Paper Abstracts

Allan, Timothy
(Ember Archaeology)

Tracking Obsidian Cliff and Bear Gulch artifacts across Canada and uncovering a trade network that spans over 2,000 km of mountains, forests and plains

Obsidian artifacts are quite uncommon in Canada, east of the Rocky Mountains. When identified at archaeological sites, these artifacts are the remains of Indigenous trade and exchange systems that spanned thousands of kilometers. Archaeologists have been 'sourcing' these artifacts to their volcanic origins for the past several decades, revealing glimpses of these trade systems represented at sites or in local regions. Members of the Alberta Obsidian Project have been working to compile data and associate large collections of obsidian artifacts with sources throughout North America. Two sources stand out in the scale at which they were utilized, Bear Gulch, Idaho, and Obsidian Cliff, Wyoming. Together with sourced obsidian artifacts from present day British Columbia, Saskatchewan, Manitoba and Ontario, a vast Indigenous obsidian trade network has been revealed that spanned over 2,000 km across five Canadian Provinces. This presentation will outline multiple years of research and analysis of obsidian artifacts from hundreds of sites, a field visit of the Bear Gulch obsidian source, and the compilation of data of over 1,000 obsidian artifacts.

Asis, Rexelle, Skyler Ngo, Mavis Chan, Shawn Bubel, and Theresa Burg
(University of Lethbridge)

Ancient Mitochondrial DNA Extraction and Analysis of *Bison bison* Long Bones at Head-Smashed-In Buffalo Jump UNESCO World Heritage Site

Ancient DNA (aDNA) analysis is a multidisciplinary tool that allows us to compare the genetic diversity of extinct and extant species. To biologists and archaeologists, it can provide insights into the origins, migration, and interactions of populations though time. Head-Smashed-In Buffalo Jump is an UNESCO World Heritage site in southern Alberta, where herds of bison were intentionally driven over a cliff by skilled Indigenous hunters for thousands of years. Excavations at the kill site, which lies directly below the cliff, yielded a large quantity of bison bones. Twenty-one bison long bones were selected for study. aDNA was extracted from these specimens and mitochondrial aDNA was targeted, amplified, and sequenced. We then compared the sequences to those from contemporary and ancient populations. It is clear that the bison populations at Head-Smashed-In Buffalo Jump are related to modern and ancient populations, but are genetically different from modern *Bison bison* herds as well as extinct *Bison priscus*. This study adds to our understanding of the genetic diversity of bison in North America and offers insights into the populations hunted at Head-Smashed-In Buffalo Jump and other sites.

Bubel, Shawn*, Robert Dawe, and Kevin McGeough***
(*University of Lethbridge, **Royal Alberta Museum)

Highlights of the 2021 and 2022 Excavations at Head-Smashed-In Buffalo Jump, UNESCO World Heritage Site

The ingenuity and skill of the people who hunted at Head-Smashed-In Buffalo Jump, as well as the butchering activities carried out following a successful kill event, are well-documented from about 6,000 years ago until European contact. Very little is known about how the site was used before that. To try to better understand the earlier phases of use, Shawn Bubel and Kevin McGeough of the University of Lethbridge, and Bob Dawe of the Royal Alberta Museum, initiated an archaeological field school at the site. Forging a partnership with the Blackfoot interpreters who work at the site (especially Quinton Crow Shoe, Stan Knowlton, and Conrad Little Leaf), with the permission (and blessing) of the Elders Advisory Council, we conducted two seasons of excavations in the summers of 2021 and 2022.

To investigate the earliest activities at the site, we worked in two main areas. In the Processing Area we re-opened the large excavation block dug in the 1980s and 1990 to explore deeper levels. It was here that excavators in an earlier project unexpectedly unearthed bones that are almost 8,000 years old under one meter of hard-packed, concrete-like sediment that was assumed to be sterile. In the Spring Channel Area, where two Paleoindian points were found out of context more than 70 years ago, we began excavating a test trench to determine if there are stratigraphically separable materials in this area, including deposits that date between 6,000 and 10,000 years ago. We also surveyed the site, both to attempt to tie together excavation areas from the past 80 years of research and to determine the extent of site damage due to burrowing animals. We will report on these research activities and our preliminary results, showcasing the cultural remains we unearthed that span almost 10,000 years of activity at the site.

