' Way to Be Black": Exploring Ethnic Self-Identities of Second-Generation Ethiopian Adults in the US***
. Kassahun Kebede

9:40 AM ***Process of Authority Formation in Dispute Settlement: The Case of Shalish in Rural Bangladesh***
Krishna Kumar Saha

10:00 AM ***Emerging Disability & Reproductive Rights Discourse within Genetic Counseling, Post-Dobbs***
Shannon Meyer

THURSDAY, APRIL 13, 2023, CONTINUED

10:20 AM ***Break***

10:40 AM ***Indigenous Health as Heritage***
Donna Roland

11:00 AM ***Strategies of dealing with healthcare barriers in the resettled phase of Rohingya refugees: Analyzing ethnographic data in the context of U.S. healthcare system in the Atlanta Metropolitan area***
Md Asaduzzaman

11:20 AM ***A Life of Labor: the Socio-politics of Pandemic Living with Chronic Illness***
Chyanne Yoder

11:40 AM ***Amenity Migration and Rural Livelihoods: A Case Study of Farmer/Rancher Subjective Well-being in Teton Valley***
Melissa Taysom

12:00 PM ***Lunch***

1:30 PM ***Coffee and Chocolate in High-End Food Markets***
Julia Smith

1:50 PM ***Floods, Fires and Faith: Community-Led Responses to Poverty and Disaster in an Appalachian Resource Heritage***
Jack McNassar

2:10 PM ***'We Have Three Seasons in Myanmar': Burma's Political Spring Turns to Winter***
Lewis Thomas

2:30 PM ***The Role of Familismo in Mental Health Symptomology***
Taylor Simmons

2:50 PM ***Scientific Evidence of the Birthplace of a God: Politics of Archaeological Practice in Ayodhya Controversy***
Sayema Khatun

SYMPOSIUM

Making History on the Malheur: Papers in Honor of the Long and Storied Career of Don Hann

Riverfront Ballroom B
Time: 10:00 AM – 4:30 PM
Chairs: Chelsea Rose and Katee Withee
Abstract
Over his three-decades long career on the Malheur National Forest, Don Hann has been on the frontlines of public archaeology on public lands. With dozens of PIT projects, and countless collaborations with tribal partners, colleagues, and public stakeholders, Don ran a Heritage Program that had an inspiring amount of public involvement and access. He mentored generations of archaeologists, co-founded the Oregon Chinese

THURSDAY, APRIL 13, 2023, CONTINUED

Diaspora Project, and leaves a robust legacy on the heritage of the region. The papers presented in this session reflect some of these collaborations, events, experiences, hijinks, and adventures on the forest under Don's memorable tenure.

10:00 AM ***Don Hann: the Man, the Myth, the Legend***
Katee Withee and Chelsea Rose

10:20 AM ***Balloons on Backpacks and other Adventures with Don Hann at the Klamath Falls BLM***
Elizabeth Sobel

10:40 AM ***Malheur Headwaters Project (2001-2009)***
Guadalupe (Pete) Cadena

11:00 AM ***A Willing Partner: Consultation and Collaboration between the Confederated Tribes of the Umatilla Indian Reservation and the Malheur National Forest***
Catherine Dickson

11:20 AM ***Don Hann: An Academic in a Green Uniform***
Jim Keyser

11:40 AM ***Don Hann and the Malheur National Forest Heritage Program circa 1992 to 2002: String boxes, Compasses, and Pin Flags***
Donald Rotell and Katee Withee

12:00 PM ***Lunch***

1:30 PM ***Holistic Heritage: the Malheur Model and Forest Service CRM, by the numbers***
Rick McClure

1:50 PM ***The Search for Japanese Railroad and Mill Workers in the Malheur National Forest: Building on Don Hann's Foundation***
Eric Gleason

2:10 PM ***It's the PITs!: Citizen Scientists and the Benefits of Public Participation through the Passport in Time Program***
Jane Collier and George Collier

2:30 PM ***The Taste of Archaeology***
Katie Johnson (Noggle)

2:50 PM ***Discussion***

THURSDAY, APRIL 13, 2023, CONTINUED

SPECIAL SESSION

So Have You Heard About the Summit? Calling All CRM Practitioners, Current or Aspiring!

Corbin Room
Time: 10:40 AM – 12:00 PM
Organizer: Mary Rossi
Abstract
Are you interested in learning how Cultural Resource Management (CRM) in our region really works (and how we might even improve it)? Do you enjoy gathering with diverse practitioners willing to share their experience in a variety of session formats and experiential activities? Do you like beautiful scenery and good food? If so, we want you to know about the annual Cultural Resource Protection Summit!
The 16th Annual (and 2nd "hybrid") Summit will be held May 24-25 at the Suquamish Tribe's House of Awakened Culture and online. The Summit planning team is hard at work fulfilling the mission we have had since the Summit's inception: The primary goal in organizing the annual Summit has been to facilitate amongst all affected parties an open, frank discussion about the intersection between cultural resources and land use. The Summit is designed to promote collaborative cultural resource planning as an effective means of finding resolution to issues before they escalate into emotionally-charged, divisive, and expensive stalemates or law suits.
Join us for a drop-in informational session to learn more about a gathering that is carefully designed to help you improve your technical CRM skills while deepening your connection to why we do this work. SNACKS PROVIDED!

SYMPOSIUM

Modern Methods in CRM Archaeology

Finch Room
Time: 11:00 AM – 4:30 PM
Chairs: Sydney Hanson, Stephanie Jolivette
Abstract
Modern problems require modern solutions. This session will cover a wide variety of methods that CRM archaeologists may use to discover, map, and analyze sites amid today's field technician shortage and the breakneck speed of development across the Pacific Northwest.

11:00 AM ***The view from above: improving archaeological field methodology in Eastern Washington using aerial and LiDAR imagery***
Sydney Hanson, Stephanie Jolivette, and Karen Capuder

11:20 AM ***Seeing Through the Trees: Using LIDAR and Aerial Imagery for Project Scoping and Survey Design in the San Juan Islands, Washington***
Stephanie Jolivette, Amanda Hsu, and Sydney Hanson

11:40 AM ***Going Deep in Tacoma: Identification and Avoidance of a spuyaləpabš Village Site***
Chris Lockwood and Justin Colón

12:00 PM ***Lunch***

1:30 PM ***Archaeological Survey Design in Washington Floodplains***
Tyler McWilliams and Carol Schultze

THURSDAY, APRIL 13, 2023, CONTINUED

1:50 PM ***More Than Just Archaeology: Creating More Holistic Cultural Resource Inventories***
William Marquardt, Meghan Caves, and Autumn Myerscough

2:10 PM ***Innovative Solutions to Unique Project Parameters: Plateau's take on modern technology and methods in the CRM industry***
Samantha Fulgham and David Harder

2:30 PM ***The Multiple Ontologies of High Visibility Clothing in the Cultural Resource Management Industry***
Stephen Austin

2:50 PM ***Break***

3:10 PM ***Forestry Archaeology and Timber Harvesting Practices: Best Methods?***
William Schroeder

3:30 PM ***In the Light of Full Spectrum Archaeology: A Field Report of Previously Undocumented Archaeological Features in the Saddle Mountains***
James Macrae

FORUM

NWAC and Environmental Sustainability: Continuing the Conversation

Corbin Room
Time: 2:00 – 4:00 PM
Organizers: Mary Petrich-Guy, Renae Campbell, Kristina McDonough, Keith Mendez, Molly Swords, Mars Galloway and Misha Miller-Sisson
Abstract
Following the 2022 Northwest Anthropological Conference (NWAC), the Northwest Anthropological Association (NWAA) formed the Environmental Sustainability Committee and tasked it with identifying key issues relating to environmental sustainability and with providing informed recommendations for NWAA and NWAC operations. This group is committed to working towards a sustainable future for members and communities that are affected most by environmental degradation by guiding the NWAA and NWAC to implement sound practices that reduce our overall environmental footprint and by fostering an inclusive exploration of environmental, social justice, and economic intersectionality within the context of Northwest Anthropology. This forum discusses the main findings of the Committee's preliminary report, and invites forum attendees to continue a collaborative conversation on environmental sustainability for NWAA and NWAC. What does environmental sustainability mean to you? What is true sustainability? What do you want to see from future NWAC meetings?

FRIDAY, APRIL 14, 2023

Posters

Audubon-Manito Room
Posters on display from 9:00 AM to 4:00 PM
Posters attended by their authors: 10:30 – 11:30 AM **and** 2:00 – 3:00 PM

General Poster Session

Environment and Human Land Use Patterns

A1 ***Analysis of Population Stress in Relation to Economic Organization within Village Sites: 4 Case Studies on the Northern Oregon Coast***
Elizabeth Seger and Alexis Crow

A2 ***Enhancing the Relationship of Culture and Place: Plants Sustain the Atomic Age***
Josephine Buck and Trina Sherwood

A3 ***Evaluating the Predictive Utility of Environmental Variables: A Case Study from Malheur National Forest***
Galen Miller-Atkins, Andrew Frierson, and Megan McGuinness

A4 ***A Preliminary Precontact Land Use Context for the Chehalis Basin***
Michelle North, Thomas J. Brown, Lucille Harris, and Paul Solimano

A5 ***Camas Prairie: restoration of a wet meadow for traditional use in the Cascade Range foothills***
Annmarie Kmetz, Claire Bennett, and Cayla Kennedy

A6 ***Overview of Excavations at Three Olcott Sites in Western Washington***
Sean Stcherbinine

A7 ***Climatic and human influences on the late Holocene fire history of Beaver Lake in the northwest lowlands of the Olympic Peninsula, Washington***
Grace McKenney

A8 ***A Consideration of the Systematic Evaluation of Water-Wear on Lithic Artifacts***
Christopher Noll

B1 ***Regional Chronological Comparisons: Cross-Comparison of Coastal, Montane, and Interior Chronologies***
James Brown, Patrick T. McCutcheon, Steve Hackenberger, and Gary Wessen

General Poster Session

Faunal Analysis

B2 ***Bighorn Sheep, It's What's for Dinner***
Tara McLaughlin

B3 ***Faunal Analysis of the Grissom Site (45KT301) in Northeast Kittitas Valley, Washington***
Steve Spencer

FRIDAY, APRIL 14, 2023, CONTINUED

B4 ***Preliminary Faunal Analysis of Woodward Mammoth Recovered near Prineville, Oregon***
Faith-Ann Harnden and Chance McNeal

B5 **Preliminary Faunal Identifications from 3000-9500 BP at the Sanders Site, Central Washington**
Jeremy Cobb, Harley Biggs, and Mason Burks

B6 ***Strategies for Zooarchaeological Element Selection***
Reno Nims

B7 ***Suquamish herring fisheries and herring population dynamics from deep time to the recent past***
Robert Kopperl and Dennis Lewarch

B8 ***Is the Wenas Creek Mammoth Site Anthropogenic?***
Patrick Lubinski, Karisa Terry, James Feathers, Karl Lillquist, and Patrick McCutcheon

General Poster Session

Radiocarbon and Isotope Analysis

C3 ***Determining the Freshwater Reservoir Offset on the Spokane Arm of Lake Roosevelt Using Mussel Shell (M. falcata)***
Christopher Casserino and Thomas Williams

C4 ***Activity Area Analysis of the Sanders Site (45KT315), Yakima Uplands, Washington***
Steven Hackenberger, Emily LaPlante, and Rylee Chadwick

C5 ***Isotope Analysis of Cattle Foddering in Historic Sandpoint Idaho***
Preslie Murray and Alyssa Mills

General Poster Session

Primate Studies

C1 ***Infant-Maternal Behaviors during Non-Maternal Infant Handling Interactions in Captive Long-tailed Macaques (Macaca fascicularis)***
Kristy Abney, Kara Gabriel, Mary Radeke, and Kathy Strickland

C2 ***Chimpanzee Caregivers Daily Shift Reports: A Preliminary Thematic Analysis***
Naylea Lopez, Amanda Pauli, Katelyn Seymour, and Mary Lee Jensvold

FRIDAY, APRIL 14, 2023, CONTINUED

GENERAL SESSION

Historic Archaeology

Riverfront Ballroom B
Time: 9:20 AM – 3:50 PM
Chair: Thomas E. Churchill

9:20 AM — ***Heritage, Identity, and Artifact Display: Public Archaeology and Community Collaboration at Iosepa***
Ally Gerlach

9:40 AM — ***Public Archaeology at Moscow High School: Summary and Results***
JayCee Hollingshead

10:00 AM — ***Indian Boarding School Journals, Truth and Healing, and Anthropology***
Robert E. Walls

10:20 AM — ***Break***

10:40 AM — ***Spaniards on their way to Alaska during the eighteenth century and how this is reflected in Washington's coast***
Lorena Medina Martínez (Dirksen)

11:00 AM — ***Object Biography as a Tool for Contextualizing Colonial Ideologies in the American West and Beyond***
Meghan Caves

11:20 AM — ***Pon Yam House: a refuse in time.***
Juniper Harvey-Marose

11:40 AM — ***Historic Archaeology of McDonough Blacksmith Shop in Southwestern Idaho***
Kristina McDonough

12:00 PM — ***Lunch***

1:30 PM — ***Working the Waters of Garrison Creek: The First Post Laundresses of Fort Walla Walla, WA***
Ericha Sappington

1:50 PM — ***Analysis of Ceramics in Relation to the Socio-Economic Status In Historical Maxville, OR***
Amanda Welch and Addison Bonzani

2:10 PM — ***The Empire Strikes Back: Japanese Balloon Bomb Attacks on the Pacific Northwest in World War II***
Lee Sappington

2:30 PM — ***A Brief History of the Washington Archaeological Society***
Matt Johnson

FRIDAY, APRIL 14, 2023, CONTINUED

2:50 PM ***Break***

3:10 PM ***Negotiating the Norm: Sex Work and Victorian Ideals in Sandpoint, Idaho***
Trinity Hunter

3:30 PM ***A Historical Archaeology of Othermothering: Black Army Laundresses as Community Caretakers***
Katrina Eichner

3:50 PM ***Plainview School: The Life of a One-Room Rural Schoolhouse***
Thomas E. Churchill

FORUM

Cultural Resources at WDFW Past, Present, and Future

Corbin Room
Time: 9:30 AM – 12:00 PM
Chair: Maurice Major
Discussants: Maurice Major, Katherine Kelly, John Davis, Sierra Harding, Ross Smith, Hannah Bates, Heather Dykstra, Hannah Fitchett, and Carol Schultze
Abstract
Last time NWAC happened in person, the Washington Department of Fish & Wildlife (WDFW) had a single archaeologist covering over 1,000,000 acres—today, we have 12 including permanent and project staff, paid yearlong interns, and embedded consultants. Because WDFW manages for healthy ecosystems, WDFW's cultural resource crew occupy a unique professional setting with the ability to work with the full range of cultural resources on a landscape scale. WDFW's mission also allows staff to revisit and learn the land and build long term relationships with tribal partners. This informal discussion will present the range of work we do and describe our past and future growth. Come to learn about habitat and watershed-based CRM, cultural landscape and ecosystem stewardship, and the range of employment, internship, and contracting opportunities with WDFW. There will be time for questions and audience discussion.

SYMPOSIUM

Outreach and Education: Examples of Approaches and Strategies in Archaeology and Cultural Resource Management

Riverfront Ballroom A
Time: 9:40 AM – 3:30 PM
Chair: Kendra Maroney
Abstract
Public outreach and education are carried out across our profession to meet different needs and goals. How do different organizations approach this important work? What can we learn from each other to better deliver our missions, build connections, support local communities, and the public? This session will host representatives from a variety of backgrounds to share recent examples of public outreach and education projects, including in-person informational booths and hands-on activities, interpretive displays, informational packets and handouts, workshops or presentations, social media and digital opportunities, and creative adaptations due to the recent pandemic. This symposium supports the larger efforts within

public outreach to develop "best practices" and provide a tangible and durable public benefit for their investments in heritage conservation. Finally, the session provides an opportunity for presenters and the audience to build community as we celebrate and reflect on past and ongoing projects.

9:40 AM ***Engaging Youth in Archaeology and Cultural Resources – Examples from the Kalispel Natural Resources Department***
Kendra Maroney

10:00 AM ***Word Path: Connecting People to the Landscape and Traditional Indigenous Land Use through Language Preservation A Collaborative Journey between the Kalispel Tribe of Indians and the Colville National Forest***
Alicia Beat

10:20 AM ***Break***

10:40 AM ***Beyond Clickbait: Contextualizing Our Shared Heritage in Divisive Times***
Jamie Litzkow

11:00 AM ***Protecting Tribal Heritage: Educating on the Importance of Rock Imagery in the Columbia Plateau***
Ashley Morton

11:20 AM ***Unlocking the Potential for Public Involvement in Preservation: Creative Mitigation in Cultural Preservation Through Public Outreach and Education***
Bobbi Rose and Rachel Vang

11:40 AM ***From Backyards to YouTube: Grassroots Historic Preservation in Millwood, WA***
Annie Oakes

12:00 PM ***Lunch***

1:30 PM ***Pilot Cultural Mapping Study in Seattle***
Nicholas Vann

1:50 PM ***Let's Put On a Show: A rationalist's perspective on mission fulfillment in public engagement***
Kevin Lyons

2:10 PM ***Old Methods for Modern CRM: Using community ethnography to explore the archaeological past***
Hannah MacIntyre, Samantha Fulgham, and Emily Whistler

2:30 PM ***The Archaeological Workforce Shortage: Don't Forget About Community Colleges!***
Melissa Artstein-McNassar

2:50 PM ***Discussion***

FRIDAY, APRIL 14, 2023, CONTINUED

PANEL

Current Issues and Developments in the Association for Washington Archaeology

Corbin Room
Time: 2:00 – 4:00 PM
Chair: Julia Furlong
Panelists: Josh Allen, David Carlson, Anna Coon, Jason Cooper, Leah Koch-Michael, Pat McCutcheon, Brandy Rinck, and Adam Rorabaugh.

Abstract
To keep the Annual General Meeting fun and painless, the AWA will host this informative session to present details of our many current projects, as well as provide the membership with opportunities to ask specific questions and work through topics of concern. AWA will live stream the sessions for members that cannot attend the NWACs in person. Then, the annual general meeting will be shorter with just the highlights. Please attend any and all of these presentations. Topics include: presentation of election candidates, budget review, committee updates, technician training efforts, and journal and newsletter.

SYMPOSIUM

The Chemistry of Archaeological Artifacts

Finch Room
Time: 2:10 – 4:30 PM
Chair: Ray von Wandruszka

Abstract
Materials associated with historical artifacts recovered in archaeological excavations are often difficult or impossible to identify. This may be due to a loss of labels and markers, or simply because time and exposure have changed the substances to such an extent that they have become unrecognizable. Analytical chemistry can be a great help in answering the ever-present question "What is this…?". Artifacts may have undergone changes during the decades or centuries of their existence, but chemical markers often remain and point the analyst in the right direction. Answers can be surprising to both the chemist and the archaeologist, especially in cases where bottles, or other containers, have been reused, and the remaining contents bear no relationship to the vessel. Evidence uncovered through chemistry can be very revealing with regard to the nature, and even the use, of artifacts.

