STUDENT MANUAL

Idaho State University Archaeology Field School

Olsen Mammoth Site

Kimberly, Idaho

May 6 – May 31, 2019

Sponsored by:

Idaho State University

Idaho Museum of Natural History

Welcome

Welcome to the 2019 Idaho State University Archaeology Field School! This course was established in 2016 by Dr. Charles Speer with the help of Idaho State Museum of Natural History, Idaho State University College of Arts and Letters, and the Department of Anthropology.

Excavation and plaster jacketing of tusk section at Olsen Mammoth Site in Kimberly, Idaho in 2014.

One of the most exciting aspects of the field school is that students gain hands-on experience with archaeological techniques in excavation, digital data collection, and artifact analysis (see figure 1). The goals of this intensive and interactive learning experience are encourage students to go on to do graduate research in hunter-gatherer archaeology and/or pursue careers in cultural resource management. We hope that you will have a great time in the course, that you will learn a lot, and that you will feel inspired, too.

Introductions

Idaho

Idaho is a remarkably beautiful Inter-mountain West state with diverse landscapes that include rolling green hills, rugged mountains, waterfalls, sandy deserts, peat bogs, and volcanic lava fields. The area where we will be excavating in Kimberly, Idaho is just several hundred yards from the iconic Shoshone Falls. These falls were formed over 17,000 years when a massive flood scoured the falls into the 212 foot depth they are seen today. The flood was caused when Lake Bonneville burst through its natural dam at Red Rock Pass just south of Pocatello. This flood released nearly 1,500 times more water than the complete yearly flow rate of the Snake River in just under a week! This is the second largest flood ever discovered after the Lake Missoula flood.

Idaho's weather is highly variable – if you don't like it, wait 15 minutes. Early summers in the Snake River Plain are warm during the day with cool nights, with temperatures averaging around 75°F, reaching highs of about 85°F and reaching lows of about 40°F. Occasional daytime heating thunderstorms form in the late afternoon. The Magic Valley ecoregion (where Twin Falls and Kimberly are located) is so-named for the irrigation canals of the Magic Valley that "magically" transformed the region in the early 1900s. Today, the Magic Valley is an agricultural valley underlain by alluvium, loess, and basalt flows (see figure 2 below).