Cloutier, Kim
(Government of Saskatchewan)

Heritage Conservation Branch - Year In Review 2022-2023

Our annual year in review talk will cover the previous Saskatchewan government fiscal period of 2022-2023. This will cover a wide range of updates, including such topics as staffing changes, trends in development reviews and permits, fieldwork, and current projects. We will also highlight our progress on a major IT Project called the Online Client Services Initiative, which has now entered the Execution Phase with a vendor onboard who will be digitally transforming our heritage regulatory process.

Gadd, Kathy
(Western Heritage Inc., University of Alberta)

Precontact Plains Archaeological Applications of GPR

Understandably, cemeteries have taken over the GPR conversation in Canada lately, but GPR can also be used in precontact archaeological projects as shown by work at the Mattheis Ranch from 2017-2019. Three quite varied uses in plains archaeology were suggested by work there: 1) the mapping of some archaeological features; 2) filling out site stratigraphy and site formation process data and interpretations; and 3) the relocation of overgrown excavations. While definitive results must still be obtained via excavation, GPR data can go a long way towards connecting areas of excavation and provide areas of focus for those excavations.

Hunter, Alexis K.B.*, Sarah Pocha-Tait*, Dr. Tomasin Playford, Dr. Tatiana Nomokonova***

(*University of Saskatchewan, **Saskatchewan Archaeological Society)

Fish and Fishing at the fur-trade era site Fort Carlton

Fort Carlton is a fur-trade site (FfNp-1) that is located about 94 kilometers north of Saskatoon, SK along the North Saskatchewan River. This fort was first built in 1810 and operated until 1885 under the Hudson Bay Company as a provision collection and dispersal center, later as a mail hub on top of daily trading activities. This site was excavated during field schools and public excavations led by the Department of Archaeology and Anthropology at the University of Saskatchewan and the Saskatchewan Archaeological Society in 2021-2022. Preliminary analysis of faunal remains suggests that the large-bodied mammals, such as bison, were a major focus of subsistence activities undertaken at this location. However, remains of fish, birds, leporids, rodents, and smaller carnivores were also recovered. The goal of our presentation is to discuss the role of fishing at Fort Carlton by utilizing the data of archaeological material found at this site to compare results with information available from the historical records. This will be addressed, first, by providing preliminary results of zooarchaeological analysis of fish remains (NISP =172) and a discussion of what species were identified and where they were found during the excavations. It will be further supported by a summary of all fishing-related materials and artifacts that were also retrieved at Fort Carlton. Second, we will compare our results with the information available about fishing activities mentioned in the historical records. It is often assumed that people at historical forts and fur trade sites were only fishing in times of strife. However, this information is rarely discussed directly in journals and other forms of records. We hope that our talk will demonstrate a need in further research investigations on roles of fish and fishing at fur-trade era and other historic sites on the Canadian Plains.

Kristensen, Todd
(Government of Alberta)

Petrified wood in Alberta's archaeological record: Distribution, lithic reduction, and significance

This paper summarizes the archaeological record of petrified wood use by pre-contact people in Alberta. We conducted a series of flintknapping experiments on 30 nodules followed by archaeometric analyses to understand how petrified wood was knapped. Our interpretations, coupled with a photographic library and maps, will hopefully aid the identification of petrified wood at archaeological sites and help archaeologists understand why this raw material was such a common toolstone across Alberta. Project collaborators include Timothy Allan, Dale Fisher, Courtney Lawrence, Emily Moffat, Lisa Budney, Taydem Laroque, Natalia Nickeson, Julie Shea, Rebeca Adams, and Rebecca Plouffe. The presentation will be accompanied by in-person archaeological examples of petrified wood artifacts and nodules that audience members are welcome to inspect.