2:10 PM ***Witch Bottles, Snake Oil, Etc.***
Phoenix Crossley

2:30 PM ***What Is Canthrox?***
Isabella MacLean-Cariello

2:50 PM ***An Arsenical Beauty Aid***
Claire Qualls

3:10 PM ***Chemical Detective Work***
Jordyn Tuning

3:30 PM ***Probably A Laxative...***
Cameron Young

3:50 PM ***Discussion***

SATURDAY, APRIL 15, 2023

GENERAL SESSION

An Archaeological Miscellany

Riverfront Ballroom A
Time: 8:40 AM – 12:00 PM
Chair: Stephen Todd Jankowski

8:40 AM ***The Status of Radiocarbon Dating in Washington State: Data Gaps, Data Hygiene, and the Future of Radiocarbon Dating in the Pacific Northwest***
James W. Brown, Patrick T. McCutcheon, Steve Hackenberger, and Gary Wessen

9:00 AM ***When is a house a House?***
David Ellis

9:20 AM ***Beyond Culture Areas: Re-Visioning Archaeological Basketry***
Kathryn Bernick

9:40 AM ***GENERATIONALLY-LINKED ARCHAEOLOGY The Use of Ancient Basketry (and Cordage) from Wet/Waterlogged Sites On the Northwest Coast to Show Cultural Ancestry/Identity***
Dale Croes

10:00 AM ***Break***

10:20 AM ***Bark to the Future: Initial Findings From A Longitudinal Study of Bark-Stripped Western Red Cedars***
Sara E. Palmer

10:40 AM ***Cultural Histories & Rock Features of the Youngs Rock Rigdon Project, Middle Fork Ranger District, Willamette National Forest***
Stephen Todd Jankowski

11:00 AM ***Evidence from the Rock Island Overlook Site for Pleistocene Horse Hunting on the Columbia Plateau***
Terry Ozbun

11:20 AM ***An Analysis of Tachylyte and Other Volcanic Glasses in Washington Archaeology***
Mallory Triplett

11:40 AM ***Lithic Technological and Functional Study of Mesa Sites in the Columbia Basin***
Josh Allen

SATURDAY, APRIL 15, 2023, CONTINUED

General Session

Primate Studies

Riverfront Ballroom B
Time: 9:20 – 9:40 AM
Chair: Jocelyn Callahan

9:20 AM ***Review of the population size and demographic changes of the Critically Endangered Hainan gibbon (Nomascus hainanus): 1950-present***
Jocelyn Callahan

General Session

Decolonialization of Anthropology/Archaeology

Riverfront Ballroom B
Time: 10:00 – 11:00 AM
Chair: Nicholas Kager

10:00 AM ***Re-Presenting People: Critically Reviewing Existing Imagery of Traditional Coast Salish Lifeways and Creating New Images***
Beatrice Franke

10:20 AM ***Ethics in Archaeology***
Richard Gilliland

10:40 AM ***The Differing Voices of Ethnohistory***
Nicholas Kager

AUTHORS AND ABSTRACTS

Abney, Kristy, Central Washington University
Poster ***Infant-Maternal Behaviors during Non-Maternal Infant Handling Interactions in Captive Long-tailed Macaques (Macaca fascicularis)***
By: Kristy Abney, Kara Gabriel, Mary Radeke, and Kathy Strickland
Abstract: The main caregiver of an infant long-tailed macaque (*Macaca fascicularis*) is their mother. However, mothers often allow infant-handling interactions with other individuals in their group. While there are many hypotheses to explain the infant-handling phenomenon, there are few systematic investigations of how mothers respond to non-mother infant-handling interactions. At Alpha Genesis Inc., I conducted 33 focal follows for each mother-infant dyad (N = 10) over an eight-week period on captive Long-tailed macaques to determine if infant behaviors during infant-handling interactions resulted in mothers interrupting the interaction; if mothers were more likely to interrupt infant-handling interactions when infants showed signs of distress; and if such interruptions varied in their frequency between primiparous and multiparous mothers. Analyses revealed that mothers were less likely to interrupt an interaction if their infant did not show stressful behaviors and primiparous mothers are more likely than multiparous mothers to interrupt interactions by displaying maternal restraint of the infant or maternal aggression to the non-mother. These findings indicate that a mother's parenting experience may affect the social interactions of their offspring; while also suggesting that infant-handling interactions may have little to do with mother-infant bonding and more to do with factors like hierarchy, relationships, and their environment.

Akey, Benjamin, Michigan State University
Poster ***Exclusion and Belonging in the Willapa: Preliminary Fieldwork Seasons at the Nikkei Community of Walville, WA***
By: Benjamin Akey
Abstract: Nestled in the slopes of the Willapa Hills of southwestern Washington, Walville operated as a company-owned sawmill town between 1902 and 1930. Among the town's residents was a substantial community of Japanese immigrants and their descendants--collectively termed Nikkei. Encountering the racialized labor regimes of sawmill labor in the early-twentieth century Pacific Northwest, ineligibility for U.S. citizenship, and several attempts by white workers to compel management to expel them, Walville's Nikkei community persisted until the sawmill folded and retains a prominent place within local memory of the town. The Walville Archaeological Project seeks to utilize material culture and historical documents in order to understand how Nikkei residents navigated these myraid forms of exclusion, informed by interdisciplinary literatures on racial capitalism, transnationalism, citizenship, and the politics of belonging. Working across private/public land boundaries, preliminary phases of pre-dissertation fieldwork for the project have focused on accessing archives, mapping extant features, and performing catch-and-release recording of surficial material culture.

Allen, Josh, RLR Cultural Resources, LLC
Paper ***Lithic Technological and Functional Study of Mesa Sites in the Columbia Basin***
By: Josh Allen
Abstract: Mesa sites of the Central Columbia River Basin have been subject to extensive archaeological study during the latter half of the twentieth century. These geographically unique cultural resources have occupation evidence ranging from stacked rock features, hearths, and house pit features with faunal bone and lithic assemblages. Dr. Bill Smith's work in Mesa archaeology at sites 45GR162, GR144, and GR145 from 1973-1977 stands as the only widely circulated work on Mesa sites in Washington. Several studies have since occurred which have focused on faunal remains, National Register and Multiple Property Evaluation, Plateau violence models, and single site excavation reports. Despite a general lack of material specific studies, research has generally agreed with Dr. Smith's work in labeling the Mesa sites as

late period pre-contact multifunctional camps. This presentation will present a data driven study of Mesa lithic assemblages and how that data can be directed towards the treatment and narrative of these resources in Washington State.

Allen, Josh, RLR Cultural Resources, LLC see Furlong, Julia

Artstein-McNassar, Melissa, Lane Community College
Paper ***The Archaeological Workforce Shortage: Don't Forget About Community Colleges!***
By: Melissa Artstein-McNassar
Abstract: The current archaeological workforce shortage is in near crisis in the United States. We need to rethink the pathway to an archaeological career. Early, intense and frequent exposure to archaeology may assist in recruiting capable individuals to the field. A multi-pronged approach is proposed in order to recruit, train and retain individuals who start at community colleges. Community colleges provide a viable pathway into archaeology by offering direct hands-on methods courses to introduce students to the field. These methods courses may support parallel on the job archaeological opportunities for students as they progress academically. Community colleges, however, cannot reverse the current archaeological workforce trajectory alone. Partnerships with local firms must also be willing to provide the necessary training in order to on-board the next generation of archaeologists. This presentation will provide an introduction to the average community college student, discuss academic possibilities that are available at community colleges, and make suggestions for the future.

Asaduzzaman, Md, School of Human Evolution and Social Change, Arizona State University
Paper ***Strategies of dealing with healthcare barriers in the resettled phase of Rohingya refugees: Analyzing ethnographic data in the context of U.S. healthcare system in the Atlanta Metropolitan area.***
By: Md Asaduzzaman
Abstract: Rohingya refugees are forcibly fleeing from Myanmar. They are considered one of the biggest stateless ethnicities in the world. The U.S. began accepting Rohingya refugees in 2015. During the resettlement phase, they seek the best healthcare options in their existing circumstances. This study aims to explore the healthcare barriers for Rohingya refugees during the resettlement phase and what strategies they are applying to deal with these barriers. Through the theoretical lens of medical pluralism and therapy management network, this study analyzes what factors influence them to decide regarding seeking healthcare in the different settings from their rooted culture. . Several factors, including mistrust, and religious and cultural norms, influence Rohingya refugees' willingness to access facilitated healthcare in the USA. This study used 23 interviews with providers and Rohingya refugees to examine how these strategies imply in terms of cultural and religious factors and to deal with challenges that have arisen during the resettlement phase. In this study, data gain through ethnographic fieldwork. Unstructured, semi-structured interviews, Key informant interviews, case studies, and observation are key methods to collect data.

Austin, Stephen, University of Idaho
Paper ***The Multiple Ontologies of High Visibility Clothing in the Cultural Resource Management Industry.***
By: Stephen Austin
Abstract: Safety takes many forms when conducting fieldwork, whether digging shovel probes or surveying a historic neighborhood. Some employers require protective headgear and hard-toe footwear to shield the physical body. Others embroider company logos or require staff identifiers to protect employees from suspicious onlookers. However, no article of clothing designed for safety is more universally used and identifiable than High Visibility workwear. Be it a Class-2 neon orange shirt or a highlighter yellow rain jacket with extra reflective striping, these items communicate a myriad of messages. This paper will explore Hi-Vis workwear through multiple ontological approaches to uncover the material and philosophical utility of these garments.

Bates, Hannah, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Beat, Alicia, USDA - Colville National Forest
Paper ***Word Path: Connecting People to the Landscape and Traditional Indigenous Land Use through Language Preservation A Collaborative Journey between the Kalispel Tribe of Indians and the Colville National Forest***
By: Alicia Beat
Abstract: This presentation will discuss the Colville National Forest Heritage Program's collaboration with the Kalispel Tribe of Indians Language School on the reimagining of the Pioneer Park Heritage Interpretive Trail. The Trail was constructed in the mid-90s as mitigation for construction of a forest service dispersed campground on top of a Kalispel Winter Village. The trail incorporated the Salish language as it was understood at the time. The Kalispel Language School wanted to use the trail as an outdoor learning opportunity for its students. The forest and the school worked together on redesigning the trail to ensure a more meaningful experience for the students and visitors. This project has led to the CNF incorporating language preservation and indigenous land use in several other locations in Pend Oreille County and proposing additional bilingual trails in Ferry County in collaboration with the Colville Confederated Tribe.

Bennett, Claire, Willamette National Forest see Kmetz, Annmarie

Bernick, Kathryn, Research Associate, Royal British Columbia Museum
Paper ***Beyond Culture Areas: Re-Visioning Archaeological Basketry***
By: Kathryn Bernick
Abstract: The culture-area scheme has framed basketry research in the Pacific Northwest for more than 50 years. An ever-increasing number of finds continues to show that basketry in the Coast Salish region has been distinct from that in other parts of the Northwest Coast for at least 3000 years, and that technological and stylistic variation correspond chronologically to established regional phases/culture types. These conclusions are based on my research and that of other archaeologists. They reflect generalizations weighted in favor of basket types and characteristics that occur with greater frequency. Anomalous specimens, often attributed speculatively to trade, foreign visitors, or intermarriage, are deemed irrelevant to definition of the local style. Recent coastal finds that appear to represent the Plateau directed my attention to seek inclusive interpretations. Reconsidering "disappeared" exotic specimens in previously recovered assemblages suggests that coast–interior travel was normal in antiquity. Moreover, one should expect hybrids to be developed and successful (efficient) foreign types to be adopted — not via drift or elite hoarding, but intentionally by the people who made baskets. This perspective leads me to explore interactions between basketry and people rather than continue to situate my research in a culture-area framework.

Biggs, Harley, Central Washington University see Cobb, Jeremy

Bonzani, Addison, Eastern Oregon University see Welch, Amanda

Boyd, Anne, Bureau of Land Management
Poster ***Eastern Washington and our role in the 1962 Cuban Missile Crisis***
By: Anne Boyd
Abstract: Did you ever notice strange concrete triangular concrete slabs while flying over eastern Washington and wondered what they are? If so, here's your answer. During the 1960s Cuban Missile Crisis, Fairchild Airforce Base deployed hundreds of workers to build nine defensive weapon sites as a strategic defense against a pending war, which was a top-secret initiative. The concrete slabs housed underground ramps, fuel tanks, and nuclear missiles/weapons which could be launched quickly if needed.

The missiles were removed in 1965. The sites are still used today for private storage and farming enterprises - and one (Atlas E IBM Site 6) was used as a private residence - which later became the scene of a grisly murder that occurred in 2002.

Brown, James W., Stell Environmental Enterprises; Washington State University
Paper ***The Status of Radiocarbon Dating in Washington State: Data Gaps, Data Hygiene, and the Future of Radiocarbon Dating in the Pacific Northwest***
By: James W. Brown, Patrick T. McCutcheon, Steve Hackenberger, and Gary Wessen
Abstract: Washington State archaeological radiocarbon records started growing in the 1950s and 60s. Developments in radiocarbon dating techniques and methods improved PNW cultural chronologies through the 1980s and 90s. Advances in the statistical modelling and assessment of radiocarbon dates helped refine cultural chronologies from 2000 to present. Chronological analyses have identified significant data gaps in the radiocarbon record. More frequent radiocarbon dating is required to further understand potential significance of chronologies, requiring thoughtful contextual sampling and insightful analysis and interpretations of results. To evaluate data gaps and radiocarbon results the precision and accuracy of dates and their association with cultural activity requires critical evaluation. We outline these and other issues related to radiocarbon dating in the Pacific Northwest using radiocarbon records from the Interior Plateau, Cascade Mountains, and Coast of Washington. We offer several recommendations for comparing radiocarbon data across different spatial and temporal scales. Our hope is that the next 20 plus years will see refinement of radiocarbon dating in the PNW that will result in more significant and higher resolution regional cultural chronologies that will increase our understanding of scaled changes in proxy measures of environments and populations.

Brown, James, Stell Environmental Enterprises; Washington State University
Poster ***Regional Chronological Comparisons: Cross-Comparison of Coastal, Montane, and Interior Chronologies***
By: James Brown, Patrick T. McCutcheon, Steve Hackenberger, and Gary Wessen
Abstract: Chronological analyses using radiocarbon dates throughout the Pacific Northwest have identified multiple breaks in the radiocarbon record. Many archaeologists have interpreted these breaks in the record as periods of population decline or absence. These data gaps have most often been viewed within the regional context of the chronologies. We have compiled multiple datasets of radiocarbon dates from across Washington State that spans the Interior Columbia Plateau, Coast and Puget Sound, and the Cascade Mountains. These datasets comprise four sets of dates, 1) that is a state wide set of radiocarbon dates, 2) a record of semi-subterranean houses from the Middle to Upper Columbia River, 3) dates originating from shell midden deposits throughout the coast of Washington, and 4) a record of dates from sites throughout the Southern Cascade Mountains. This analysis compares chronological patterning and identifies possible similar trends in radiocarbon distributions.

Brown, Thomas, Willamette Cultural Resources Associates, Ltd
Poster ***The Average Point***
By: Thomas Brown and Paul Solimano
Abstract: Dating is fundamental to much archaeological research. Projectile points are the easiest, most common, and cost-effective way to date archaeological deposits and in fact, are the only way to date most archaeological sites. However, projectile points have been largely abandoned as time markers in the region. There are many reasons for this, but a fundamental issue is the implicit treatment of projectile point age ranges as uniformly distributed through time (i.e., point ages are equally likely to represent the earliest, middle, and latest portions of their time ranges). Our research provides a preliminary demonstration of how treating projectile point time-ranges as normally distributed, allows us to make more precise, and interpretively meaningful estimates of the age of archaeological sites and components. Moreover, we

provide additional demonstrations of how doing so allows for us to illustrate and statistically model projectile point derived time-ranges in much more nuanced and productive ways.

Brown, Thomas, Willamette Cultural Resources Associates, Ltd see North, Michelle

Buck, Josephine, The Confederated Tribes and Bands of the Yakama Nation/Wanapum
Poster ***Enhancing the Relationship of Culture and Place: Plants Sustain the Atomic Age***
By: Josephine Buck and Trina Sherwood
Abstract: The Columbia Plateau is an ecoregion to nearly 2,000 vascular plants. In the largest, hottest, and driest portion of Washington State lives a rich flora and productive soil. This region is also home to an untouched and undeveloped stretch of land in which culture meets place-the Hanford Reach National Monument. Within this 51 mile stretch of the Columbia River and the 196,000 acres of land are many rare and endangered Native plants. Two native plants listed and protected under the Endangered Species Act are the White Bluffs Bladderpod (*Physaria douglasii* ssp. *Tuplachensis*) and the Umtanum Desert Buckwheat (*Erigonum codium*). While there are methods and plans enacted to protect and restore these plants, there are few reports of the habitats as "culturally significant" and "culturally sensitive." The White Bluffs Bladderpod occurs in the region known as the White Bluffs. This region ties deep into the sacred beliefs of Yakama people regarding life and a practice that follows death. While 344 acres of land are protected for Umtanum desert buckwheat and 2,861 acres of land are protected for White Bluffs bladderpod, the region is also cultural; so the protection of the land as a sacred place, will pre-date present mitigation.

Burks, Mason, Central Washington University see Cobb, Jeremy

Cadena, Guadalupe (Pete), USDA, USFS, Malheur National Forest
Paper ***Malheur Headwaters Project (2001-2009)***
By: Guadalupe (Pete) Cadena
Abstract: The Malheur Headwaters Project (2001-2003, 2008, 2009) lead by Don Hann applied a systematic and intentional approach to the survey and recording of a large archaeological landscape. The data collected and analysis completed, provided the U.S. Forest Service with valuable information that expanded our understanding of the cultural material present and their relationship with the natural and geological environment. Don's vision and leadership integrated agency resources, students, and volunteers to aid in data collection and analysis. An approach that linked resource compliance, public archaeology, and academic research. The Malheur Headwaters Project provided the agency with comprehensive information that continues to guide the management of the archaeological sites located within this unique landscape.

Callahan, Jocelyn, Central Washington University
Paper ***Review of the population size and demographic changes of the Critically Endangered Hainan gibbon (Nomascus hainanus): 1950-present***
By: Jocelyn Callahan
Abstract: The Hainan gibbon (*Nomascus hainanus*) is the world's rarest ape, with only ~36 individuals left in the wild. In the mid-20th century, the Hainan gibbon population saw a dramatic decline. Since then, they have persisted at an extremely low population size. In this review, we provide a comprehensive overview of the Hainan gibbon population since the 1950s, specifically compiling information on population size, geographic distribution, and group composition. We intend for this review to assist in the conservation of this rare species by compiling information on the Hainan gibbon population into one report, making it easier to track population trends and dynamics.