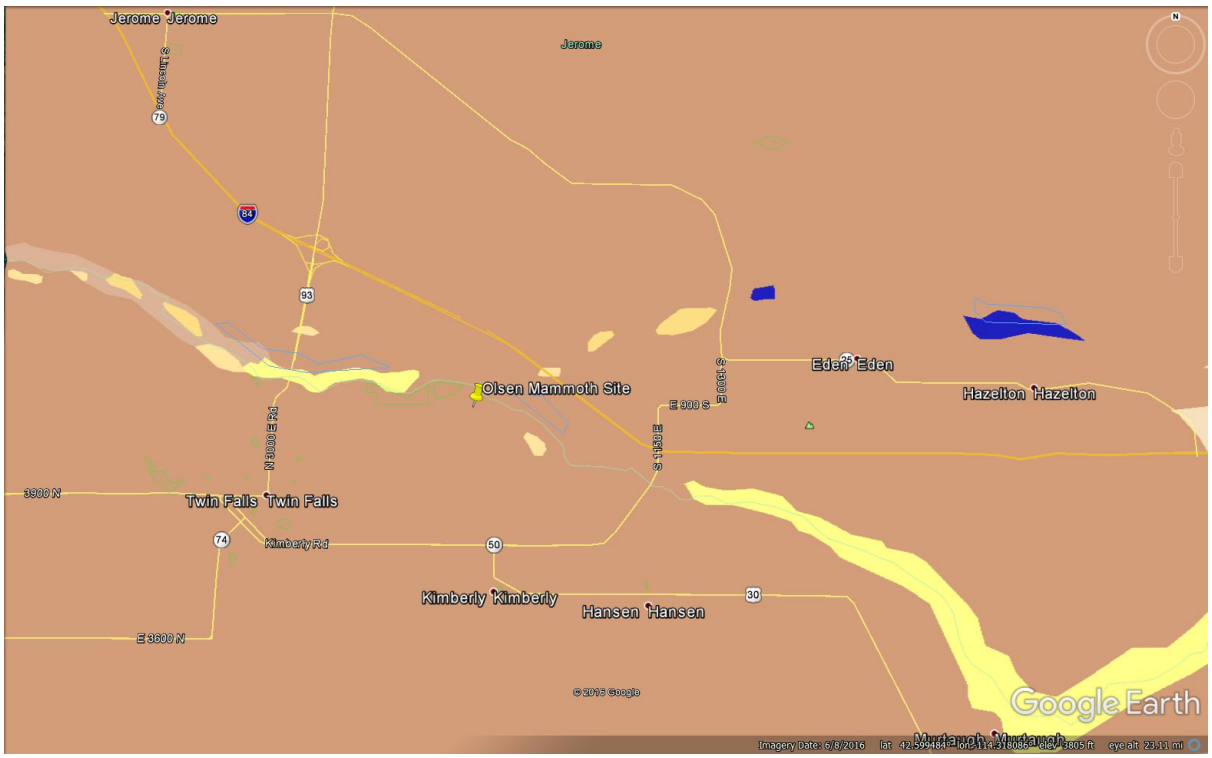

Figure 2 – Geology of area surrounding Olsen Mammoth Site. Tan areas are basalt, pumice, and tuff of Pliocene to Early Pleistocene age. The yellow areas are alluvium composed of gravel, silt, and sand developed during the Pleistocene. These alluvium are mostly a result of glacial outburst flooding from the Bonneville event 17,000 years BP.

Elevation varies from 3,200 to 4,500 feet (975 to 1,372 m). Natural vegetation is mostly sagebrush and bunchgrass, but low terraces have salt tolerant plants. Wyoming and basin big sagebrush, alkali sagebrush, bluebunch wheatgrass, Thurber needlegrass, squirreltail, bluegrass, needle-and-thread, Indian ricegrass, and fourwing saltbush are present. The region covers 1,700 square miles (4,403 km2) in the Twin Falls area of southern Idaho.

The Olsen Mammoth Site

The Olsen Mammoth Site was first discovered in 2012 by private landowners Rebecca and Joshua Olsen in the front yard of their house with bones eroding out of a small bank during excavation for a pond. The Olsen's contacted archaeologist Jim Woods at College of Southern Idaho to come investigate the find. Woods began excavation in the summer of 2014 of the bones and soon found a tusk and pieces of a spinous process (backbone) belonging to a Columbian mammoth (*Mammuthus columbi*). Woods did not have experience with excavating megafauna and contacted Dr. Mary Thompson at the Idaho Museum of Natural History at Idaho State University to assist. Dr. Thompson was able to recover the partial tusk and other bone fragments. The excavation and recovery ended with some 85-90% of the mammoth remaining.

In the spring of 2017 Dr. Thompson was contacted by the Olsen's to recover the remainder of the mammoth. Dr. Thompson then asked Dr. Charles Speer to help recover the mammoth with a field school. Dr. Speer acquired funding to both locate the mammoth remains with ground penetrating radar and for radiocarbon dating. Radiocarbon dates recovered from the tusk and bone fragments suggested the mammoth was between 14,500 and 15,500 year before present. The 2018 season revealed the top sections of mammoth bone and did not discover any cultural material near the remains. The bone that was exposed was covered in plaster and sandbags to protect the find until the next season.

Logistics

What to bring (I will also provide a list if you intend to camp)

Suitable clothes: Come prepared for all weather conditions, and to wear multiple layers.

Windbreaker: Windproof over-jacket, preferably loose enough to layer beneath.

Hats: A billed/brimmed hat (e.g. baseball cap) are useful.

Boots: Sturdy, waterproof boots.

Work clothing: Long trousers, long-sleeved shirts, shorts, T-shirts, and work gloves. Think old and sturdy. Think about working in the sun all day on your knees and moving around a lot!