Lazette, Larissa
(University of Calgary)

Manifestations of Food Stress at the Antelope Hill Tipi Ring Site (EbPi-75)

The period of 1790-1890 on the Northwestern Plains was a time of many changes to traditional Plains Indigenous lifeways, most notably, subsistence strategies. During the mid to late 19th century, the relationship between fur traders and the bison became that of overexploitation, leading to the extirpation of the species in the Blackfoot homeland. The loss of bison on the Plains not only impacted food availability but also helped the Canadian Government coerce the Blackfoot (among other groups) to accept the terms of Treaty 7 and confinement onto reserves. Once on reserves, the Blackfoot were forced to rely on rations as a means of subsistence. My research examines manifestations of food stress using archaeological assemblages, ethnographic and historic literature, and Blackfoot oral traditions. The Antelope Hill Tipi Ring Site (EbPi-75) is a moderately sized campsite dated to the Contact era in southern Alberta. Archaeological faunal assemblages from select tipi rings at EbPi-75 were re-examined to identify the subsistence strategies of the site inhabitants and potential manifestations of food stress through the examination of breakage and butchering patterns observed on the bones. Historic and ethnographic literature will supplement the archaeological data, and be used to support the presence of food stress during this time period. Interviews with Siksika (Blackfoot) Knowledge Keeper Herman Yellow Old Woman, offers an Indigenous perspective on the impacts colonization had on food availability for the Blackfoot People following the extirpation of the bison. This research will integrate western science and Indigenous perspectives to create a holistic understanding of the impacts contact had on the Blackfoot People and their traditional subsistence strategies.

Losey, Robert*,, Tatiana Nomokonova**, and Megan Bieraugle***
(*University of Alberta, **University of Saskatchewan)

Canid Remains on the Canadian Prairies: Sorting Through the Confusion

Dogs have lived with Indigenous people in North America for at least 10,000 years, including on the Canadian prairies. Archaeologists working on the northern Great Plains have struggled for decades to differentiate dog remains from those of other canids, particularly wolves. This, in part, relates to the fact that Indigenous dogs from this region were relatively large animals. Historically, sizable dogs were valued in prairie Indigenous societies for their roles in transport—pulling travois. However, other factors also confound our efforts to identify ancient dog remains. First, there is a widespread notion that dogs and wolves commonly interbred and that hybrid offspring should be common in archaeological assemblages. This is likely untrue for several reasons. Second, the modern wolf and dog skeletons used comparatively in many studies may poorly characterize past canid size and shape variation. Modern dogs are far more variable in shape and size than past dogs. Further, early wolves on the Canadian prairies seem to have been somewhat smaller than those that now inhabit the mountains and forests to the west and north. Third, wolf remains may be more common in archaeological assemblages than anticipated. Prairie wolves likely preyed primarily on vulnerable bison (calves, older adults), but they surely also scavenged, including on bison killed by people. This paper explores efforts to develop pragmatic methods for differentiating dogs from wild canids on the Canadian prairies. We also discuss the hybridization issue and examine why large canid remains are seemingly abundant at bison mass kill sites. Finally, we describe efforts underway to analyze the genetics of these animals, including to assess issues of hybridization with European dogs in the pericolonial period.

Malainey, Mary
(Brandon University and Manitoba Archaeological Society)

Pre-Contact Indigenous Farming and other Archaeological Sites in the Pierson Wildlife Management Area, south of Melita, Manitoba

In September 2018, Eric Olson found two complete bison scapula hoes along Gainsborough Creek, south of Melita, Manitoba. A joint Brandon University and Manitoba Archaeological Society research project was launched to learn more about the pre-contact Indigenous farmers who made and used these tools. Radiocarbon dating of bone and charcoal shows the horticultural occupation began in the late 1400s/early 1500s CE and extended into the Protohistoric period. Excavations at the Olson site (DgMg-167) in the valley uncovered remains of a workshop where bone tool manufacturing and other activities took place. A nearby grassy expanse may be the location of floodplain fields. Excavations on the east prairie level (DgMg-168) encountered residential debris and intentionally buried fragments of a highly decorated vessel. A ground-penetrating radar survey of the prairie on the west side of the valley (DgMg-40c) detected twenty-nine subsurface anomalies; to date, six have been tested. Two closely spaced anomalies in the north-central part of the site had the highest concentrations of residential debris. A flint knapping station and cluster of potsherds were found 10 to 20 cm below surface and appear to be associated with the horticultural occupation. A bison bone upright was encountered directly below the potsherds between 25 and 49 cm dbs. This feature, a projectile point, and radiocarbon dates on bone provide evidence of a Besant/Sonota occupation about 1700 years ago. The Early Woodland stemmed projectile points found in the area are likely associated with people who introduced earthwork construction into the southwest corner of Manitoba.