Campbell, Renae. University of Idaho (UI) see Petrich-Guy, Mary

Capuder Karen, Confederated Tribes of the Colville Reservation History/Archaeology Program see Hanson, Sydney

Cardarella, Brittney, Gifford Pinchot National Forest see Legnini, Luciano

Carlson, David, Association for Washington Archaeology see Furlong, Julia

Casserino, Christopher, EWU
Poster ***Determining the Freshwater Reservoir Offset on the Spokane Arm of Lake Roosevelt Using Mussel Shell (M. falcata)***
By: Christopher Casserino and Thomas Williams
Abstract: Archaeological sites along the Spokane Arm of Lake Roosevelt (formerly the lower Spokane River) commonly contain archaeological shell remains from the freshwater bivalve *Margaritifera falcata*. This organism was exploited by indigenous people as a food source up until the damming of the Spokane River in the early 20th century (Casserino 2017a). Often, freshwater shell is the only potentially datable material recovered during a testing or recovery project. Previous archaeologists working for the Spokane Tribe of Indians Preservation Program (STIPP) used mussel shell for AMS radiocarbon dating. However, none of the dates ever agreed stratigraphically with organic carbon samples that were dated from the same excavation units (Harrison 2014; Jones 2012). A good example of this is an organic:shell paired sample that produced ages of 120 ± 30 14C BP and 2100 ± 30 14C BP, respectively. The cause of this disagreement between organic carbon dates and shell dates lies in what is known as the freshwater reservoir effect (FRE). This poster presents the results of a multi-site, pairwise comparison and demonstrates that shell ages on the Spokane Arm are ~ 2045 years older than their true age

Caves, Meghan, University of Idaho; Umatilla National Forest
Paper ***Object Biography as a Tool for Contextualizing Colonial Ideologies in the American West and Beyond***
By: Meghan Caves
Abstract: During the summer of 2021, I reanalyzed the privy assemblage associated with the Teager/Weimer site located in Arlington, Washington (45SN409). This site was originally excavated during cultural resource mitigation for the City of Arlington in 2008 and the assemblage is now held at the Burke Museum in Seattle. Within the assemblage, there are numerous unique artifacts dating to late 19th century and early 20th century that are well suited to the method of object biography. The biographical approach allows us to explore the dialogue of meaning between material culture and the behaviors and beliefs surrounding them. Using objects as a narrative vehicle, I will discuss conceptualizations of capitalism, consumption, and globalization in the burgeoning town of Arlington, Washington at the turn of the century. I will also situate these objects and ideologies in the larger framework of colonialism throughout the world. This presentation represents just a small portion of my larger master's thesis research on this assemblage and exemplifies the ongoing utility of legacy collections and value of public engagement in conducting meaningful archaeological research.

Caves, Meghan, University of Idaho; Umatilla National Forest see Marquardt, William

Chadwick, Rylee, Central Washington University see Hackenberger, Steven

Churchill, Thomas E., Archaeological Frontiers
Paper ***Plainview School: The Life of a One-Room Rural Schoolhouse***
By: Thomas E. Churchill
Abstract: The Plainview School, situated on property located approximately seven miles southeast of the community of Sisters in Deschutes County of Central Oregon, operated from 1907 till roughly 1943.

Through historical research the life of the Plainview School arises from its ashes and its importance to the rural unincorporated community undeniable. A series of cultural resource surface survey investigations have been conducted on the Plainview School property resulting in the identification of one prehistoric isolate, a fine-grain basalt percussion core flake fragment; and a number of historic features (two building foundations with associated debris, the remains of a juniper pole swing set and one standing structure). The presentation highlights what's been found on the ground during this preliminary study and how it relates to the historical story of the Plainview School.

Cobb, Jeremy, Central Washington University
Poster ***Preliminary Faunal Identifications from 3000-9500 BP at the Sanders Site, Central Washington***
By: Jeremy Cobb, Harley Biggs, and Mason Burks
Abstract: The Sanders Site (45KT315) was excavated by William Smith in the 1970s in Johnson Canyon on what is now the Yakima Training Center, Central Washington. The site has deposits radiocarbon dated to up to 9500 BP, features, chipped stone tools, bones and shellfish in multiple strata. We examined samples of faunal remains from Strata 4 and 5 (~3000-4000 BP) and Strata 6 and 7 (~8000-9500 BP). These samples were composed primarily of deer-size longbone shaft splinters, many of which were burned, and relatively few identifiable specimens. Identified taxa from these and other site samples include mule deer, bighorn sheep, and a variety of rodents and lagomorphs. Further investigation of the fauna is planned, along with additional radiocarbon dating, chipped stone tool investigation, and sediment analysis from these lower strata.

Collier, George, Stanford University, retired see Collier, Jane

Collier, Jane, Stanford University, retired
Paper ***It's the PITs!: Citizen Scientists and the Benefits of Public Participation through the Passport in Time Program***
By: Jane Collier and George Collier
Abstract: Retired cultural anthropology professors Jane and George Collier spent nearly two decades working with Don Hann on the Malheur National Forest (MNF) through the Passport in Time Project and other public volunteer opportunities. This arrangement not only provided the MNF labor and expertise of retired professionals, it allowed aspiring citizen scientists to immerse themselves in the world of archaeology. Over their many years on the Malheur, the Colliers became a beloved addition to the team, made meaningful contributions to research on the forest, and helped mentor students and interns. None of this would have been possible without Don's energy and enthusiasm for the PIT program and its many benefits.

Colón, Justin, Environmental Science Associates see Lockwood, Chris

Coon, Anna, Association for Washington Archaeology see Furlong, Julia

Cooper, Jason, Association for Washington Archaeology see Furlong, Julia

Covington, Brenda, Confederated Tribes of the Colville Reservation - History/Archaeology Program
Poster ***Projectile Points of the Grand Coulee Dam Project Area – Mainstem***
By: Brenda Covington
Abstract: Using the updated, four-period Kettle Falls Chronology (Pouley 2010) and Columbia Plateau projectile point typologies (e.g., Lohse 1985; Lohse and Schou 2008; Lohse and Moser 2014), we developed a poster including 24 point types collected from 29 archaeological sites along the Columbia River from Grand Coulee Dam, Washington to 132.5 river miles upstream near the Little Dalles, Washington. Individually, six archaeologists analyzed thousands of existing photographs of points collected from

archaeological sites since 2006 and, when possible, assigned them to types. Group collaboration and discussion resulted in selection of 82 points for inclusion on the poster. Of the 29 archaeological sites, 11 contain 1 type of point; 10 contain 2 types of points; 3 contain 3 types of points; 1 contains 4 types of points; 2 contain 5 types of points; 1 contains 8 types of points; and, 1 contains 10 types of points. Of the 8 sites containing 3 or more point types, 7 are located at Hayes Island and upstream.

Croes, Dale, Washington State University
Paper ***GENERATIONALLY-LINKED ARCHAEOLOGY The Use of Ancient Basketry (and Cordage) from Wet/Waterlogged Sites On the Northwest Coast to Show Cultural Ancestry/Identity***
By: Dale Croes
Abstract: Through four decades of basketry and cordage research, I have tested style similarities in specific regions of the Northwest Coast. In recent work with Salishan Master Basketmaker Ed Carriere, Suquamish Elder, we have coined our approach as Generationally-Linked Archaeology. Working from as far back as possible (deep time) I have tested degrees of similarity of basketry and cordage attributes (modes) and types from all available wet sites. The tests demonstrate stable cultural styles through time, especially with Ed's work (Salishan region) in contrast to those from the outside (Wakashan/Makah) West Coast sites for at least 3,000 years. Together we have replicated ancient wet site museum basketry as old as 4,500 years, where Ed has learned from over 200 generations of his grandparents, compiling layers of weaves from 4,500-, 3,000-, 2,000-, and 1,000-year-old styles in one basket he calls an Archaeology Basket—analogous to a Salishan 4+ millennia history book. In July 2022, Carriere was awarded the Community Spirit Award by the First Peoples Fund, and in February 2023, Carriere received the National Endowment for the Arts (NEA) National Heritage Fellowship, both in large part from his work with Northwest archaeological basketry, demonstrating the synergy of culture and science produces more conjointly.

Crossley, Phoenix, University of Idaho
Paper ***Witch Bottles, Snake Oil, Etc.***
By: Phoenix Crossley
Abstract: Early colonial America was beset by ghosts, spirits, and witches, forcing the intrepid pilgrims to protect themselves with fetishes, amulets, and witch bottles. This worked so well that the practice persisted into the 19th century. In retrospect, it had the added benefit of providing today's archaeologists with some intriguing materials. Later, during the "winning" of the West, sly entrepreneurs found a ready market for useless patent medicines, which they managed to sell to gullible pioneers who lacked access to real drugs. Again, this now provides archaeologists (and their chemical sidekicks) with a wealth of fabulous artifacts.

Crow, Alexis, Willamette Cultural Resources Associates see Seger, Elizabeth

Crow, M. Raelynne, Department of Anthropology, Central Washington University
Poster ***Analyzing Biface Use Wear and Chronology at the Manastash Pines Site (45KT346)***
By: M. Raelynne Crow and Patrick T. McCutcheon
Abstract: The Manastash Pines site (45KT346) is a spring site located in the hills above Ellensburg, Washington. It was excavated by CWU faculty and students from 1979 to 1980. The excavation resulted in the recovery of over 18,000 artifacts in total that consist chipped and ground stone, bone, and shell. Beginning in 2012, the assemblage was catalogued, and the faunal collection and projectile points were analyzed to place this site in historical context and complete the excavation permit requirements. No analysis of the large chipped and ground stone collection has yet to be made, nor were there any radiometric dates acquired. Projectile point typology dates suggest the site occupation may span from 8,000 years ago about 150 years ago. It is not known whether the faunal accumulation there is coincident with the projectile point chronology. Also unknown, is whether chipped stone tools like bifaces, show evidence of use consistent with processing animals. This objective of this poster is to describe the research

our approach to characterize use wear patterns on chipped-stone biface artifacts (n=45) and acquire 8 bone radiocarbon AMS dates from associated contexts. The results thus far show a mix of bifacial forms and use wear patterns.

Davis, John, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Dickson, Catherine, Hoyo
Paper ***A Willing Partner: Consultation and Collaboration between the Confederated Tribes of the Umatilla Indian Reservation and the Malheur National Forest***
By: Catherine Dickson
Abstract: When Don Hann worked on the Malheur and I worked for the Confederated Tribes of the Umatilla Indian Reservation Cultural Resources Protection Program, we came together to improve communication and develop effective consultation processes between the entities. We worked through the technical aspects of agreements between the Forest Service and the CTUIR, from the Washington Office level down to the individual forest. At the end, after many years of discussion, we came up with ideas to use the Forest Service's established processes to take into account Forest undertakings' effects to historic properties of religious and cultural significance to the CTUIR, particularly those with place names. This work highlighted Don's patience, planning, and dedication to historic properties beyond archaeological sites.

Donnermeyer, Chris, Columbia River Gorge National Scenic Area see Legnini, Luciano

Dykstra, Heather, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Eichner, Katrina, University of Idaho
Paper ***A Historical Archaeology of Othermothering: Black Army Laundresses as Community Caretakers***
By: Katrina Eichner
Abstract: Using materials and archives associated with Black U.S. Army Laundresses stationed at Fort Davis, Texas in the 1860s – 1890s, this paper will investigate how the practice of parenting intersected with a broader focus on racial uplift in the African American community. Adoption, communal parenting, and seasonal fostering were utilized by Black families living in the American West as a means of forming kinship and community ties across military rank, blood lines, and geographic divides. When considered in the context of Reconstruction era racial uplift movements, early black suffragist politics, and the trauma of Jim Crow legislation, collective parenting might best be understood as a performance of new kinds of citizenship, revolutionary love, economic independence, and bodily autonomy denied members of an artificially displaced Black military population.

Ellis, David, Willamette Cultural Resources Associates
Paper ***When is a house a House?***
By: David Ellis
Abstract: French anthropologist Claude Lévi-Strauss introduced the concept of "House societies" in the 1970s based on his review of Boas' research with the Kwakwaka'wakw (Kwakiutl) and Kroeber's work with the Yurok. The "House society" concept has subsequently become a focus of research by both cultural anthropologists and archaeologists. The existence of "Houses societies" has been best demonstrated in ethnographic studies in Southeast Asia and to a more limited extent in Meso- and South America. Identifying "Houses societies" in the archaeological record has been undertaken primarily with Neolithic sites in Europe and western Asia. In this presentation, I will briefly examine the concept as defined by Lévi-Strauss and how it has been interpreted in later research. My focus, however, will be an exploration of the

ethnohistoric and archaeological data to see if there is evidence for the existence of "House societies" among Chinookan peoples of the Lower Columbia.

Feathers, James, University of Washington see Lubinski, Patrick

Fitchett, Hannah, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Franke, Beatrice, Stillaguamish Tribe of Indians
Paper ***Re-Presenting People: Critically Reviewing Existing Imagery of Traditional Coast Salish Lifeways and Creating New Images***
By: Beatrice Franke
Abstract: Images are powerful communicators of ideas because they shape how people perceive and understand the past (Moser 1996, Arnold 2005). It is important to critically look at them with a decolonizing lens to ensure that the artists who make these images and the authors that use them do not imply harmful or disrespectful ideas about the people depicted. For my thesis, I critically examine how archaeologists and other authors present ideas about indigenous Northwest Coast and Coast Salish people's traditional lifeways through images. By looking at existing images from my perspective as an archaeologist and artist and including perspectives from the Lummi Cultural Resource Preservation Commission, I consider how dominant colonial ideologies have influenced representations of past Northwest Coast and Coast Salish peoples. I have kept these ideas in mind when creating new images of past Coast Salish lifeways inspired by archaeological evidence.

Frierson, Andrew, Inland Northwest Cultural Resource Consulting see Miller-Atkins, Galen

Fulgham, Samantha, Plateau Archaeological Investigations
Paper ***Innovative Solutions to Unique Project Parameters: Plateau's take on modern technology and methods in the CRM industry***
By: Samantha Fulgham and David Harder
Abstract: After 20 + years in the Cultural Resource Management (CRM) business, Plateau CRM has adopted modern technology and methods in order to provide creative solutions for our clients' projects. This talk will include discussion of three methods utilized in our projects that can help other Cultural Resource Management professionals develop creative strategies and methodologies for their unique project parameters. Drone mapping and imagery, ponar dredge sampling, and mechanical auguring are three modern and innovative methods that Plateau has utilized over our last five years to complete projects and elevate our final product. We will discuss how we came to adopt these methods, the solutions that they offer, and our perspective on the future of these methods and others as CRM continues to modernize.

Fulgham, Samantha, Plateau Archaeological Investigations see MacIntyre, Hannah

Furlong, Julia, Arizona State University**;** Association for Washington Archaeology
Panel ***Current Issues and Developments in the Association for Washington Archaeology***
By: Julia Furlong, Josh Allen, David Carlson, Anna Coon, Jason Cooper, Leah Koch-Michael, Pat McCutcheon, Brandy Rinck, and Adam Rorabaugh
Abstract: To keep the Annual General Meeting fun and painless, the AWA will host this informative session to present details of our many current projects, as well as provide the membership with opportunities to ask specific questions and work through topics of concern. AWA will live stream the sessions for members that cannot attend the NWACs in person. Then, the annual general meeting will be shorter with just the highlights. Please attend any and all of these presentations. Topics include: presentation of election candidates, budget review, committee updates, technician training efforts, and journal and newsletter updates.

Gabriel, Kara, Central Washington University see Abney, Kristy

Gallagher, Aidan
Poster ***Creative Mitigation and Future Investigation of a Mining Town on the Upper Twisp River***
By: Aidan Gallagher
Abstract: The town of Gilbert was founded in the late nineteenth century as part of a gold rush along the Upper Twisp River and its tributaries. Although the Methow people had been living in the area since time immemorial, Euro-American activity in the Upper Twisp traces back to the mid nineteenth century when trappers entered the region. Gilbert boasted ten to twelve structures and hundreds of occupants between 1890 and 1914. Despite the short-lived nature of boom-and-bust mining towns, Gilbert remained occupied into the 1970s. The area has been used extensively for hunting and other recreation into the modern day. The archaeological investigation of Gilbert presents a unique opportunity to understand the layout and material culture of a late 1890s mining town. This presentation will explore future work at Gilbert while discussing creative mitigation strategies for a mixed-use area on publicly managed land.

Galloway, Mars, GeoVisions see Petrich-Guy, Mary

Gerlach, Ally, University of Idaho
Paper ***Heritage, Identity, and Artifact Display: Public Archaeology and Community Collaboration at Iosepa***
By: Ally Gerlach
Abstract: Public archaeology emphasizes methods and interpretations which benefit indigenous, stakeholder, and descendent communities. This paper discusses the creation of a mobile artifact display created for the descendent community of Iosepa, a late 19th to early 20th century Hawaiian and Polynesian settlement site established by The Church of Jesus Christ of Latter-day Saints in Skull Valley, Utah. Combining community interviews, archival research, and excavated material culture, the exhibit offers a glimpse into the personal stories of Iosepa's first residents while also offering education about the science of archaeology. By tracing the process of the exhibit's creation, I will show how collaboration with the descendent community has not only increased public interest in the archaeological process but also resulted in an interpretive display that best meets community needs.

Gilliland, Richard, Portland State University
Paper ***Ethics in Archaeology***
By: Richard Gilliland
Abstract: Ethics in Archaeology challenges the ethical evaluation of American archaeology and calls for professional institutions to promote Indigenous and First Nations autonomy in archaeological investigation. The paper questions the authority of western colonizers as gatekeepers of the American archaeological material record. It analyzes the motives of the Society for American Archaeology and its effectiveness in creating ethical guidelines. The paper also criticizes the platform the SAA has provided for those who blatantly make racist remarks that continue to strengthen the colonization of Indigenous Peoples. The paper questions why America has such difficulty in providing Indigenous descendant communities autonomy over their material past and even their ancestral remains.

Ethics in Archaeology draws the conclusions that the reasons for America's shortcoming in archaeology stems from its inability to recognize Indigenous Knowledge as an equal to western science instead of inferior to it. This leads to an overvaluation of archaeological materials and an undervaluation of the wants and rights of the descendant communities that those materials belong to. The paper implores archaeologists and the American government to work as diligently to restore Indigenous sovereignty as they have both worked to take it away in the first place.

Gleason, Eric, SOULA
Paper ***The Search for Japanese Railroad and Mill Workers in the Malheur National Forest: Building on Don Hann's Foundation***
By: Eric Gleason
Abstract: During the 2021 and 2022 field seasons crews from Southern Oregon University Laboratory of Anthropology (SOULA), US Forest Service archaeologists, and Passport in Time volunteers collaboratively investigated two sites on Malheur National Forests. Both sites have a documentary and oral history linking them to Japanese railroad and lumber mill workers. The field crews conducted site surface surveys, metal detector surveys, test excavations and GIS mapping in an effort to pinpoint the location of Japanese occupied camps and dwellings.

Hackenberger, Steven, Central Washington University
Poster ***Activity Area Analysis of the Sanders Site (45KT315), Yakima Uplands, Washington.***
By: Steven Hackenberger, Emily LaPlante, and Rylee Chadwick
Abstract: LaPlante (CWU Farrell Scholar) recently led a new study of the Sanders Site (45KT315) collection. Excavated in the 1970's, the site is located in the Yakima Uplands of the Middle Columbia River. The site was occupied from as early as 10,000 years ago; however, the heaviest occupation dates between 4000 and 2800 years ago (Frenchman Springs Phase). Six new AMS radiocarbon dates are reported. Small leaf-shaped dart points and contracting stem arrow points are associated with bone cooking features (including Bighorn). The relative frequencies of four rodent species indicate relatively cool/moist conditions. LaPlante and Chadwick improved collection curation and introduced collections research to another team of undergraduates now involved in Farrell Scholarship research (Biggs, Burks and Cobb).