Recreational clothing: Lighter clothing and shoes to wear indoors and on your days off. If you intend to do any sports or swimming (there is a pool at hotel), you should come equipped for that as well.

Knapsack: You will need a bag to carry extra clothes and your lunch to the field.

Water bottle and box/bags for your lunches: You will pack your own lunch every morning, and will need something to carry it in. We will provide coffee and tea on site, but if you want anything special you may want to bring your own thermos.

Paper, pens & reading materials: You should come prepared to write your excavation diary on looseleaf paper, and to take notes during the lectures. Books and papers on archaeology will be available, but you may also want to bring recreational reading material.

Sunscreen

Personal trowel: We have enough for everyone, but you may want to bring your own favorite trowel (preferably 3").

Camera: If you bring a camera, remember to bring a waterproof/dust-proof bag for it.

Optional: laptop computer: It is not necessary to bring your own computer, but if you do chose to do so, you could use it for writing your assignments and accessing the wifi at hotel.

What not to bring under any circumstances

Firearms
Knives larger than a Swiss army knife
Recreational drugs of any kind

(!) **Warning:** There is a zero tolerance policy towards drugs and weapons, and any student in position of one of these items will be immediately removed from the field school.

Supply List (plus camping supply if you decide to camp)

Required for work:
2 32 oz water bottles (Nalgene)
Marshalltown trowel 5 inch by 2 1/12 inch
Hand whisk broom and dust pan
Small pruning shears (for roots)
5 m metric tape rule 3 m metric tape rule
Compass
Clipboard
Mechanical pencil
Sharpies
Work gloves
3 inch paintbrush
Line level

Suggested for work:
Multi-tool
Gorilla Tape (duct tape)
Polymer cleaning picks (no metal)
Rite in the rain book
Tool bag (can loan)
Rain gear
Sun hat

Required for personal and camping:
Watch with alarm (or cellphone with alarm)
4-5 work shirts 4-5 work pants
Work or hiking boots
Sleeping bag (it can freeze)
Tent with rain fly
Ice chest (can loan)
Food for 5 days*
Collapsible Water Container (at least 5 gallon)
Camp chair (suggest one with horizontal runners so it won't sink)
Head lamp light + extra batteries**
Solar Shower Bag
Laundry Mesh Bag
Biodegradable soap
2-3 towels

Suggested:
Camp shoes or sandals 4-5 camp shirts
4-5 camp pants or shorts
Personal Wipes
Toiletry organizer
Pillow
Cot or sleeping pad
Backpack

*I will provide a Yeti 110 cooler for frozen foods or foods you need cold if you don't have adequate ice chest

Travel itinerary

Leave from Idaho State University

You must be at ISU no later than 8:00AM on Monday, May 6th to assist with loading.
We will leave from ISU as a group and everyone is expected to help me load the trailer and truck with our equipment and supplies.
This is part of your grade and you cannot miss it.

Accommodations

If you decide to stay at the Quality Inn and Suites (see figure 3)(which I recommend all students do) then you will travel there and check-in after we unload the trailer and set-up our excavation on Monday. You will book this by calling a number that I will provide you with. I have been able to secure a special rate for the field school listed below.

Stay the entire 25 days: $79 per night
Stay M-F (check-in on Sunday nights/check out Friday mornings): $84 per night

The Quality Inn and Suites is located only 7 miles from the site.
They provide breakfast every day.
On Tuesdays and Wednesdays they provide dinner.
The hotel is located next door to a Costco and several restaurants.
I can send you a video of the hotel if you would like to view it.