Nomokonova, Tatiana[*], Stella Razdymakha[**], Lubov' Vozelova[**], Grace Kohut[*], Andrei Gusev[**], Andrei Plekhanov[**], and Robert J. Losey[*,*]**
([*]University of Saskatchewan, [**]Arctic Research Center, Salekhard, Iamal-Nenets Autonomous District, Russian Federation, [***]University of Alberta)

Needles, Needle cases, and women from the Iamal-Nenets Region of Arctic Siberia

The Iamal-Nenets region of Siberia is one of many areas in the Arctic where women's sewing skills were and are crucial to daily existence. Located just east of the Ural Mountains and bordered by Arctic Ocean, Iamal is home to Nenets and Khanty people and their reindeer. This territory is known as the global center of reindeer pastoralism, with many Indigenous families living a mobile lifestyle that involves moving with their animals on seasonal basis across the tundra. Our presentation discusses needles and needle cases found at archaeological sites and that were made and used by ancestors of the current Indigenous peoples of this region. We start with an introduction of *муца* (in Nenets) and *мўтщаӈ* (in Khanty), or woman's sewing bag, which is one the most important belongings of mobile households. These bags are a symbolic representation of every stich made by a woman's hands in creating dwelling covers, bedding sets, storage bags, and every piece of clothing, all of which are crucial to the survival and well-being of her family. These particular bags are not merely containers for essential sewing supplies such as needles and needle cases. They embody layers of multigenerational skill, ancestral knowledge, and identity that are passed by Khanty and Nenets women to their daughters, nieces, and granddaughters. We continue with a summary of needle and needle cases found at archaeological sites in an attempt to stitch the past and present of these belongings and knowledge together. By doing so, we highlight and acknowledge Indigenous women and their incredible sewing skills which have allowed families to survive and flourish in the Siberian Arctic for hundreds of generations.

Pocha-Tait, Sarah
(University of Saskatchewan)

What the Fort? An Overview of the 2021 and 2022 Field Season at Fort Carlton

Fort Carlton was a fur trade post which operated from 1810-1885. Its original location was at the forks of the two Saskatchewan Rivers, but in 1810 it moved further southwest to a prime location along the North Saskatchewan River. This area holds the Cree name *Pehonanik* meaning "the waiting place". The fort underwent five separate building phases during its time at this second location. Excavations in the 1960s and 70s by Ian Dyck and Anthony Ranere revealed the fourth and fifth building phases, which is where the reconstructed fort stands today at Fort Carlton Provincial Park. Further excavations ensued in 2021 and 2022 to the west of the reconstructed fort in search of the previous building phases and other features. The artifact assemblage currently sits at approximately 50,000, with about 80% consisting of faunal remains. This presentation will provide a general overview of these faunal remains (a more in-depth analysis will be presented by Alexis K. B. Hunter) and will highlight some of the key domestic artifacts found such as birch bark, bone tools, and ceramics.

Revering, Graeme
(KGS Group)

A Survey Reconnaissance of Eagle Creek: Identifying Place through the Archaeological Record

The Stranraer Terrace is a large geographical landmark located along Eagle Creek in mid-western Saskatchewan. After the identification of the Herschel Petroglyphs (EjOc-3) in the 1960s, the area has undergone numerous small scale archaeological surveys and three excavations. To understand the use and significance of this landmark, a judgmental survey was conducted and the cultural history was established through artifact collections. From the survey 54 new sites were identified bringing the total number of sites within the region to 118. The artifacts identified through collections, excavations, and surface finds show the region has been utilized for several millennia; spanning a time period from at least the Middle Period to post-contact.