Hackenberger, Steven, Central Washington University see Brown, James W.

Hackenberger, Steven, Central Washington University see Brown, James

Hanson, Sydney, Washington State Department of Archaeology and Historic Preservation
Organized Symposium ***Modern Methods in CRM Archaeology***
By: Sydney Hanson and Stephanie Jolivette
Abstract: Modern problems require modern solutions. This session will cover a wide variety of methods that CRM archaeologists may use to discover, map, and analyze sites amid today's field technician shortage and the breakneck speed of development across the Pacific Northwest.

Hanson, Sydney, Washington State Department of Archaeology and Historic Preservation
Paper ***The view from above: improving archaeological field methodology in Eastern Washington using aerial and LiDAR imagery***
By: Sydney Hanson, Stephanie Jolivette, and Karen Capuder
Abstract: In recent years, Eastern Washington has seen an influx of development; the siting of solar and wind farms, as well as the rapid growth of once rural towns, have necessitated archaeological surveys of large swaths of Yakima, Benton, Klickitat, and other Counties. Common archaeological survey strategies often fall short in the face of these projects, leading to multiple rounds of report revisions or additional fieldwork. In keeping with NWAC's 2023 theme of "Renewal," the authors of this presentation discuss how archaeologists can modernize their field methodologies using two simple tools: Google Earth and the DNR LiDAR Portal. Further, the authors will showcase examples of archaeological and historical features in Eastern Washington that can be identified (and better protected) using these tools.

Hanson, Sydney, Washington State Department of Archaeology and Historic Preservation see Jolivette, Stephanie

Harder, David, Plateau Archaeological Investigations see Fulgham, Samantha

Harding, Sierra, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Harnden, Faith-Ann, Eastern Oregon University
Poster ***Preliminary Faunal Analysis of Woodward Mammoth Recovered near Prineville, Oregon***
By: Faith-Ann Harnden and Chance McNeal
Abstract: Excavation and recovery of the Woodworth Mammoth took place in fall of 2019 near Prineville Oregon. This poster details the recovery of what appears to be a single individual Columbian Mammoth and presents initial results of the ongoing faunal analysis. Results of sediment analysis and a basic faunal inventory, including NSIP and MNI, support the interpretation of this individual as a Columbian Mammoth from the late Pleistocene whose remains were deposited during overbank events along Lytle Creek or the Crooked River.

Harris, Lucille, WillametteCRA see North, Michelle

Harvey-Marose, Juniper, University of Idaho
Paper ***Pon Yam House: a refuse in time.***
By: Juniper Harvey-Marose
Abstract: During the later 19th and early 20th centuries, Chinese immigrants moved to the Boise Basin to secure jobs in mining, only to be subject to discriminatory labor laws. The U.S. Chinese Exclusion Act of 1882 led many immigrant laborers to find alternative employment in industries such as laundering, mercantile, and gardening. By 1867, local laws prohibiting Chinese miners were repealed, opening new opportunities, including the purchase of mining and water rights. By the 1890s, the Chinese comprised over half the Boise Basin population. The 1860s Pon Yam store is the only remaining preserved building formerly occupied by the Chinese residents of Idaho City. In 1998, the US Forest Service excavated the Pon Yam house's backyard space during a preservation project. Preliminary analysis of the recovered material collection provides insight into the daily life of Chinese immigrants in Idaho and offers new insight into the events surrounding an 1865 fire that destroyed all but a few buildings in the region.

Hollingshead, JayCee, University of Idaho
Paper ***Public Archaeology at Moscow High School: Summary and Results***
By: JayCee Hollingshead
Abstract: In September 2019, a group of archaeologists from the University of Idaho partnered with local educators to excavate the grounds of Moscow High School. Before the current building was constructed, at least eight houses stood on what are today the school grounds. Archaeologists tested in the vicinity of five of those structures revealing the original high school's foundation and recovering a considerable domestic assemblage associated with the late 19th to early 20th century residents. This paper will present a history of the site's occupation and a brief descriptive analysis of the material culture recovered during excavations. Moreover, I will discuss how public outreach was an essential aspect of this project, allowing multiple stakeholder populations to learn about both archaeological methods and local history.

Hope, Tina, Washington State University
Paper ***Elitism and White Supremacy in U.S. Animal Shelters: How the Impoundment and Re-homing of Dogs is policed using the White Savior Complex.***
By: Tina Hope
Abstract: Animal shelters in the United States have become a tool of institutionalized racism and aid in the perpetuation of stigmatization of marginalized communities. Despite having evolved alongside

humans and living in all areas, climates, and ways in which humans do, dogs are used as a tool to police the lives of people of color. Dogs enter animal shelters in a variety of ways; they may have been found 'stray', be seized when their owner is hospitalized or incarcerated, surrendered by their owners, or the least likely avenue of confiscation, under assumptions of cruelty or neglect. Owning a dog is treated as a privilege instead of a right, and through this dog ownership becomes a symbol of status and a demonstration of dominance and control over 'others'. Rather than operating from an elitist perspective that is informed by hegemonic ideology, those responsible for capital reallocation, here the re-homing of dogs, should apply a postmodern approach informed by cultural relativism in order to deconstruct their ethnocentric viewpoint. In order to better serve the needs of humans and nonhuman animals through animal sheltering the concept of the heteronormative nuclear family as the 'best' way to live with a dog needs to be re-evaluated.

Hovanes, Kate, Bureau of Reclamation, Columbia-Cascades Area Office
Poster ***Bridging the Gap: A Survey and Assessment of Bridges on the Kittitas Division Main Canal, Kittitas County, Washington***
By: Kate Hovanes
Abstract: In 2021 Reclamation's Columbia-Cascades Area Office conducted a survey of bridges crossing the Yakima Project's Kittitas Division Main Canal in Kittitas County, Washington, in partial fulfillment of a Memorandum of Agreement. Twenty-six bridges were identified during intensive-level survey, constructed during and after the period of significance of the Kittitas Division Main Canal, of which ten were replacements of historic bridges. Based on the results of this survey it was concluded that two of the four types of bridges historically associated with the Kittitas Division Main Canal are no longer extant within the 26.2-mile stretch. Structural deterioration and increasing development are both identified as contributing factors in the loss of historic bridges within the survey area. This poster presents the methodology and results of that survey, discusses the significance of the bridges as potential contributing features of a historic linear irrigation resource, and provides insight on the potential for and value of preservation for similar resources in the future.

Hsu, Amanda, Washington State Department of Archaeology and Historic Preservation see Jolivette, Stephanie

Hunter, Trinity, University of Idaho
Paper ***Negotiating the Norm: Sex Work and Victorian Ideals in Sandpoint, Idaho***
By: Trinity Hunter
Abstract: In 2006, the state of Idaho began its largest archaeological project to date: the Sandpoint Archaeology Project. Emerging from 500 units, over 550,000 artifacts tell the story of the town's "Restricted District," home to two houses of sex work, two saloons, and a dance hall. The adjacent proximity of a brothel and a bordello allows researchers the opportunity to comparatively analyze the complex realities of sex work in the American West. Moreover, these locations are also relevant to a larger disciplinary conversation surrounding the roles gender and sexuality play in creating and challenging social norms. This paper presents preliminary archival and material culture-based research on Sandpoint's "Restricted District" to interrogate how residents negotiated Victorian norms and ideals in conjunction to their participation in the sex work industry.

Jankowski, Stephen Todd, Bureau of Land Management - Roseburg District
Paper ***Cultural Histories & Rock Features of the Youngs Rock Rigdon Project, Middle Fork Ranger District, Willamette National Forest***
By: Stephen Todd Jankowski
Abstract: A cultural resource inventory was conducted on 6700 proposed treatment acres for the Youngs Rock Rigdon Project EIS, Middle Fork Ranger District, Willamette National Forest. In total, 4,903 acres were pedestrian surveyed resulting in 51 new sites and eight existing sites updated. Archaeological

features comprised more than the majority of new sites and updated site addenda. More specifically, 80 new culturally modified trees (CMTs) and 136 new rock features identified. These rock features types appear to be related to indigenous occupation, activities, or traditions between the Pre-contact era to perhaps more recent times. This presentation reviews the proposed project, general cultural histories of the project area, and newly identified rock features located in the Southern / Western Cascades, Upper Middle Fork Drainage of the Willamette River.

Jensvold, Mary Lee, Central Washington University see Lopez, Naylea

Johnson, Matt, Grant County PUD
Paper ***A Brief History of the Washington Archaeological Society***
By: Matt Johnson
Abstract: Operating from ~1957-1982, the Washington Archaeological Society (WAS) was instrumental in the formative years of Washington State archaeology. Despite their contribution, no summary of their work is extant. Although an avocational group, WAS membership included numerous professional archaeologists spread across multiple chapters. Members utilized contemporary excavation and survey methods, had a constitution and code of ethics, and were early supporters for legislation protecting cultural resources. Their publication, The Washington Archaeologist, was for a time the only regular publication dedicated to archaeology in Washington State and included descriptions of work at over 100 sites. A summarized history of the WAS contributes to the understanding of site histories that archaeologists today are tasked with managing, as well as the significant legacy of project collections.

Johnson (Noggle), Katie, SOULA
Paper ***The Taste of Archaeology***
By: Katie Johnson (Noggle)
Abstract: Don Hann has a talent for experimental archaeology, allowing his collaborators to get a real taste of his love of history. Throughout our time on the Malheur National Forest, Don used archaeological data recovered from our projects to conduct experiments with foods and cooking methods potentially used at our sites. His creativity and ingenuity took our knowledge from the theoretical to the perceptible, and it tasted delicious. Don has been instrumental in the development and momentum of the Oregon Chinese Diaspora Project and led multiple PIT projects in conjunction with SOULA's work on the Forest. Don's enthusiastic experimentations created unique opportunities for all involved to experience archaeology in a unique way that moves beyond traditional research methods.

Jolivette, Stephanie, Washington State Department of Archaeology and Historic Preservation
Paper ***Seeing Through the Trees: Using LIDAR and Aerial Imagery for Project Scoping and Survey Design in the San Juan Islands, Washington***
By: Stephanie Jolivette, Amanda Hsu, and Sydney Hanson
Abstract: In recent years the quality of free LIDAR and aerial imagery available online has changed the game for archaeological scoping and survey design. In this presentation we will discuss currently available free online resources, and how they can be best used to both scope projects and design surveys. We will also show examples of site types that are now visible in remote searches and discuss the ethical and legal responsibilities associated with these research methods. This talk will focus on the San Juan Islands of Washington and discuss which techniques work best in open versus forested environments.

Jolivette, Stephanie, Washington State Department of Archaeology and Historic Preservation see Hanson, Sydney

Jolivette, Stephanie, Washington State Department of Archaeology and Historic Preservation see Hanson, Sydney

Kager, Nicholas, THPO Coeur d 'Alene Tribe
Paper ***The Differing Voices of Ethnohistory***
By: Nicholas Kager
Abstract: I love America it is where my ancestors dwelt since immemorial. The fact is, you cannot proclaim America as being the freest most progressive nation in the world, because it is not. Germany has atoned and continues to atone for it's attempted genocide with reparations for holocausts survivors. Here in the great USA under the 45th president another genocide was attempted last year when the Mashpee Wampanoag tribes federally recognized status was challenged by the Trump administration. We teach our kids about these holidays, but what do they mean to each of us that make up these great states? Is the national narrative really still the same as the one put forth by the Puritans so long ago? I no longer wonder about our current dissent as a nation. It is at the root. In order to teach history, we must recognize the evils that built this country and begin the healing process through reparations, treaty reaffirmations, and national reform on what it means to be an American. Using Ethnohistory as a tool we can represent the many viewpoints, personal experiences, and interpretations of US history in an all encompassing manner that acknowledges each culture that makes America Great.

Kebede, Kassahun, EWU
Paper ***"There's No One 'Right' Way to Be Black": Exploring Ethnic Self-Identities of Second-Generation Ethiopian Adults in the US.***
By: Kassahun Kebede
Abstract: This research aimed to delve into the ethnic self-identities of second-generation Ethiopian adults in the United States. Using a mixed-methods approach, the study involved 37 participants aged 30 and above, with some participants having interacted with me since 2009. Most participants identified as Ethiopian Americans, while others identified as Ethiopian, American, or pan-ethnic, such as Ethiopian-African American and American African. Notably, all participants reported experiencing shifts in their identity in the past but had now reached a point of stability. The findings suggest that ethnic self-identifications among second-generation Ethiopian adults are complex and multifaceted, highlighting the need for a nuanced approach to understanding Blackness in America.

Katherine Kelly, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Kennedy, **Cayla,** Willamette National Forest see Kmetz, Annmarie

Keyser, Jim, Oregon Archaeological Society (USFS, retired)
Paper ***Don Hann: An Academic in a Green Uniform***
By: Jim Keyser
Abstract: I was the US Forest Service Regional Archaeologist when Don got his first position on the Malheur National Forest and have worked with Don on various rock art projects since that time. Don was one of those rare “scholar archaeologists” working for the Forest Service. His research and transcription of the Curtin Field Notes for the Klamath Modoc gives us a unique glimpse into the past. Likewise, his rock art research on Picture Gorge and the Malheur Lake Basin (with Dan Leen) is state of the art and provides information on some of the most important (and least well known) rock art in Oregon.

Khatun, Sayema, University of Wisconsin, Milwaukee
Paper ***Scientific Evidence of the Birthplace of a God: Politics of Archaeological Practice in Ayodhya Controversy***
By: Sayema Khatun
Abstract: The practice of Archaeology in post-colonial India has been largely bearing the legacy of British colonial scholarship that contributed to the debates in the formation of modern identities in India.

Past has become a contested space and center of explosive controversy expanding beyond the discipline into the national and regional political environment in India, Pakistan, and Bangladesh. Archaeological evidence and arguments have been deployed in religious and communal conflicts. Investigating the Babri mosque case in Ayodhya, I have made an effort to understand the contestation within archeological scholarship in South Asia and how the archaeological excavation, evidence, and knowledge have been practiced and produced in the use of modern identity formation and providing the basis of self and other as dominant and marginal national identities. Engaging with Bruce Trigger's discussion of alternative archaeologies, I have explored the practice and politics of colonial archaeology and its legacy in the present post-modern states in South Asia. Engaging with logical inferences and explanatory strategies from the relevant archaeological texts from Kohl, Meskell, Coleman, Bernbeck and Pollock, and Ratnagar I have laid out my discussion facing epistemological and ethical challenges it posed and framed my argument in a synthetic interpretive approach.

Kmetz, Annmarie, Willamette National Forest
Poster ***Camas Prairie: restoration of a wet meadow for traditional use in the Cascade Range foothills***
By: Annmarie Kmetz, Claire Bennett, and Cayla Kennedy
Abstract: Ethnographic evidence from the Willamette Valley and central Cascade Range indicates wet meadows that have a high diversity of native plants were likely connected to annual burning by indigenous communities to improve hunting and harvesting conditions. In 1997, the Sweet Home Ranger District on the Willamette National Forest began conducting biennial burning of a 10-acre, low elevation wet meadow in the western foothills of the Cascade Range for the maintenance and propagation of camas and other native plants. The project has both cultural and botanical goals including restoring the wet meadow habitat through the reduction of ash trees and other non-native species, improving the hydrologic function of the meadow, and working with local Tribal partners to restore a location of first foods gathering. The project has succeeded in increasing camas species (*Camassia quamash, C. leichtlinii*) and has given other native plants an opportunity to flourish but has not fully eradicated non-native plants or ash species. To handle the on-going threat of invasive species, federal employees and Tribal partners are exploring new ways to eradicate weeds while preserving habitat for native, high-value plants such as camas, red cedar and osoberry.

Koch-Michael, Leah, Association for Washington Archaeology see Furlong, Julia

Kopperl, Robert, WillametteCRA
Poster ***Suquamish herring fisheries and herring population dynamics from deep time to the recent past***
By: Robert Kopperl and Dennis Lewarch
Abstract: Pacific herring have been important to traditional Suquamish fisheries both before and after European American contact. This fish (*Clupea pallasi*) is an ecological keystone species composed of genetically distinct populations that spawn at various times in the winter and spring in geographically discrete marine bays and inlets of the southern Salish Sea. Our knowledge of Suquamish herring use – both traditional and contemporary, and for food, roe, and bait – comes from archaeological, ethnographic, and historic archival data sets. The archaeological record of Suquamish herring use is rich, extending centuries back before contact in shell midden faunal assemblages. Documentary and archival data sets generated by ethnographers and Tribal historians give context for herring use from the 19th century to the present. Recent collaboration by the Tribe with population geneticists and archaeologists has shed new light on herring population dynamics over the past millennium. We have detected a diversity of genetically distinct herring populations that provided the Suquamish and their neighbors with an ecological resource wave created each year by groups of herring with predictable and slightly different seasonal availabilities.

Kovach, Maria, Central Washington University -- Cultural and Environmental Resource Management Program

Poster ***Identifying and Mapping Indigenous-Use in Stone Tools Across Space and Through Time at 45KI263***

By: Maria Kovach and Patrick McCutcheon, , ,

Abstract: A functional use wear classification was applied to the lithic assemblage of the late Holocene archaeological site 45KI263 to measure diversity of Indigenous-use and infer the range of activities that may have occurred at the site. The occurrence of use wear and the diversity of filled functional classes were evaluated against expectations derived from existing land-use models and previous conclusions made about the site function. Variability in functional diversity in relation to location within the site and proximity to site thermal features was also analyzed. Preliminary results indicate a low abundance of wear with a relatively high diversity of filled functional classes. Application of this high-resolution classification has also identified higher diversity within the category of ground stone. Overall, this research supports that use wear as a line of evidence can be consistent with results of other forms of lithic analysis while providing additional nuance when considering site function.

LaPlante, Emily, Central Washington University see Hackenberger, Steven

Legnini, Luciano, Columbia River Gorge National Scenic Area

Poster ***The Bridal Veil Lumbering Company: Indications of Advancing Technologies and Improved Residential Conditions at Camp A***

By: Luciano Legnini, Brittney Cardarella, Bobby Saunters, and Chris Donnermeyer

Abstract: Logging was an economic and cultural pillar of the Pacific Northwest. The Bridal Veil Lumbering Company, a logging company operating in the Columbia River Gorge in Oregon State, was the longest continuously operating early lumber mill west of the Mississippi River. The company spanned a timeframe that encompassed a wide range of technologies, immigration trends, labor uprisings and resulting changes in working and living conditions, and safety regulations. Archaeological investigations over the last several decades have revealed the remains of six camps, each an architype of the technological and cultural milieu of the decade in which it operated.

Recent investigations at "Camp A" have indicated shifts in operational and residential conditions during the circa 1917-1922 occupational timeframe of the camp. This poster documents the on-going investigations at Bridal Veil Camp A with a focus on indications of changing camp operational technologies and improved labor and residential conditions. However, many questions remain, as indicated by both the archaeological record but also by a lack of refuse materials. Research questions that will drive future investigations will also be discussed.