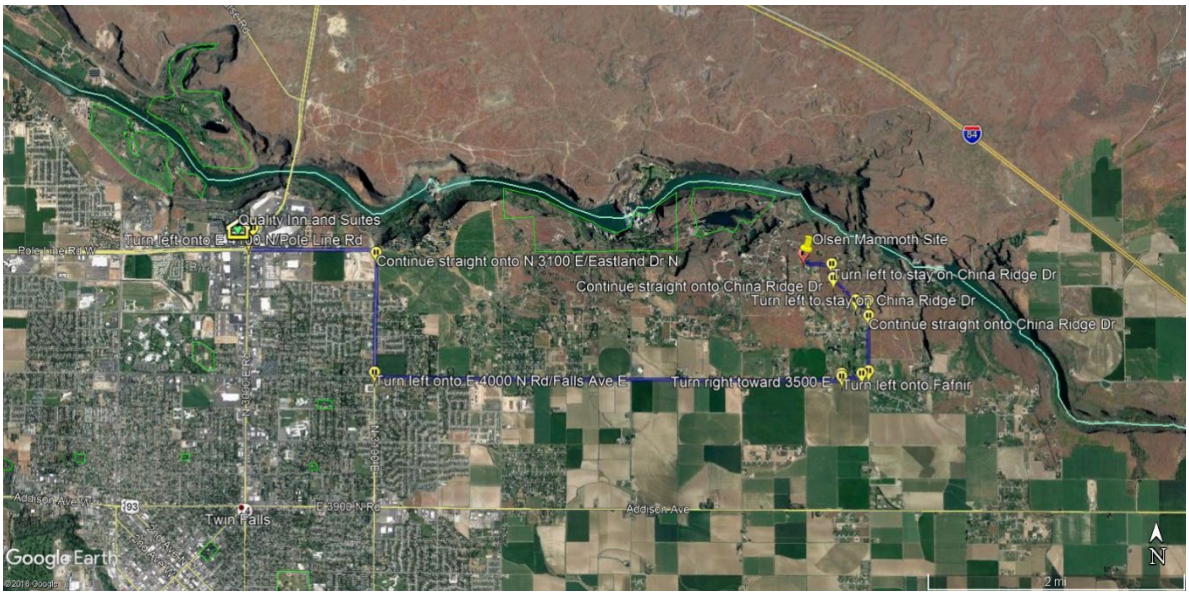

Figure 3 – Location of Quality Inn and Suites

Health and Safety

On-site hazards and preventative measures

Archaeological fieldwork has inherent health and safety risks. It is important to be aware of these potential risks, and to take common-sense actions to try to prevent them. Most accidents on site happen because of careless handling of tools, or because people fail to keep an eye out for trip hazards. Please remain diligent and help to prevent injury to yourself and others!

Please read the Fieldwork Risk Assessment, below, and take careful note of the actions that should be taken to prevent accidents or illness.

Fieldwork Risk Assessment 2019

Hazard	Effect	Severity	Likelihood	Risk	Preventative Actions
Trenches, strung lines, uneven ground	Injury to self by tripping, falling	Medium	Low	Low-Medium	• Awareness of trip hazards at trench edge (e.g. crumbling sections, strung lines, grid points), during survey work (e.g. uneven ground, slippery rocks), and during excursions • Sturdy footwear to prevent twisted ankles
Deep excavations, test pits, ditch sections, unstable sections	Injury to self and others by falling or causing sections to collapse	Medium	Low	Low	• Stepped access and shoring • Use of fencing, hazard tape or railings to mark and enclose deep excavations • Protective clothing, sturdy footwear
Hand tools (e.g. spades, shovels, trowels, mallets)	Injury to self and others by accidental mishandling of tools	Medium	Low	Low-Medium	• Proper handling of tools, with awareness of proximity to other people • Shallow slope barrow runs and wheelbarrows not over-filled • Solid shoveling platforms • Tools kept centralized, not lying around site, and stored at the end of the day • Shovels, spades, and other tools laid point down
Severe weather	Illness and possible hypothermia if get cold and wet	Low	Medium	Low-Medium	• Wearing appropriate clothing layers, including waterproof and windproof outer clothing and footwear

Scales are from low to high.

Off-site hazards and preventative measures

There are, of course, off-site hazards as well, and although it is impossible to mitigate against all of them, we would like to draw your attention to a few issues in particular:

Driving: You must wear seatbelts at all times.