Understanding the significance of a locale and its role within the cultural landscape first requires a discussion on the formation processes of place. Both wayfinding theory and ecological concepts of patch selection are the building blocks of this type of analysis. If a spot satisfies some biological or cultural need, then there is incentive to return and use the space. It is through this repetition of use, that the locale becomes more than a location on the landscape. It takes on the attributes of memory, meaning, and experience. It is a transformation from space to place. The presence of petroglyphs, alignments, Medicine Wheels, and other sites of special significance indicates the Stranraer Terrace to be one of these places.

Poster Abstracts

Boser, Faith

Lake Midden (EfNg-1): A Pericolonial Site on the Northwestern Great Plains

The Lake Midden (EfNg-1) archaeological site is located just east of Last Mountain Lake in southern Saskatchewan. The Mortlach period site dating to the late 16th or early 17th century is considered to be one of the most archaeologically important sites in the province, yet the majority of the collection has not been systematically analyzed. Lake Midden was a hot spot for looters beginning in the 1930s, leading to much of the site being disrupted. The site was later subject to test excavations from the 1970s to the 1990s. The majority of the past research was conducted on the Mortlach pottery and some bone tools from the site. Limited analyses previously completed on the collection indicated that bison are the most abundant faunal remains at the site. The second largest set of remains belong to canids, three of which have been identified as dogs. Previous genetic research indicates some of the dogs are of European ancestry. This evidence suggests that European dogs had interbred with indigenous dogs prior to the establishment of colonial settlements in the province. Certain modified bone objects, vessel designs, and residue analyses of pottery from the site resulting in the identification of maize are suggestive of relationships with groups to the south and/or east. Current research is focused on analyzing the entire faunal collection, including those housed at the Canadian Museum of History in Ottawa and those located at museums throughout Saskatchewan. This will include element identification, age and sex determination, season of death estimation, stable isotope analysis, and additional aDNA analyses of the canids. The initial research of the Lake Midden collections clearly has generated a series of intriguing results, but more analysis must be conducted to evaluate these insights and to address other important questions about the site and its inhabitants.

Kohut, Grace*, Stella Razdymakha, Tatiana Nomokonova*, Andrei Plekhanov**, and Robert J. Losey*,*****

(*University of Saskatchewan, **Arctic Research Center, Salekhard, Iamal-Nenets Autonomous District, Russian Federation, *** University of Alberta)

Rangifer Tooth Wear: Estimating Ages of a Key Species from Archaeological Sites

Caribou and reindeer (*Rangifer tarandus*) are a key species for many people across the Circumpolar North. These animals, both wild and domestic, are essential to life in the North providing food, hides for clothing and shelter, transportation (where reindeer are domesticated) and are significant to many Northern Indigenous cultures and identities. Understandably, this species is well represented in northern archaeological sites demonstrating that the relationship between people and *Rangifer tarandus* has endured and changed over thousands of years. The remains of these animals (bones, teeth, and antler) recovered from archaeological sites can be examined using zooarchaeological methods to better understand how the relationship between people and caribou/reindeer has emerged and changed in the past. One such method, tooth wear age estimation, uses the severity of mandibular (jaw bone) tooth wear to estimate the number of years an individual animal lived. This data is used to reconstruct demographic profiles of populations of animals from archaeological contexts, telling us how people selected the animals they killed in the past. Building on decades of previous tooth wear methods for *Rangifer* and other ruminants, this

poster presents the improved approach I have taken to estimate the ages of caribou and reindeer that is designed to be user friendly, accessible, and can be applied to fragmented mandibles from archaeological sites. I will also explain how this ageing method can be adapted to incorporate Indigenous age categories. This research project uses age categories for reindeer used by Nenets in the Iamal Peninsula of Arctic Siberia who migrate with their reindeer herds on the tundra. This approach provides a more nuanced and culturally appropriate interpretation of the use of these animals from archaeological sites in the Iamal region and this approach could be applied similarly elsewhere using other Indigenous categories as well.