Lewarch, Dennis, Suquamish Tribe see Kopperl, Robert

Lillquist, Karl, Central Washington University see Lubinski, Patrick

Litzkow, Jamie, Bureau of Land Management

Paper ***Beyond Clickbait: Contextualizing Our Shared Heritage in Divisive Times***

By: Jamie Litzkow

Abstract: Federal archaeologists are in a unique position to inform the public perception of historic issues, archaeological research, and community-specific concerns. Respecting the viewpoints of diverse, often conflicting, stakeholders forces multiple use agencies to think and act in creative ways as responsible stewards of the "resource." Recent flashpoints of cultural conflict at the national level illustrate an urgent need for a more informed public regarding the dynamic values of historic places, traditional ecological knowledge, and shared landscapes. With an increase in the interest, use, and investment in public lands, finding common ground is now more essential than ever. Efforts undertaken by the Bureau of Land

Management (BLM) to foster a more contextual understanding of our shared national heritage will be highlighted. Specific examples of events organized by the BLM in cooperation with local scholars, tribal representatives, associations, historians, agency specialists, and cultural resource management professionals will be detailed, illustrating the myriad of ways we can work together to reach the public in more intimate and meaningful ways.

Lockwood, Chris, Environmental Science Associates
Paper ***Going Deep in Tacoma: Identification and Avoidance of a spuyaləpabš Village Site***
By: Chris Lockwood and Justin Colón
Abstract: During design and construction of a new stormwater pipeline and outfall in Tacoma's downtown and waterfront, the project team was challenged to find, document, and avoid deeply buried archaeological resources near the traditional location of Puyaləp village. Given an urbanized setting that precluded traditional survey, archaeological data was gathered by observing different deep sampling and construction methods, including augering, sonic boring, vactoring, trenching, and microtunneling. This paper explores how the project team collected and used data from deeply buried contexts to identify the village site, to work collaboratively with the Puyallup Tribe of Indians to redesign the project to avoid the site, and to assess the efficacy of avoidance measures.

Lopez, Naylea, Central Washington University
Poster ***Chimpanzee Caregivers Daily Shift Reports: A Preliminary Thematic Analysis***
By: Naylea Lopez, Amanda Pauli, Katelyn Seymour, and Mary Lee Jensvold
Abstract: Five chimpanzees who had acquired signs of American Sign Language (ASL) lived on the campus of Central Washington University from 1980-2013. The chimpanzees were unique in their use of in interactions with each other and humans. Caregivers wrote shift reports to describe their activities and observations during the shift. This is a detailed record of the chimpanzees' daily lives. This preliminary thematic analysis used an inductive method to develop codes. Shift reports contained themes such as descriptions of chimpanzee-to-chimpanzee interactions (e.g. play, grooming, reassurance); chimpanzee human interactions (e.g. meal service, play); ASL signed conversations; chimpanzee reactions to meals, humans, and situations; human interpretation of chimpanzee moods, attitudes, and behaviors; chimpanzee participation in daily activities and use of objects; chimpanzee health reports; detailed description of interesting interactions and behaviors; description of cleaning enclosures and tasks in housekeeping, and data analysis and collection. In this stage of the thematic analysis, we report the analysis of several months of reports from 1986-1987. This poster will contain examples of themes. This study was exempt from IRB review (study number 2022- 107) as the identity of the shift report authors and other humans in the reports was protected and the data are reported in aggregate.

Lubinski, Patrick, Central Washington University
Poster ***Is the Wenas Creek Mammoth Site Anthropogenic?***
By: Patrick Lubinski, Karisa Terry, James Feathers, Karl Lillquist, and Patrick McCutcheon
Abstract: The Wenas Creek Mammoth Site was excavated 2005-2010 near Selah, Washington, yielding bones of mammoth and bison dating ~17 ka, and two lithics resembling chipped stone debitage. Prior publications have reported on some aspects of the project and this poster summarizes those as well as subsequent analyses. The bones were disarticulated and scattered within a stratum of gravelly silt loam colluvium on a hillside. The mammoth remains compose 68 elements, primarily vertebrae, limb elements and ribs, while the bison remains compose 21 elements, including lumbar vertebrae, sacrum, and left hindlimb elements. Neither mammoth nor bison remains show any evidence of human modification although some mammoth bones exhibit green fracture. The possible debitage includes one resembling a blade fragment made of lithic material visually distinctive from the site matrix and dating either ~17 ka (75 associated single grain IRSL dates) or ~5 ka (19 associated single grain IRSL dates). As with earlier reports,

the site continues to provide an uncertain association of 17 ka paleontological materials and human activity.

Lynch, Michelle R., Applied Archaeological Research, Inc. see Mathews, Bethany K.

Lyons, Kevin, Kalispel Tribe of Indians
Paper ***Let's Put On a Show: A rationalist's perspective on mission fulfillment in public engagement***
By: Kevin Lyons
Abstract: After the two plus years of pandemic uncertainty and variable social isolation, the anthropological communities (academic/commercial/governance) in this region are clamoring to re-engage with an audience. It's not that the masque of the red death has slipped away from our little hamlets to harm no more. No, we yield to emotional fatigue. This is not new, even the bruised and battered citizens of Belfast and Beirut yielded to hope and love. These emotions are understandable, even tolerable. But to be a benefit, there needs to be accountability and purpose in anthropology's outreach to the public. Anything less, is a self-serving sham designed to dupe the actor and audience with the false coin that action is accomplishment. We need to guard against performance becoming about self-appreciation rather than enrichment of the audience.

MacIntyre, Hannah, Plateau Archaeological Investigations
Paper ***Old Methods for Modern CRM: Using community ethnography to explore the archaeological past***
By: Hannah MacIntyre, Samantha Fulgham, and Emily Whistler
Abstract: In November of 2021, Plateau identified a large precontact site during archaeological monitoring for the Waste Water System Improvements Project in Ephrata, Washington. Plateau worked with the Department of Ecology, the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Colville Reservation, the Wanapum Tribe, and the Spokane Tribe of Indians to develop a path forward. Part of this work included ethnographic studies among Ephrata's oldest residents who have been living in the town since the early 1950's. Plateau's Cultural Anthropologist, Hannah MacIntyre, collected surveys and conducted interviews with Ephrata's residents to understand what changes have happened in the area that was affected by construction. Residents also provided information about historic land use in the town. In this presentation, we will discuss methods and sampling strategies, what kinds of data were collected, and how Cultural Anthropology can help push the CRM industry forward.

MacLean-Cariello, Isabella, University of Idaho
Paper ***What Is Canthrox?***
By: Isabella MacLean-Cariello
Abstract: The main role of analytical chemists in historical archaeology is to identify unknown artifacts – or at least facilitate identification by narrowing down the possibilities. It may come down to the characterization of an unknown liquid in an unmarked bottle, or it may involve the tracking down of the long forgotten brand based on the properties of remnants in a container. The results of these investigations are often interesting, and sometimes surprising – like, for instance, when we found what people used to wash their hair 120 years ago…

Macrae, James, Washington State Department of Archaeology and Historic Preservation
Paper ***In the Light of Full Spectrum Archaeology: A Field Report of Previously Undocumented Archaeological Features in the Saddle Mountains***
By: James Macrae
Abstract: On a recent archaeological inventory project in Central Washington, several previously undocumented, remote sites were identified. These sites contain feature assemblages that are not well

documented or understood in the archaeological record, including bedrock mortar features with use wear and a blue-colored patina. These findings are presented for discussion within the anthropological community and as a case study to highlight the developing epistemology of "Full Spectrum Archaeology." This paradigm is presented as a virtuous circle, useful in the identification, documentation, understanding, and management of precontact archaeological materials, sites, and landscapes throughout the Pacific Northwest.

Major, Maurice, Washington Department of Fish & Wildlife (WDFW)
Forum ***Cultural Resources at WDFW Past, Present, and Future***
Discussants: Maurice Major, Katherine Kelly, John Davis, Sierra Harding, Ross Smith, Hannah Bates, Heather Dykstra, Hannah Fitchett, Carol Schultze
Abstract: Last time NWAC happened in person, the Washington Department of Fish & Wildlife (WDFW) had a single archaeologist covering over 1,000,000 acres—today, we have 12 including permanent and project staff, paid yearlong interns, and embedded consultants. Because WDFW manages for healthy ecosystems, WDFW's cultural resource crew occupy a unique professional setting with the ability to work with the full range of cultural resources on a landscape scale. WDFW's mission also allows staff to revisit and learn the land and build long term relationships with tribal partners. This informal discussion will present the range of work we do and describe our past and future growth. Come to learn about habitat and watershed-based CRM, cultural landscape and ecosystem stewardship, and the range of employment, internship, and contracting opportunities with WDFW. There will be time for questions and audience discussion.

Maroney, Kendra, Kalispel Tribe of Indians
Organized Symposium ***Outreach and Education: Examples of Approaches and Strategies in Archaeology and Cultural Resource Management***
By: Kendra Maroney
Abstract: Public outreach and education are carried out across our profession to meet different needs and goals. How do different organizations approach this important work? What can we learn from each other to better deliver our missions, build connections, support local communities, and the public? This session will host representatives from a variety of backgrounds to share recent examples of public outreach and education projects, including in-person informational booths and hands-on activities, interpretive displays, informational packets and handouts, workshops or presentations, social media and digital opportunities, and creative adaptations due to the recent pandemic. This symposium supports the larger efforts within public outreach to develop "best practices" and provide a tangible and durable public benefit for their investments in heritage conservation. Finally, the session provides an opportunity for presenters and the audience to build community as we celebrate and reflect on past and ongoing projects.

Maroney, Kendra, Kalispel Tribe of Indians
Paper ***Engaging Youth in Archaeology and Cultural Resources – Examples from the Kalispel Natural Resources Department***
By: Kendra Maroney
Abstract: Over the last five years, the Kalispel Natural Resources Department and Cultural Resources Program have worked with the Early Childhood Education Department at the University of Montana and the Visual Communications and Design Program at Eastern Washington University to create and deliver stand-alone educational content to share with local youth. The goal was to produce materials that integrated the Tribe's Salish language with natural and cultural resources to reflect Kalispel values. Bi-lingual information cards, activity books, and posters were created. These items were distributed to the Kalispel's Salish Immersion School, the Camas Early Learning Center, as well as to the local schools and made digitally available to promote use at home or in the classroom. These materials are designed to springboard conversation, provide at-home and in-class support, to promote questions and conversations

about natural and cultural resources, and why these resources are important to the Tribe. These efforts are examples of how archaeology, natural resources, language, and culture are connected and shared within a community.

Marquardt, William, Umatilla National Forest, University of New Mexico
Paper ***More Than Just Archaeology: Creating More Holistic Cultural Resource Inventories***
By: William Marquardt, Meghan Caves, and Autumn Myerscough
Abstract: Most heritage surveys conducted by Federal agencies in compliance with the National Historic Preservation Act (NHPA) focus exclusively on archaeological resources. This approach results in the effective documentation and preservation of archaeological sites but leads to gaps in our understanding of a wide variety of cultural resources. For the last several years, National Forests have been encouraged to develop more holistic approaches to cultural resource management. In 2022, the Umatilla National Forest proposed to conduct a roadside and area salvage sale within the Lick Creek Fire footprint in southeastern Washington. A cultural resource inventory design incorporating ethnographic and ethnobotanical survey was developed and implemented on a 700-acre sample of the salvage project area. The results of this survey highlighted the interrelatedness between archaeological sites in the northern Blue Mountains, the natural world they are sited in, and the contemporary cultures who rely upon this land for physical and spiritual sustenance. A better understanding of the Blue Mountains as a cultural as well as natural resource also provides a much-needed human element to the development of Forest projects situated in Traditional knowledge and lifeways. The field methods presented in this paper are designed to be easily incorporated into existing survey frameworks.

Mathews, Beth, Antiquity Consulting
Organized Symposium ***Northwest History and Historical Archaeology***
By: Beth Mathews
Abstract: In this general session, participants present posters on the results of historical and archaeological research into the recent history of the Northwest. In honor of the 2023 NWAC theme "Renewal" this session establishes a space for in-person dialogue on the complex history of colonization in the Northwest.

Mathews, Beth, Antiquity Consulting
Poster ***Women Homesteaders of Northeastern Washington: Orcharding in the Okanogan Highlands***
By: Beth Mathews
Abstract: Homesteading in Washington's Okanogan Highlands occurred later than in other parts of the State, with very few Americans claiming Homestead Act lands here until the 1890s. American settlement and land claims began to peak in the Okanogan Highlands in the early 1900s, shortly after surveyors mapped out available government lands. Railroads expanded in the area at this time, and small Okanogan communities were promoted as emerging boom towns. New irrigation districts encouraged orcharding and farming in a region that had previously supported transient mining. Does the history of homesteading in the Okanogan Highlands reflect this change in the economy? This poster presents summary data of women's homesteading history in Washington's Okanogan, Ferry, Stevens, and Pend Oreille counties, and explores connections between homesteading and orcharding histories in this region.

Mathews, Bethany K., Antiquity Consulting
Poster ***The Status of Northwest Historical Archaeology: An Analysis of Representation***
By: Bethany K. Mathews and Michelle R. Lynch
Abstract: Historic-period archaeological research comprises a substantial portion of the cultural resource management archaeology completed in the Northwest every year. How do we define historical archaeology in the Northwest? How much of our research is focused on historic-period archaeological sites? Does the archaeological community publish the results of historic-period archaeological research

proportionally? Do cultural resource assessment background reviews and their resulting research designs identify diverse histories in the Northwest? This poster presents data on Northwest historical archaeology in presentations, publications, and cultural resource management literature to begin to evaluate the status of Northwest historical archaeology in cultural resource management.

McClure, Rick, Retired USFS
Paper ***Holistic Heritage: the Malheur Model and Forest Service CRM, by the numbers***
By: Rick McClure
Abstract: Over his career Don Hann created a model program on the Malheur NF, well-rounded (holistic), successful in so many areas, and frankly far and above most other programs, in part because of his dedication, passion, intellect, drive, and personality. Having done projects on every national forest in the region during my career, Don's program stood out in many ways. The "by the numbers" part of the title is in reference to Forest Service Manual 2360, for the Heritage Program. Seen by some managers as an unrealistic "pie in the sky" framework for how a Heritage Program COULD be run, Don basically "nailed" everything, setting an example for every National Forest in the Region.

McCutcheon, Patrick T., Central Washington University see Brown, James W.

McCutcheon, Patrick T., Central Washington University see Brown, James

McCutcheon, Patrick T., Central Washington University see Crow, M. Raelynne

McCutcheon, Patrick T., Central Washington University see Furlong, Julia

McCutcheon, Patrick T., Central Washington University see Kovach, Maria

McCutcheon, Patrick T., Central Washington University see Lubinski, Patrick

McCutcheon, Patrick T., Central Washington University see Roush, Cody C.

McCutcheon, Patrick T., Central Washington University see Simurdak, Nik

McCutcheon, Patrick T., Central Washington University see Simurdak, Nik

McDonough, Kristina, University of Idaho
Paper ***Historic Archaeology of McDonough Blacksmith Shop in Southwestern Idaho***
By: Kristina McDonough
Abstract: In March 2022, the collapse of a dilapidated, early 20th-century blacksmith shop on my family's sheep ranch in Montour Valley, Idaho prompted a short archaeological salvage project. The project recovered approximately 1500 items, most of which were metal and associated with various aspects of farm life. Through the investigation of the recovered historical artifacts, this research explores the role of individually operated blacksmith shops in rural Idaho – a lesser-known aspect, yet vital component of Idaho's agricultural history. By the turn of the century, Montour Valley was a bustling industrial hub as a result of the mining boom, the nearby Boise-Payette Lumber Company, and the establishment of the Idaho Northern Railroad. These industries supported a rural community engaged in intensive agriculture and ranching. Blacksmith shops operating on private properties were necessary to maintain agricultural livelihoods, and speaking personally, served as an integral part of my family's history. More broadly, this research aims to deepen our understanding of the role of smaller, local blacksmiths in the rural American West and enrich the agricultural history of Southwestern Idaho.

McDonough, Kristina, University of Idaho see Petrich-Guy, Mary

McGuinness, Megan, Anderson Perry and Associates, Inc.
Poster ***Technology and Subsistence Patterns in the Dietz Basin, Lake County, Oregon***
By: Megan McGuinness
Abstract: The Dietz Site (35LK1529) is a precontact site located in the Dietz Basin in south-central Oregon and is well-known for the Clovis points recorded and collected there in the early 1980s. In addition to Clovis points, archaeologists collected many Western Stemmed Tradition (WST) points in the Dietz basin. Geoarchaeological data from the Dietz Basin suggests that it once held shallow water during the Younger Dryas (~12,900-11,700 cal BP) and dried up during the onset of the early Holocene (11,700-8300 cal BP). Recent WST chronology provides a time frame for points found in open-air sites, and geologic data from this basin provides a glance at environmental change. Based on the WST assemblage from Dietz, more people were using the Dietz Basin during the Younger Dryas when there would have been water in the basin. Understanding past environments people inhabited during the Younger Dryas and early Holocene can give insight into what habitats and food resources the earliest people in the northern Great Basin may have targeted.

McGuinness, Megan, Anderson Perry and Associates, Inc. see Miller-Atkins, Galen

McKenney, Grace, Central Washington University
Poster ***Climatic and human influences on the late Holocene fire history of Beaver Lake in the northwest lowlands of the Olympic Peninsula, Washington***
By: Grace McKenney
Abstract: Fire is an essential component of the landscapes and forests of the PNW, including the temperate rainforest of the Olympic Peninsula. Previous fire history reconstructions from mid-and high-elevation forests of the peninsula show fire appearing on the landscape during the late glacial. Fire return intervals varied throughout the postglacial period, from approximately 500-1000 years, primarily in response to climatic changes and corresponding shifts in vegetation. However, less is known about the fire history of low-elevation forests of the peninsula. In summer 2021, a sediment core was retrieved from Beaver Lake, a low-elevation lake near Sappho, WA, that dates to ca. 3400 calendar years before present (cal yr BP). Preliminary results show infrequent fire activity in the watershed from ca. 3400-2000 cal yr BP with higher fire magnitude variability during the past ca. 1000 years. This analysis will be combined with pollen analysis to determine the site's vegetation history, and will also be evaluated within the context of known local-to-regional scale changes in climate and historic human-land use impacts. Study results will provide information to local land managers about potential shifts in future fire activity as climate change continues to influence the Olympic Peninsula.

McLaughlin, Tara, Kalispel Tribe of Indians
Poster ***Bighorn Sheep, It's What's for Dinner***
By: Tara McLaughlin
Abstract: From the continued archaeological site evaluative effort on the part of the Kalispel Tribe of Indians (KTI) an unexpected and potential pattern in prehistory has been detected. During the last decade, along the lower Pend Oreille River, 75% of sites sampled, have yielded positive antiserum evidence for bighorn sheep, Ovis canadensis. These signatures were discovered on a cobble chopper and samples of fire-cracked rock (FCR) associated with both hearths and earth ovens at 6 out of 8 sites tested in the valley. The antiquity of this pattern (2000 to 200 years before present [BP]) indicates that this was not a fluke of recovery, but rather a pattern of subsistence and a normal component of family provisioning. These results are unexpected and incongruent with the local ethnographic record. Moreover, this watershed does not meet the resource management system requirements for an optimal population of bighorn sheep. Clearly,

there is more to the history of subsistence and family provisioning than is currently acknowledged. Discussed are the constraints and potential meanings of this newfound evidence.

McNassar, Jack, Washington State University
Paper ***Floods, Fires and Faith: Community-Led Responses to Poverty and Disaster in an Appalachian Resource Heritage***
By: Jack McNassar
Abstract: In 1964, President Lyndon Johnson declared the "War on Poverty" from a porch in Inez, Kentucky. At the time, Letcher County, Kentucky, only 300 miles west of the nation's capital, had the unfortunate distinction of being the poorest county in the United States.

Ravaging effects of Civil War; floods of 1872 and 1927; arrivals of the railroad and chestnut blight; bloody Union wars; calls to serve in WWII, Korea, and Vietnam; the collapse of a human-powered coal industry; and stereotypes fashioned in American popular culture forged and tested Letcher County's people as "nightfall came to the Cumberlands."

Despite images of Appalachian poverty in Life and Time magazines and grassroot movements that followed, Letcher County, rooted in mountain traditions, folklore, homesteads, rich life histories, and social capital reflects a diverse contemporary cultural heritage that is as rich in resources and resilience as its striking landscape. While America has moved on, this community works to survive in what may be its most daunting era.

The catastrophic Eastern Kentucky Floods of July 2022 have brought a renewal of trauma and jeopardy in a most vulnerable moment. At the same time, a demonstration of the single greatest resource in this stereotyped Appalachian landscape: Community.

McNeal, Chance, Eastern Oregon University see Harnden, Faith-Ann

McWilliams, Tyler, WestLand Engineering and Environmental Services, Inc.
Paper ***Archaeological Survey Design in Washington Floodplains***
By: Tyler McWilliams and Carol Schultze
Abstract: Recent and ongoing work under the auspices of Washington State's Chehalis Basin Strategy has brought renewed attention to the archaeology of rivers and floodplains. This talk will show that floodplains are complex depositional environments that defy the easy targeting of 'high probability' locations for archaeological survey. We review geomorphological concepts applicable to floodplain archaeology and apply them to Washington State case studies using GIS, lidar, and historical map data. Despite the complexities, some generalizations and truisms regarding probable site locations do emerge from this study. These can be used as a guide to survey sampling strategies for habitat restoration and flood control projects throughout the region.

Medina Martínez (Dirksen), Lorena, WSP
Paper ***Spaniards on their way to Alaska during the eighteenth century and how this is reflected in Washington's coast***
By: Lorena Medina Martínez (Dirksen)
Abstract: From 1774 to 1792, the Spanish crown was worried about the Alaska lands as their territory, as well as everything along the border coastlines from New Spain to Alaska. Therefore, they organized a series of explorations to these territories. Among their objectives: to establish Spanish settlements to ensure that neither Russia or any other country, such as England, occupied the Pacific Northwest; and, to gather detailed descriptions of the territory and its inhabitants. In this presentation, a general analysis of the Spanish presence will be considered; places along the routes that they explored,

descriptions of points of interest to the Spaniards, and the conflicts that developed with the Russians and the British.

Mendez, Keith, Hanford Mission Integration Solutions (HMIS) see Petrich-Guy, Mary

Meyer, Shannon, University of Washington
Paper ***Emerging Disability & Reproductive Rights Discourse within Genetic Counseling, Post-Dobbs***
By: Shannon Meyer
Abstract: My research focuses on the trajectory of emerging discourses in relation to disability and reproduction within the genetic counseling profession in the wake of the Supreme Court decision in Dobbs, overturning Roe v. Wade. The disability community and the genetic counseling profession have often been at odds in regards to the ethics of selective abortion. With data collected from the national conference of genetic counselors, interviews and analysis of discourse, this research project's aim is to find discursive threads by which to connect historically divergent groups for a shared goal of increased equity and justice for patients, as well as the disability community's desire for more nuanced conversations about medical ableism, reproductive and disability justice. This moment offers an opportunity to demystify the overlapping and conflicting needs of emergent disability and reproductive activism, acknowledging how genetic counseling, as a profession, acts as gatekeeper to critical information for pregnant people looking for guidance, and also the possibility of critical engagement with shared ideas and ethics. This research also offers me an opportunity to engage with affected communities, centering participatory methods in discussing the future of genetic counseling, reproductive justice, and disability justice.

Miller-Atkins, Galen, SRI, Inc.
Poster ***Evaluating the Predictive Utility of Environmental Variables: A Case Study from Malheur National Forest***
By: Galen Miller-Atkins, Andrew Frierson, and Megan McGuinness
Abstract: Archaeologists often consult predictive models before conducting research and cultural resource management (CRM) projects. However, while predictive models are valuable tools, archaeologists often use "black box" models that rely on a limited number of sites and environmental variables. Additionally, these models are rarely developed at a small scale to be useful for region-specific projects.

This study uses recent data from a survey of 1,120 acres within the Emigrant Creek Ranger District, Malheur National Forest, to develop a small-scale site predictive model. First, the study uses variable selection algorithms to evaluate the predictive utility of several environmental variables (e.g., vegetation, landform types, distance to water, distance to toolstone, elevation, and slope). Cross-validation techniques, such as k-fold cross-validation, are then used to evaluate the predictive accuracy of the selected variables. This poster presents these results and explores further applications of this method to generate further region-specific predictive models in archaeological research and CRM.

Miller-Sisson, Misha, GeoVisions see Petrich-Guy, Mary

Mills, Alyssa, University of Idaho see Murray, Preslie

Morton, Ashley, Confederated Tribes of the Umatilla Indian Reservation
Paper ***Protecting Tribal Heritage: Educating on the Importance of Rock Imagery in the Columbia Plateau***
By: Ashley Morton
Abstract: Rock imagery sites are particularly prone to vandalism as many are located in areas popular for recreation. Located on the banks of the Columbia River, 45BN1753 is one such site where graffiti continues to persist. In an effort to reduce tagging and encourage site stewardship, the Confederated Tribes

of the Umatilla Indian Reservation's Cultural Resources Protection Program developed educational materials for teachers and student body at nearby middle and high schools with the intent to educate communities on the cultural sensitivity of tribal cultural resources, promote the protection of archaeological sites, and learn how to report vandalism. This paper presents the education materials developed.

Murray, Preslie, University of Idaho
Poster ***Isotope Analysis of Cattle Foddering in Historic Sandpoint Idaho***
By: Preslie Murray and Alyssa Mills
Abstract: We think of cattle foddering in Idaho as an operation which has always relied on the supplemental foddering of cattle with corn; it is how we raise commercial beef today, and we assume it was true in the past. By looking at the cattle historically ranched in the area in the late nineteenth and early twentieth century, we will add to the body of knowledge of when the shift from grass fed to corn fed beef occurred in the Inland Northwest and explore the foddering technologies used by colonialists in Northern Idaho, which in turn will give insight into the lives of cattle ranchers who lived in the area. To explore this, the samples will be prepared from cattle ribs archived in the Sandpoint Collection and compared to modern cattle populations from the site. The samples will then be analyzed for their δ 13 C/δ 15 N. As plants following C3 and C4 photosynthetic pathways can be seen in δC13/δN15 stable isotope analysis, we will compare the chemistry of cattle from the historic Sandpoint Collection with the modern samples in order to determine whether or not corn-foddering can be seen in these samples and, if so, whether they are present

Myerscough, Autumn, University of New Mexico see Marquardt, William

Nims, Reno, Portland State University; Te Pūnaha Matatini
Poster ***Strategies for Zooarchaeological Element Selection***
By: Reno Nims
Abstract: Zooarchaeologists adopt different strategies when deciding which skeletal elements to identify, but these decisions and the trade-offs that different strategies involve are scarcely discussed. Many researchers in western North American analyze most or all identifiable specimens, where 'identifiability' is an elastic concept that is affected by a variety of intrinsic and extrinsic factors. In contrast, many ichthyoarchaeologists working in Oceania limit their analysis to five paired jaw elements to control for problems associated with NISP counts, to reduce redundancies in data collection, and to save time/resources. Both extremes of this analytic spectrum have drawbacks, however, and there is no one-size-fits-all approach to zooarchaeological identification that works equally well in every situation. In this poster presentation I review different element selection strategies and their analytic trade-offs, and invite discussion about which strategies zooarchaeologists actually use in different circumstances.

Noll, Christopher, Cordilleran Archaeological Research
Poster ***A Consideration of the Systematic Evaluation of Water-Wear on Lithic Artifacts***
By: Christopher Noll
Abstract: Despite the durability lithic artifacts they are susceptible to degradation under certain conditions. One such degrading agent is water (and waterborne sediments). When lithic artifacts are exposed to water-transported sediments along shorelines or streambanks the result is often the rounding of edges and flake scar arrises recognized as water wear. While water-wear is notable when present, it is rarely measured or characterized as part of in-field or laboratory artifact analysis. The degree of wear is correlated with the duration of exposure of an artifact to water-transported sediments. An assemblage of water worn artifacts may provide an indication of the impacts to a site through fluvial or wave erosion. A four-part ranking system based on the width of arris rounding has been developed to assist in the evaluation of past and ongoing impacts to archaeological resources that include lithic artifacts. The system, potential application, and directions for future research are presented.

Noll, Christopher, Archaeological and Historical Services, EWU
Poster ***An Evaluation of Olcott Biface Production***
By: Christopher Noll
Abstract: Beginning with the introduction of the concept of an Old Cordilleran Culture, research related to early Holocene tool production in northwestern North America appears to assume commonalities of tool production throughout a huge geographic area. This assumption persists despite the recognition of unique cultural traditions, namely Olcott and Cascade. Consequently, the knowledge gained through Cascade collections analysis has been applied to Olcott technology without critically testing these assumptions. A large Olcott assemblage from Washington State at the north end of the Olympic Peninsula has provided a unique opportunity to test the relationship between Olcott technology and its regional temporal peers. This presentation focuses on Olcott biface production. The attributes of Olcott biface morphology and landmarks that relate to the production systems of projectile points and other bifacial tools are explored and compared to published data about similar tools from outside the Puget Sound and Olympic Peninsula region. The study considers the implications for the scale and relationships of early Holocene cultures of northwest North America.

North, Michelle, WillametteCRA
Poster ***A Preliminary Precontact Land Use Context for the Chehalis Basin***
By: Michelle North, Thomas J. Brown, Lucille Harris, and Paul Solimano
Abstract: During a recent data recovery project in Pe Ell, WA it became clear that a local precontact land use context is not available for the Chehalis Basin. These types of regionally focused contexts, built by synthesizing existing data, are vital to evaluating site significance and understanding excavated sites in a regional framework. Our analysis attempted to begin the process of creating a more local regional context. To this end we selected assemblages from 10 sites in the Chehalis Basin and compared assemblage content and tool richness through time. Richness was used to define site types, and by proxy, land use strategy. This poster examines the process of creating this kind of preliminary context and how future data can be placed within it to continue to clarify questions about shifts in land use strategies through time and how that is identified archaeologically on a local scale.

Oakes, Annie, Millwood History Enthusiasts
Paper ***From Backyards to YouTube: Grassroots Historic Preservation in Millwood, WA***
By: Annie Oakes
Abstract: When diligent history buffs began to interview long-time residents in the Spokane suburb of Millwood in the 1980s, their initial goal was to capture the stories and family histories emerging from the presence of the Inland Empire Paper Mill. Begun in 1911, the mill was energized by veterans of World War I, who envisioned a growing neighborhood of homes, a church, and numerous small businesses. Unofficial preservationists collected photos, recordings, and artifacts from original residents, including eye-witness reports of the catastrophic Paper Mill Fire in 1957 and "Subway" - a train stop under modern-day State Highway 27. Their efforts resulted in nominating the Rosebush House to State and National Historic Registers, closely followed by creation of the Millwood Historic District in 2001. The Millwood History Enthusiasts obtained signatures so Millwood could become a CLG (Certified Local Government) and gain access to resources such as grants. In 2022, the founding Enthusiasts were featured in a series of videos detailing Millwood's historic resources. These grassroots efforts show how individuals who care about their neighborhoods can move mountains and preserve local history.

Ozbun, Terry, Archaeological Investigations Northwest, Inc. (AINW)
Paper ***Evidence from the Rock Island Overlook Site for Pleistocene Horse Hunting on the Columbia Plateau***
By: Terry Ozbun

Abstract: Recent re-analysis of selected artifacts from a 1974 archaeological salvage excavation at the pre-contact Rock Island Overlook site, 45CH204, in central Washington state indicates that cultural deposits are much older than previously reported. Projectile point chronology and obsidian hydration dating suggest the Rock Island Overlook site was first occupied 13 to 16 thousand years ago. The assemblage also contains evidence of hunting Pleistocene horses. Horse blood residue was identified on a Windust type projectile point. This result also supports the age estimate for the site as Pleistocene horse extinction occurred about 12,700 years ago. Other data from the site are consistent with a Pleistocene age, although more information is needed to confirm and refine the dating.

Palmer, Sara E.
Paper ***Bark to the Future: Initial Findings From A Longitudinal Study of Bark-Stripped Western Red Cedars***
By: Sara E. Palmer
Abstract: What can we learn about site and stand formation processes from making regular observations of an assemblage of recently bark-stripped western red cedar trees? Do they form scar lobes and other features at a consistent or predictable rate? How do strip scars change over time? What features appear, and when, and how can these be used to inform review of potential culturally modified trees in other timber stands? This talk will present initial results from a study of a sample plot of cedars in the Marckworth State Forest from which bark was stripped in June 2020.

Pauli, Amanda, Central Washington University see Lopez, Naylea

Petrich-Guy, Mary, Hanford Mission Integration Solutions (HMIS)
Forum ***NWAC and Environmental Sustainability: Continuing the Conversation***
Discussants: Mary Petrich-Guy, Renae Campbell, Kristina McDonough, Keith Mendez, Molly Swords, Mars Galloway and Misha Miller-Sisson
Abstract: Following the 2022 Northwest Anthropological Conference (NWAC), the Northwest Anthropological Association (NWAA) formed the Environmental Sustainability Committee and tasked it with identifying key issues relating to environmental sustainability and with providing informed recommendations for NWAA and NWAC operations. This group is committed to working towards a sustainable future for members and communities that are affected most by environmental degradation by guiding the NWAA and NWAC to implement sound practices that reduce our overall environmental footprint and by fostering an inclusive exploration of environmental, social justice, and economic intersectionality within the context of Northwest Anthropology. This forum discusses the main findings of the Committee's preliminary report, and invites forum attendees to continue a collaborative conversation on environmental sustainability for NWAA and NWAC. What does environmental sustainability mean to you? What is true sustainability? What do you want to see from future NWAC meetings?

Qualls, Claire, University of Idaho
Paper ***An Arsenical Beauty Aid***
By: Claire Qualls
Abstract: While many medicines have undesirable side effects, and may even be outright toxic, some of the older nostrums and cosmetic formulations stand out for their reliance on poisonous ingredients. This may have been due to a general lack of awareness among potential users, or it may stem from the fact that the dangers were kept hidden, because truth in advertising was not yet a current concept. One way or the other, some of the vintage medicines, cosmetics, and other common products that we receive for analysis should be classified as hazardous materials.

Radeke, Mary, Central Washington University see Abney, Kristy

Rinck, Brandy, Association for Washington Archaeology
Workshop ***Association for Washington Archaeology's Continued Conversations on Belonging in Washington Archaeology***
By: Brandy Rinck
Abstract: As a follow-on to the Association for Washington Archaeology's Frameworks for Social Justice Workshop that occurred during NWACs in 2022, the AWA Board is hosting this session to keep our conversations around race, diversity, justice, equity, and inclusivity going. Please consider joining AWA at this session, even if you did not attend the 2022 workshop.

During the workshop, we will consider our identities and how they impact decision making. Then, in groups, we will discuss answers to questions centered around belonging and inclusivity. Examples of the questions include: How can AWA get a deeper knowledge of those that we want to be a bigger part of our community and organization? How can AWA reach out further/better/more to diverse communities? How does AWA prioritize efforts to increase diversity in a capacity that is reasonable for the volunteers we have available? And how can AWA encourage additional volunteerism? Can AWA identify partner organizations that might help AWA gather voices from marginalized and/or underrepresented community members from both within AWA and beyond?

Let's find out what connects us and revel in our differences to bring us closer, give us a world of shared values, and hopefully build our community in a meaningful way.

Rinck, Brandy, Association for Washington Archaeology see Furlong, Julia

Roland, Donna, University of Montana
Paper ***Indigenous Health as Heritage***
By: Donna Roland
Abstract: For many Indigenous populations, health is closely tied to their environment, cultural ways of knowing, and is intricately connected to multidimensional epistemological worldviews. The WHO, UNESCO, and multiple NGOs have defined the right to health as a human right. Increasing globalization, privatization of public spaces, and lack of/or reduction in access to traditional lands and natural resources have negatively impacted Indigenous People's ability to continue their traditional way of life- resulting in significant ramifications for Indigenous health and well-being. Intangible cultural heritage, as a branch of cultural heritage management, should recognize the negative effects of globalization for Indigenous populations and safeguard their traditional ways of knowing. Access to natural resources, local ecology, ethno/biomedicine, sacred knowledge, traditional cultural properties, materials, and places associated with their health and well-being should be included in proposed protection. Drawing from multiple international case studies and through review of various fields of study, both historical and contemporary, this paper seeks to highlight the connection between intangible heritage and health of Indigenous populations. The links between culture and health have been well-documented. Indigenous health should be recognized as intangible cultural heritage, thereby safeguarding access to traditional beliefs, spaces, and resources.

Rorabaugh, Adam, Washington State Department of Fish and Wildlife, Simon Fraser University
Poster ***This Old (and New) Hatchery House: 3d Visualizations of the Historic Soos Creek Hatchery***
By: Adam Rorabaugh
Abstract: As part of a cultural resource mitigation effort for the construction of the new Soos Creek Hatchery, the Washington State Department of Fish and Wildlife (WDFW) in partnership with the Muckleshoot Indian Tribe, United States Army Corps of Engineers: Seattle District, and Department of Archaeology and Historic Preservation created 3d visualizations of the historic Soos Creek Hatchery locality. Landscapes were prepared based on historic GLO records and photographs and engineering

specifications on file with WDFW's Capital and Assets Management Program (CAMP). The landscape renders are from four time periods: 1) a reconstruction of the pre European contact landscape with cultivated First Foods on the landscape 2) The 1901 original hatchery 3) The 1953 hatchery configuration and 4) the 2016 pre-demolition hatchery layout. These images highlight the changes to the locality over the 20th century, and the utility of historic photographs and engineering drawings in reconstructing past built environment features for public outreach.

Rorabaugh, Adam, Association for Washington Archaeology see Furlong, Julia

Rose, Bobbi, Spokane Tribe Preservation Program
Paper ***Unlocking the Potential for Public Involvement in Preservation: Creative Mitigation in Cultural Preservation Through Public Outreach and Education***
By: Bobbi Rose and Rachel Vang
Abstract: With a program mission to preserve and protect the cultural resources of the Spokane Tribe, public education and outreach offer a practical and effective addition to preservation efforts. Since its onset, a central goal of the Spokane Tribe Preservation Program's (STIPP) public outreach program has been to aid in the mitigation of adverse effects on cultural resources by increasing awareness of the laws that govern archaeological investigation, as well as the role cultural resources play in the continuity of a culture that has thrived in the Pacific Northwest for several thousand years. By engaging with students in the classroom, working with teachers to develop curriculum, training fellow collections staff caring for cultural resources, and interpretive exhibitions at public events, the STIPP aims to educate the public about the Spokane tribes' history, lessen the loss of or damage to cultural resources, and foster public support that affords an appreciable increase in the protection and preservation of those resources. By connecting cultural resources that encapsulate the rich history of the Spokane tribe to current tribal lifeways, we can ensure the perpetuation of the Spokane culture and lifeways for generations to come.

Rose, Chelsea, Southern Oregon University Laboratory of Anthropology (SOULA)
Organized Symposium ***Making History on the Malheur: Papers in Honor of the Long and Storied Career of Don Hann***
By: Chelsea Rose and Katee Withee
Abstract: Over his three-decades long career on the Malheur National Forest, Don Hann has been on the frontlines of public archaeology on public lands. With dozens of PIT projects, and countless collaborations with tribal partners, colleagues, and public stakeholders, Don ran a Heritage Program that had an inspiring amount of public involvement and access. He mentored generations of archaeologists, co-founded the Oregon Chinese Diaspora Project, and leaves a robust legacy on the heritage of the region. The papers presented in this session reflect some of these collaborations, events, experiences, hijinks, and adventures on the forest under Don's memorable tenure.

Rose, Chelsea, Southern Oregon University Laboratory of Anthropology (SOULA) see Withee, Katee

Rossi, Mary, Eppard Vision
Special Session ***So Have You Heard About the Summit? Calling All CRM Practitioners, Current or Aspiring!***
By: Mary Rossi
Abstract: Are you interested in learning how Cultural Resource Management (CRM) in our region really works (and how we might even improve it)? Do you enjoy gathering with diverse practitioners willing to share their experience in a variety of session formats and experiential activities? Do you like beautiful scenery and good food? If so, we want you to know about the annual Cultural Resource Protection Summit!

The 16th Annual (and 2nd "hybrid") Summit will be held May 24-25 at the Suquamish Tribe's House of Awakened Culture and online. The Summit planning team is hard at work fulfilling the mission we have had since the Summit's inception: The primary goal in organizing the annual Summit has been to facilitate amongst all affected parties an open, frank discussion about the intersection between cultural resources and land use. The Summit is designed to promote collaborative cultural resource planning as an effective means of finding resolution to issues before they escalate into emotionally-charged, divisive, and expensive stalemates or law suits.
Join us for a drop-in informational session to learn more about a gathering that is carefully designed to help you improve your technical CRM skills while deepening your connection to why we do this work. SNACKS PROVIDED!

Rotell, Donald, Burns District Bureau of Land Management
Paper ***Don Hann and the Malheur National Forest Heritage Program circa 1992 to 2002: String boxes, Compasses, and Pin Flags***
By: Donald Rotell and Katee Withee
Abstract: Throughout the 1990s Don Hann was responsible for several innovative approaches or ideas that established the Malheur National Forest Heritage program as a model for Federal cultural resource management programs throughout the Pacific Northwest region. He integrated archaeological research material into NHPA Section 106 compliance processes, dramatically increased the Forest delivery of public archaeology services, improved tribal relations with the Burns Paiute tribe, and upgraded the involvement of cultural resources on Forest interdisciplinary planning teams after he arrived in John Day in 1991. This presentation describes just a few of the memorable projects and events he championed as a District archaeologist for the former Bear Valley Ranger District and later as the Malheur National Forest Archaeologist.

Roush, Cody C., Central Washington University - Cultural and Environmental Resource Management Program
Poster ***Building a Model for Inclusive Study of Obsidian Trade and Exchange***
By: Cody C. Roush and Patrick T. McCutcheon
Abstract: Native American social relationships between the Columbia Plateau and Salish Sea have been extensively documented in the ethnographic record. Yet, how geographic barriers affected past Native American trade and exchange between the Salish Sea and Columbia Plateau geographic regions is not well known. Our goal is to build a collaboration between contemporary Native American communities and archaeologists to understand how these relationships are reflected in the archaeological record. One approach uses evolutionary archaeological theory in combination with social network analysis and GIS tools to trace obsidian occurrence across the Cascade Mountains using obsidian chemistry and the organization of technology. Social Network Analysis traces the relationships (similar ratios of obsidian sources in different technological forms identified at a given site) between actors (archaeological sites). Our research will establish a database of previously sourced obsidian artifacts to identify data gaps in any potential network. Then, additional samples of obsidian will be selected to fill gaps in the database. The purpose of this poster is to begin connecting with the Native American and archaeological communities in the hopes that we can begin to braid together indigenous knowledge and scientific methods to gain a more holistic understanding of past trade and exchange.

Saha, Krishna Kumar, Ghent University, Belgium
Paper ***Process of Authority Formation in Dispute Settlement: The Case of Shalish in Rural Bangladesh***
By: Krishna Kumar Saha
Abstract: Shalish, as an informal dispute settlement mechanism, is one of the main ways of resolving local rural problems and petty disputes. It has a long history behind it and has evolved from ancient times through the two consecutive colonial eras to present independent Bangladesh. Despite the various

problems in the mechanism, the general villagers prefer the Shalish because those people don't have huge money or time to solve the dispute by the formal courts; for this reason, they choose the Shalish in their village where the local elites will act as arbitrators. Apart from Shalish, there are a few other types of dispute resolution mechanisms in rural areas of Bangladesh. Some of them are state-supported, and some are not. Among all these types of dispute resolution mechanisms, Shalish is the most popular and identical. Sometimes the issue is non-cognizable by the law, formal security forces, or the courts, so they are sent to the village elites for disposal. The current paper will explain the process of Shalish in rural areas and how the mediators of the disputes form their authority to deliver the decision in a Shalish with their earned/ achieved power and legitimacy.

Sappington, Ericha, University of Idaho (Student)
Paper ***Working the Waters of Garrison Creek: The First Post Laundresses of Fort Walla Walla, WA***
By: Ericha Sappington
Abstract: The Eighth Census of the United States lists twelve married women employed as laundresses at Fort Walla Walla, Washington in the year 1860. Predominantly of Irish and German heritage, they are listed as the wives of musicians and soldiers and are the first women recorded as employees at that post. Recent archival work conducted in Washington, D.C. has provided new information about these women and their experiences as immigrants living and working in the 19th century American West. A series of maps and plans of the fort show at least two separate laundress quarters at the post between 1877 and 1893, with the longest-standing building located along the edge of the nearby Garrison Creek. Additional documents indicate that these quarters were torn down sometime between 1893 and 1898 and were either re-purposed or replaced by married enlisted men's quarters and non-commissioned staff quarters. Past archaeological projects conducted at the site, combined with this preliminary documentary research, suggests the remains of these quarters could possibly be located using archaeological survey assisted by modern mapping techniques.

Sappington, Lee, University of Idaho
Paper ***The Empire Strikes Back: Japanese Balloon Bomb Attacks on the Pacific Northwest in World War II***
By: Lee Sappington
Abstract: In December 1941 the expanding Japanese Empire attacked British, Dutch, and American territories across eastern Asia and the Pacific Ocean. Imperial Japanese forces were invincible everywhere and the home islands had long been considered safely beyond the reach of their enemies. However, only four months later sixteen American Army planes flew off a Navy aircraft carrier and shocked Japan by bombing multiple cities. Japan retaliated by creating an ingenious program to attack North America by sending bomb-carrying balloons on the jet stream. By November 1944 they were launching as many as 150 balloons daily. The balloons carried both explosive and incendiary bombs that were intended to start massive forest fires and create panic across the Pacific Northwest. Approximately 9300 balloon bombs were launched and nearly 300 were documented between Alaska and Texas by July 1945. While few bombs actually exploded, there was one fatal occurrence in Oregon and fires were started in California, Noregon, and Idaho. Material components of balloons including bombs have been found intermittently since 1945 and as recently as 2019 in British Columbia. It is likely that more of these potentially explosive sites still wait to be discovered in remote parts of the Pacific Northwest.

Saunters, Bobby, Mt. Hood National Forest see Legnini, Luciano

Schroeder, William, WA DNR
Paper ***Forestry Archaeology and Timber Harvesting Practices: Best Methods?***
By: William Schroeder

Abstract: Archaeological and heritage resources subject to passive preservation are those that can be protected from land-altering or ground-disturbing activities such as timber harvesting through avoidance and the maintenance of existing conditions. What do we know about potential impacts to cultural resources due to forest management practices and the machinery used to accomplish various treatments? For example, guy lines, haulback cable systems, high-lead yarding, and spar-trees, by themselves, are unlikely to have an impact on archaeological and heritage resources but are associated with machinery and equipment that may have or may create an impact on heretofore undocumented cultural resources. Predictive models typically rely on four factors: slope, aspect, distance to water, and proximity to known cultural resources. Some baseline studies have been conducted and 'rules of thumb' are recommended, but is that all or the best available information with which to make informed cultural resource management recommendations? What are the risks and how vulnerable are various cultural resources? This PowerPoint presents what we know and sheds light on what we do not (yet) know about potential impacts to cultural resources by timber harvesting equipment and methods. An open call to discuss and propose methods of Forestry Archaeology data collection is advanced.

Schultze, Carol, WestLand Engineering and Environmental Services, Inc. see Major, Maurice

Schultze, Carol, WestLand Engineering and Environmental Services, Inc. see McWilliams, Tyler

Seger, Elizabeth, Willamette Cultural Resources Associates
Poster ***Analysis of Population Stress in Relation to Economic Organization within Village Sites: 4 Case Studies on the Northern Oregon Coast***
By: Elizabeth Seger and Alexis Crow
Abstract: The Oregon Coast is often portrayed as being peripheral to the overall Northwest Coast culture area, which is likely why it has not been the subject of as many synthetic and/or systematic research efforts as seen further north.

This preliminary study investigates the potential connection between changes in social/economic systems and population stress on the Oregon coast by comparing archaeological sites in Tillamook and Clatsop County. This study will compare evidence of social change centered in four sites: Palmrose (35CLT47), Par-Tee (35CLT20), Spruce Tree Site (35TI75), and Netarts Spit (35TI1). Evolution of social organization in relationship to resource allocation is a key community stressor that can aid in the interpretation of cultural succession within a group. By analyzing evidence of population size and household organization we aim to identify interpersonal relationships represented within these sites.

Seymour, Katelyn, Central Washington University see Lopez, Naylea

Sherwood, Trina, Yakama Nation see Buck, Josephine

Simmons, Taylor, EWU
Paper ***The Role of Familismo in Mental Health Symptomology***
By: Taylor Simmons
Abstract: In a recent study by Margarita Alegría, Pinka Chatterji, Kenneth Wells, M.P.H. Zhun Cao, Chih-nan Chen, David Takeuchi, James Jackson, and Xiao-Li Meng (2009), ethnic minorities often do not pursue mental health care due to issues such as an anticipation of low-quality care. One way to increase the quality of care for ethnic minorities, and in this case Mexican immigrants specifically, is to consider what specific cultural factors affect their mental health. For example, social science research in psychology and anthropology has described how changing roles of familísmo affects the mental health of Mexican immigrants living in the United States. This article reviews the research on familismo and mental health. It

aims to support mental health practitioners in their understanding of how familismo has the potential to both amplify and reduce mental health symptomology.

Simurdak, Nik, Central Washington University
Poster ***Connections and Chaos: Exploring the Grissom (45KT301) Site Collection***
By: Nik Simurdak and Patrick McCutcheon
Abstract: Efforts to inventory a selection of the tens of thousands of artifacts in the Grissom (45KT301) collection have yielded exciting insights about the spatial and temporal connections of the site. Inventory and maintenance work on the Grissom collection provides an opportunity to explore a sample of its material diversity, while also serving as an effective test for collection management techniques. For this phase of research with the Grissom collection, six students spent over 350 hours counting chipped lithics, documenting the state of the collection, and restoring collection records. Counting procedures involved group training and custom tools designed to reduce analyst error. Documentation and restoration involved close work with the collection database, careful examination of historical excavation records, and surface-level research on a selection of artifacts to better assess the scale of the site's connections across time and space. This work identified over 91,000 chipped lithic artifacts, highlighted the importance of assessing gaps in researcher experience during collection management and showed material connections in the Grissom site across the Pacific Northwest and to places as far as China. Similar work with long-standing collections like Grissom may yield similar insights while advancing best techniques for working with extant collections.

Simurdak, Nik, Central Washington University
Poster ***To and Through: The Grissom Site (45KT301) as a Nexus for Chipped Stone Lithic Diversity***
By: Nik Simurdak and Patrick McCutcheon
Abstract: The source diversity of volcanic glass debitage in the Grissom site (45KT301) effectively demonstrates Grissom's place in the Columbia Plateau as a nexus for trade and exchange. When compared to similar assemblages from sites in the Dalles where prestige tools seemingly come to rest, Grissom's volcanic glass assemblage suggests instead a locus through which materials move. By examining volcanic glass source diversity, object type, and reduction sequence, it is possible not only to investigate cultural transmission within and through the site, but how a site like Grissom may serve a distinct purpose in a network of trade. With 180 sourced pieces from a collection of 316 volcanic glass artifacts, Grissom currently boasts 14 distinct geochemical sources. When compared to similar volcanic glass assemblages found in the Dalles, where artifacts tend to be finely-worked tools often found in mortuary contexts with lower source diversity, Grissom appears to inhabit a different cultural niche. The nature of the assemblage suggests a place of movement and trade, through which horizontal cultural transmission was a common occurrence. The nature of obsidian and tachylyte at Grissom strongly suggests the site holds significance within the network of pre-, proto-, and post-contact trade throughout the Pacific Northwest.

Sloma, Robert A., Confederated Tribes of the Colville Reservation
Poster ***An Expression of Polish-American Settler Colonialism on the Colville Reservation***
By: Robert A. Sloma
Abstract: The ca. 1927-1931 Pietrzykowski family homestead in Keller, Ferry County, Washington is presented as an expression of Polish-American settler colonialism on the Colville Indian Reservation. The effects of the Slavic and specifically Polish diaspora upon North America have largely escaped academic attention within the context of settler colonialism. The external boundary of the Colville Indian Reservation contains places named "Pollock Creek" and "Pollock Creek Road." Archival research confirms lost or eschewed knowledge of a Polish-American homestead established in the early twentieth-century by the Pietrzykowski family on the Colville Reservation. Toponyms persist at this site as reminders of specific local expressions of settler colonialism that followed President Woodrow Wilson's May 3, 1916 opening of lands to homesteading within the Diminished Colville Indian Reservation. Examination of the

Pietrzykowski family homestead may offer new insight into complex social and economic interactions between newly arrived homesteaders and long-time Native American residents. Furthermore, the toponyms associated with this site pose interesting questions in regard to collective memory, as well as the use and persistence of phrases that could be offensive or derogatory.

Smith, Julia, Eastern Washington University
Paper ***Coffee and Chocolate in High-End Food Markets***
By: Julia Smith
Abstract: This paper explores how farmers in producing countries experience the Fairtrade and specialty markets for coffee and chocolate differently. Both crops have a large relatively commodity market segment and a smaller high-value segment which has grown over the last few decades. Both have strong footprints both in Latin America and Africa. Large amounts of the world production of both is done by small farmers. But while coffee has created a large sector that achieves higher prices for producers, better quality for consumers, and more sustainable practices, chocolate has not. Instead, it continues to struggle with accusations of slave labor and deforestation, even within the specialty chocolate market. Why has the coffee system succeeded where the chocolate system has fallen short? What lessons do coffee-producing communities and farmers have for chocolate producers? And is there anything that we as consumers and observers in the United States can do to encourage systems for producing chocolate that are more sustainable environmentally and socially?

Ross Smith, Washington Department of Fish & Wildlife (WDFW) see Major, Maurice

Sobel, Elizabeth, Missouri State University
Paper ***Balloons on Backpacks and other Adventures with Don Hann at the Klamath Falls BLM***
By: Elizabeth Sobel
Abstract: From 1990 through 1992, I had the good fortune of working with Don Hann at the Klamath Falls, Oregon Bureau of Land Management. Don and I were only technicians, but somehow were in the position of co-directing the Klamath Falls BLM Cultural Resources Program for two years. In this presentation, I reflect on Don's role in making this collaboration one of the most important archaeological experiences of my career. A set of examples illustrate not only Don's outstanding intellect, ingenuity, and skill as an archaeologist and cultural resource manager, but also his remarkable ability to teach and motivate others. While Don no doubt honed these qualities over the subsequent years, a consideration of the Klamath Falls years shows that Don has been significantly influencing colleagues, students, local communities, and the profession from the very start of his career.

Solimano, Paul, WillametteCRA see Brown, Thomas

Solimano, Paul, WillametteCRA see North, Michelle

Spencer, Steve, Central Washington University
Poster ***Faunal Analysis of the Grissom Site (45KT301) in Northeast Kittitas Valley, Washington***
By: Steve Spencer
Abstract: The Grissom site of central Washington was excavated 1967-71 by students and faculty from Central Washington State College. The site may represent a portion of a large, springtime intertribal gathering near Kittitas known as Che-lo-han, which involved camas root gathering, tribal councils, and social activities. Extensive radiocarbon dating places occupation ~1810-130 BP, based on 20 of 21 radiocarbon dates, with some stratigraphic mixing. Site materials have been subject to several previous studies, including a 2018 undergraduate pilot study by the author. Other fauna have not been reported outside of a 2012 fish analysis by Lubinski and Partlow. In consultation with Pat Lubinski, I completed a taxonomic and taphonomic analysis of 3,360 specimens, randomly selected from 1/4" screened samples

below the depth of historic artifacts. My analysis shows fauna dominated by large ungulates such as deer, pronghorn, bighorn sheep, and elk. Duck, grouse, salmon, rabbit, marmot, and shellfish are among the other fauna likely consumed at the Grissom Site. The faunal remains were marked by a high degree of fragmentation and burning, and the large number of sub-juvenile remains is consistent with a springtime occupation. Results of my analysis were compared to other analyzed faunal assemblages from upland and riverine sites.

Stcherbinine, Sean, Washington State Parks
Poster ***Overview of Excavations at Three Olcott Sites in Western Washington***
By: Sean Stcherbinine
Abstract: Excavations at three precontact sites adjacent to the Elwha River in western Washington recovered about 800 bone specimens and 40,000 chipped stone artifacts. The combined artifact assemblage is characteristic of Olcott-type sites in western Washington, most notably the presence of lanceolate projectile points manufactured from fine-grained and locally available volcanic raw materials. The assemblage is dominated by debitage (95%), but also includes projectile points, bifaces, modified flakes, cores, and scrapers made from andesitic and dacitic raw material. The vast majority of bone specimens are calcined and unidentifiable to species. However, several bones were identified as deer remains. Radiocarbon dating of calcined bones indicate a middle Holocene occupation (4200 to 5500 BP) of Pleistocene river terraces used to acquire nearby raw material in order to manufacture tools for hunting and processing deer and deer-sized mammals. As one of the largest Olcott assemblages, this is an important dataset for discussing middle Holocene land use on the Olympic Peninsula and western Washington.

Strickland, Kathy, Alpha Genesis Inc. see Abney, Kristy

Swords, Molly, GRAM Northwest see Petrich-Guy, Mary

Taylor, Isabella, Asian American Comparative Collection, University of Idaho, Moscow
Poster ***Sachiko 'Janet' Bennett, Her Life and Times***
By: Isabella Taylor
Abstract: The University of Idaho's Asian American Comparative Collection (AACC) received the personal collection of Sachiko 'Janet' Bennett in 2022. The collection was donated to the AACC by her close friend, who wanted to know more about the life Janet lead. Using the artifacts and documents in the Sachiko 'Janet' Bennett Collection and in the AACC's research library, my initial goal for this poster is to compile a timeline and a family tree that detail Janet's life and lineage. In the short term this poster will be able to offer information about Janet to the family that donated her items and will provide initial background research for the collection. In the long term this project will contribute to research on WWII incarceration of Americans of Japanese ancestry, as well as to literature on inter-racial marriage in the 1950s and women in STEM in the 20th century.

Taysom, Melissa, Idaho State University
Paper ***Amenity Migration and Rural Livelihoods: A Case Study of Farmer/Rancher Subjective Well-being in Teton Valley***
By: Melissa Taysom
Abstract: In rural regions of the United States, the number of small family farms is decreasing despite population growth in these areas which have open, undeveloped landscapes and outdoor recreational spaces that are rich with natural amenities and varied topography. While this growth, known as amenity migration, is a trend in amenity-rich rural areas across the country, little is known about how farmer/rancher subjective well-being is impacted by amenity migration, which is the focus of my research. Amenity-based growth restructures local landscapes and economies, reducing open spaces and causing a

shift from traditional extractive industries, including agricultural-based livelihoods, to service and hospitality centered businesses as well as the development of an amenity-based 'gig' economy consisting of short-term, seasonal, and/or contractual work instead of long-term jobs. Amenity-based transitions and the resultant landscape and economic changes positively and negatively influence the quality of life experienced by farmers and ranchers, and thus have the potential to positively and/or negatively impact their subjective well-being. Amenity migration presents an important opportunity for renewal and revitalization within rural areas but it should not be deleterious. It is important for the voices of both old-timers and newcomers alike to be heard in renewal efforts.

Terry, Karisa, Central Washington University see Lubinski, Patrick

Thomas, Lewis, Idaho State University
Paper ***'We Have Three Seasons in Myanmar': Burma's Political Spring Turns to Winter***
By: Lewis Thomas
Abstract: After a half-century of military rule and political struggle, the country of Burma (Myanmar), led by Nobel Laureate Aung San Suu Kyi, finally achieved a long-sought turn to civilian government and democratic institutions in 2012. Touted by Western nations as an important 'triumph of democracy,' many ordinary Burmese people, long-time friends and family of this ethnographer, expressed skepticism of the stunning political changes during the period 2012-2017, even as they appreciated the many freedoms they had never previously enjoyed. Their voices and concerns, and those of many other citizens, were largely ignored in the Western media narrative, which celebrated the seeming inevitability of an evolution to a neoliberal democracy. Since 2021, a violent military coup has seemingly returned Burma to the 'dark days' of military dictatorship.

Based on over 25 years of ethnographic research in Burma, this paper examines the marginalization of 'ordinary voices' - the grist of ethnographic research - in Western narratives of self-congratulatory political triumph.

Triplett, Mallory, RLR Cultural Resources, LLC
Paper ***An Analysis of Tachylyte and Other Volcanic Glasses in Washington Archaeology***
By: Mallory Triplett
Abstract: Within archaeological literature, a discussion of volcanic toolstones from Washington State is uncommon. Washington's volcanic glass landscape is relatively sparse, with low-quality sources scattered within and on the east side of the Cascades, including tachylyte, obsidian, and vitrophyric obsidian. The low-quality and dispersed nature of these toolstones are reflected in Washington's archaeological record by the more common occurrence of out-of-state volcanic glasses from Oregon and Idaho. The quality and abundance of these out-of-state sources has intrigued many researchers and studies but has ultimately left a gap in the literature that neglects to build a context for local, Washington sources. This study develops an archaeological context for Washington glasses and provides a basis for understanding the quantity and dispersion of these unique toolstones.

Tuning, Jordyn, University of Idaho
Paper ***Chemical Detective Work***
By: Jordyn Tuning
Abstract: Practicing forensic chemistry on artifacts that come to us via historical pathways is an enterprise with its own intrinsic rewards. To be sure, there is no doubt that the chemical identification of objects is useful and interesting to historical archaeologists. For the analytical chemist, however, probing materials that have undergone substantial changes through decades, or centuries, of exposure, is an enticing challenge that generates its own satisfaction. What is more, revealing the nature and/or use of

even the most banal household goods from the homes of our forebears tends to give rise to stories that even non-chemists like to hear.

Vang, Rachel, Spokane Tribe Preservation Program see Rose, Bobbi

Vann, Nicholas, Washington State Department of Archaeology and Historic Preservation
Paper ***Pilot Cultural Mapping Study in Seattle***
By: Nicholas Vann
Abstract: DAHP received state funding to conduct a pilot study in Seattle to map culturally significant sites without traditional historic landmark or designation criteria. The funding provides an opportunity to record information about places that are culturally important to traditionally marginalized communities, particularly those that are vastly underrepresented in cultural resources data. Our goal is to identify places of cultural significance that have gone unrecognized in traditional survey efforts. This effort will legitimize recognition through documentation and GIS mapping, and will be used to inform land use planners of culturally significant places when conducting regulatory reviews that affect underserved communities through an equity lens.

We challenge preconceived ideals about historic integrity and age of resources by soliciting feedback with a diverse array of community organizations and partners. Cultural significance is defined in incredibly diverse ways to different groups of people, and we recognize the need to more equitably serve Washingtonians by recognizing history and use of the built environment without regard to predefined integrity criteria.

von Wandruszka, Ray, University of Idaho
Organized Symposium ***The Chemistry of Archaeological Artifacts***
By: Ray von Wandruszka
Abstract: Materials associated with historical artifacts recovered in archaeological excavations are often difficult or impossible to identify. This may be due to a loss of labels and markers, or simply because time and exposure have changed the substances to such an extent that they have become unrecognizable. Analytical chemistry can be a great help in answering the ever-present question "What is this…?". Artifacts may have undergone changes during the decades or centuries of their existence, but chemical markers often remain and point the analyst in the right direction. Answers can be surprising to both the chemist and the archaeologist, especially in cases where bottles, or other containers, have been reused, and the remaining contents bear no relationship to the vessel. Evidence uncovered through chemistry can be very revealing with regard to the nature, and even the use, of artifacts.

Walls, Robert E., Indiana University, American Indian Studies Research Institute
Paper ***Indian Boarding School Journals, Truth and Healing, and Anthropology***
By: Robert E. Walls
Abstract: Recent revelations in Canada have renewed focus on Indian boarding schools and their legacy of historical trauma. But how can anthropology contribute to the process of "truth and healing"? What obligations do anthropologists have, and what skills or resources can they share? This paper will address these questions from the perspective of a non-Native academic who acknowledges the discipline's past complicity in ignoring boarding school trauma, but who also supports anthropology's renewed commitment to promoting social justice and anticolonial practices. I will focus on the early publications produced at boarding schools in the Pacific Northwest, writings anthropologists usually ignored or dismissed as inauthentic or incomplete records of Indigenous culture. I will argue that we need to take seriously the historical voices, silences, and experiences of the Indigenous youth who wrote for, printed, and read these documents; this will contribute to a broader understanding of the truths of settler-colonial violence in the Northwest. Exploration of these documents can also reveal powerful testimony for cultural

resilience and tribal survivance useful for promoting healing. Finally, I will make recommendations as to enhanced access to these documents, which have often been forgotten, misplaced, or widely scattered in the colonial archive.

Wang, Penglin, Central Washington University
Poster ***Xiongnu Official Titles Shanyu (單于) and Qieju~Qiequ (且居~且渠)***
By: Penglin Wang
Abstract: These titles recorded in Chinese books were used in the steppe empire Xiongnu two millennia ago, with shanyu having come into increasing exposure since it established its hegemony over Inner Asia under the leadership of the second supreme ruler Maodun who reigned 209–174 BCE. I argue that such alternative Chinese transcriptions had represented one and the same title and resulted partly from the source language from which the Xiongnu obtained the title and partly from different styles by different writers. Thanks to the dichotomy in Chinese between shanyu and qieju~qiequ, shanyu had been typically and even exclusively used for the Xiongnu supreme rulers, thus enjoying frequent and numerous occurrences in Chinese texts. By contrast yet, qieju~qiequ was relegated to lower official ranks and rarely visible with merely a few flashes, henceforth blinding researchers to its etymological connection with shanyu. It is important to note that we see these differentiated usages of shanyu and qieju~qiequ only in Chinese texts and that we do not know or have no way to know if the differentiations were reflected in the native Xiongnu language. What we can do now is to take advantage of Chinese records, compare them phonetically and explain their connectability.

Warner, Emma, Asian American Comparative Collective, University of Idaho, Moscow
Poster ***The Relationship between Hiroshima University and the University of Idaho***
By: Emma Warner
Abstract: Following the conclusion of World War II, the newly reorganized Hiroshima University asked for assistance to rebuild their institution from the damage of the atomic bomb. They asked for tree seeds, a three-dollar donation, or a book about what the university specializes in. The University of Idaho was one of few universities to donate the wanted materials. This interaction launched these two universities into a sixty-year correspondence, and in 2011, the University of Idaho received tiles from Hiroshima that were damaged in the war. Using these tiles donated from Hiroshima, the donations the University of Idaho sent in the 1940's, and the documents sent between these two institutions, this poster will examine and investigate the relationship between these two cities, and how their connection impacts the politics in each respective city.

Welch, Amanda, Eastern Oregon University
Paper ***Analysis of Ceramics in Relation to the Socio-Economic Status In Historical Maxville, OR***
By: Amanda Welch and Addison Bonzani
Abstract: The Maxville Heritage Site, located in Wallowa County, Oregon was a segregated logging community active during the mid-1900s. This presentation examines ceramic types found through pedestrian surveys of the site. Two major types of ceramics are indicators of the socio-economic status (SES) of the residents. The ceramic types identified in the site are white ware and industrial ware. White ware is a fine porcelain-like ceramic that is commonly found decorated and indicates a higher SES than industrial ware, which is a coarser ceramic. The data reveal a differential pattern in the Maxville community. From historical documents and oral histories the spatial arrangement of segregated parts of the Maxville site corresponds to the pattern of distribution of ceramics found at the site.

Wessen, Gary, Wessen & Associates see Brown, James W.

Wessen, Gary, Wessen & Associates see Brown, James

Whistler, Emily, Plateau Archaeological Investigations see MacIntyre, Hannah

Williams Thomas, Spokane Tribe of Indians Preservation Program see Casserino, Christopher

Withee, Katee, US Forest Service
Paper ***Don Hann: the Man, the Myth, the Legend***
By: Katee Withee and Chelsea Rose
Abstract: This paper with provide a brief overview of Don Hann's 30+ year career and show the ways in which his legacy helped shape program management and inspired the next generation of federal archaeologists. Don spent his career finding unique and innovative ways to incorporate public archaeology into the management of historic and cultural resources on the Malheur National Forest and advocated for cultural resources at all levels of management. Besides developing and maintaining one of the largest and most complex resource program areas in the Pacific Northwest region, he also mentored numerous archaeologists and Forest Service staff and was a strong supporter of training and professional development.

Withee, Katee, US Forest Service see Rose, Chelsea

Withee, Katee, US Forest Service see Rotell, Donald

Yoder, Chyanne, Idaho State University
Paper ***A Life of Labor: the Socio-politics of Pandemic Living with Chronic Illness***
By: Chyanne Yoder
Abstract: The threat the COVID-19 pandemic presents to chronically-ill individuals is multiplex: economic precarity, bodily risk, and biopolitical violence endanger livelihoods. Using multi-modal data gathered from a series of semi-structured interviews, this research explores the various modes of livelihood labor enacted by the chronically-ill in the intermountain US during the COVID-19 pandemic. Results demonstrate increased socio-economic pressures due to the fiscal expenses of chronic illness management and the pandemic's impact on the economy. However, chronic labor extended well beyond the market: increased vulnerability engendered social labor through "mental contact-tracing" and the hyper-regulation of social and clinical landscapes. More, chronically-ill participants were forced to politicize their own livelihoods in response to the institutional disregard for chronic illness within pandemic policy. Imagining chronic labor beyond the body allows for a richer understanding of the chronic experience, for which centralized research is needed. Moreover, the liminality that exists as we transition into the 'post-pandemic' provides an opportunity to reflect on disproportionate risk. While many have progressed past the pandemic into socioeconomic renewal, biological, socio-political, and economic inequity continue to threaten the livelihoods of vulnerable populations.

Young, Cameron, University of Idaho
Paper ***Probably A Laxative...***
By: Cameron Young
Abstract: Patent medicines, sometimes of exotic origin, are often submitted by historical archaeologists for chemical analysis. Our ancestors, it appears, were no strangers to stomach and intestinal complaints. As often as not, the nostrums used to combat these malaises are recovered in unmarked, generic bottles, leaving the analyst with the tricky task of finding out what exactly they are. In other cases, it is well known what they were sold for, but then the 'why-and-how' of their actions often turns out to be the mystery that needs solving.

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ANTHROPOLOGY CLASS-SPONSORED STUDENT RESEARCH IN THE PACIFIC NORTHWEST

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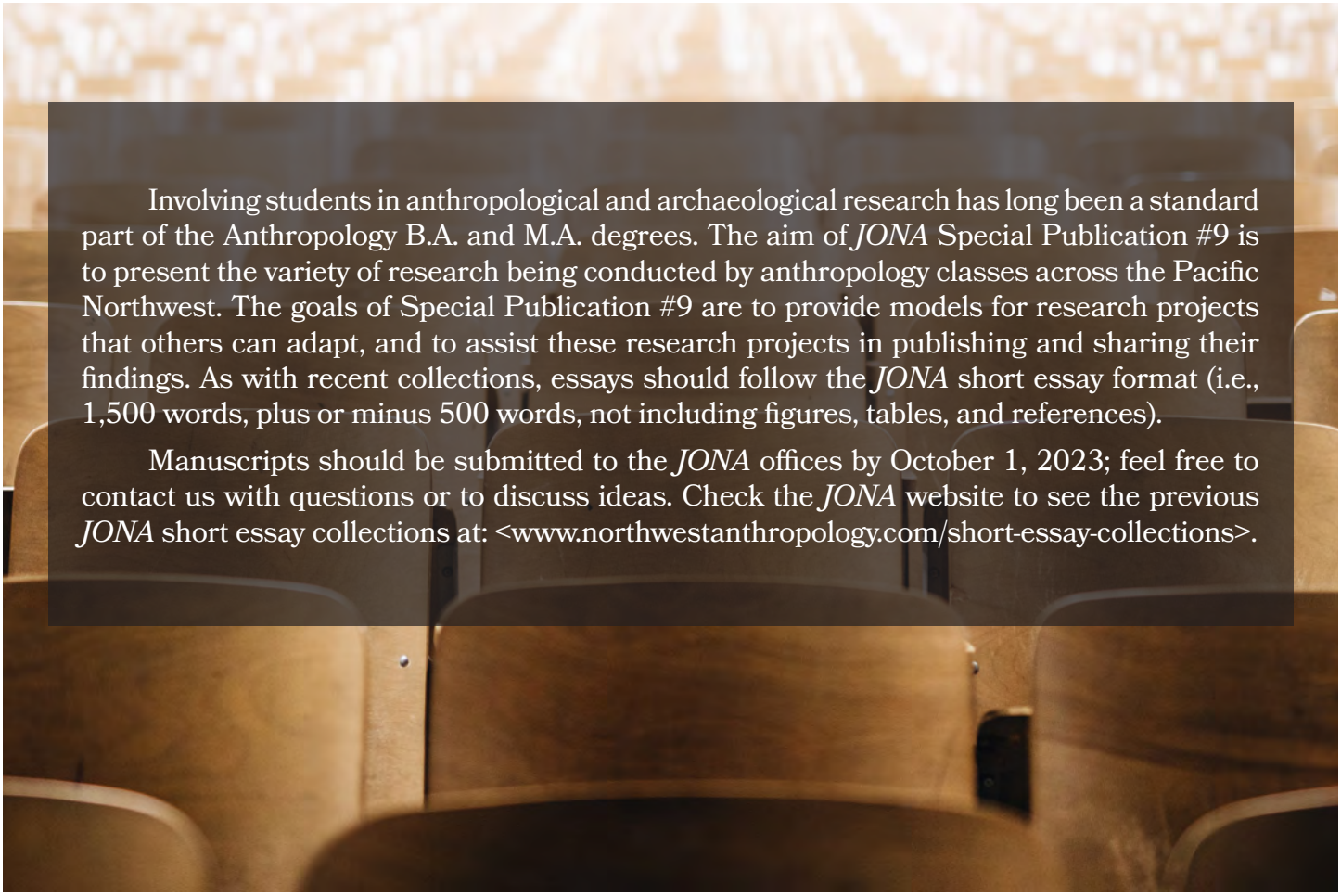
MANUSCRIPT SUBMISSION DEADLINE: OCTOBER 1, 2023



Involving students in anthropological and archaeological research has long been a standard part of the Anthropology B.A. and M.A. degrees. The aim of *JONA* Special Publication #9 is to present the variety of research being conducted by anthropology classes across the Pacific Northwest. The goals of Special Publication #9 are to provide models for research projects that others can adapt, and to assist these research projects in publishing and sharing their findings. As with recent collections, essays should follow the *JONA* short essay format (i.e., 1,500 words, plus or minus 500 words, not including figures, tables, and references).

Manuscripts should be submitted to the *JONA* offices by October 1, 2023; feel free to contact us with questions or to discuss ideas. Check the *JONA* website to see the previous *JONA* short essay collections at: <www.northwestanthropology.com/short-essay-collections>.

What Are We Searching For? Anthropological and Archaeological Research in the Pacific Norhtwest

JONA Speical Publication #7

JONA Special Publication #7, *What Are We Searching For? Anthropological and Archaeological Research in the Pacific Northwest—2023*, presents twelve essays describing current research from the Pacific Northwest that provide insight into the types of research that are ongoing across the region. The collection suggests a healthy balance of research touching on ethnography, linguistics, prehistory, ethnobotany, history, experimental, method, and theory. The collection includes cases from the earliest inhabitants (10,000+ years ago) at the Lind Coulee rock shelter, ethnohistoric groups in the Cascades, and farmers and ranchers living in Teton Valley, Idaho, today. Some authors comment on research that was conducted decades ago, others describe research being conducted today, and still others detail the research they hope to pursue, or have others pursue, in the future.

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Please visit the following link to submit an abstract: <https://www.northwestanthropology.com/submissions>.