Hiking: If you go walking, please take a friend, a map, a compass or GPS, food, and appropriate clothing. Colorful outer clothing is a simple security precaution. Tell Dr. Speer where you are going and when you will be back, and stick to your route and schedule.

Behaviour: Excessive drinking and other irresponsible behaviour can endanger yourself and the people around you. You are expected to behave safely and responsibly at all times.

Important Health and Safety Information

• A health and safety manual and first aid kit will be available on site at all times

Warning: dangerous behaviour will not be tolerated

It is therefore essential that everyone behave safely and responsibly at all times. Ignoring the safety procedures set out in this manual, or the instructions of Dr. Speer, may endanger yourself and the people around you. Dangerous behaviour will not be tolerated, and any student who acts irresponsibly will be immediately removed from the field school.

Confidential Health and Safety Form

Please complete the Confidential Health and Safety Form below, and email it to Dr. Speer before May 1, 2019.

Field School in Kimberly, Idaho
Confidential Health and Safety Form

Name:	University affiliation:
Date of birth:	Mailing address:
Email:	
Telephone number(s):	

Next of Kin Contact Information

Name of someone who can be contacted in case of emergency:	
Relationship:	Address:
Telephone number(s):	

Medical Information

Do you have a medical condition that might affect your work on the field school? (e.g. previous back, knee, or ankle injuries; asthma) If yes, and you think we should be aware of your condition, please provide details:	Yes † No †
Do you have any allergies? If yes, please check the box to confirm that you are bringing antihistamines, epinephrine, or other medication that you normally use to treat these allergies. If yes, and you think we should be aware of your allergies, please provide details:	Yes † No † I confirm †
Are you taking any prescription medication? If yes, please check the box to confirm that you are bringing sufficient medication for the duration of the field school.	Yes † No † I confirm †
Are your vaccinations up to date (especially against tetanus)? Please check the box to confirm that your tetanus vaccination is up to date.	I confirm †
Do you have health insurance to cover you while you are on the field school? (e.g. if you are from an EEA state, do you have a European Health Insurance Card?) Please check the box to confirm that you have adequate health insurance.	I confirm †

Statement of Informed Consent

I have read and understood the written health and safety information and the risk assessment presented to me in the student manual for the field school. I recognize that archaeology has inherent hazards that cannot be fully mitigated by any set of safety procedures, and I accept the risks inherent in participating in this field school.

Signature:_____Date: _____

Field School Program

Aims of the course

The field school will provide you with:
• an overview of Paleoindian archaeology and Pleistocene megafauna from the earliest Peopling of the New World through Folsom period
• insight into the technical and theoretical issues pertinent to Paleoindian archaeology, including past and present trends in field work and interpretation, and current research debates
• thorough grounding in archaeological field methods, including survey, excavation, recording, and sampling
• knowledge of a range of post-excavation methods, including the processing of artifacts, faunal, botanical, and sediment samples, and field data
• a certificate of participation upon completion

Pre-Course Work

You are all expected to have done some reading in preparation for the field school – at the very least the readings that have been marked with a star (see the reading list below), but preferably more.

Excavation Program

The excavation learning program will progress through a series of stages to meet before the field school begins, but the speed and timing of these stages will remain flexible because students often come with different levels of experience.

Stage 1: Preparing for the excavation
• Surveying: topographical survey, field walking, geophysics, ground penetrating radar
• Evaluating a site: identify archaeological objectives
• Choosing where to dig: assessment methods and rationale for digging location
• Laying out the site grid: basic surveying techniques (total station, triangulation using tapes: 1x1x1.41; 2x2x2.83; 5x5x7.07; 10x10x14.14, etc.)
• Defining the excavation area: open area vs. trench vs. test pit
• Handling and care of tools: what to use, when, and how
• Deturfing and removing topsoil

Stage 2: Introducing stratigraphy and how to record it
• Introducing the site: registers, recording forms, finds processing, sample processing
• Introducing stratigraphy: looking at a test pit
• Drawing a section
• Describing soils and sediments: filling out context sheets
• Constructing a stratigraphic matrix
• Taking samples from vertical sections

Stage 3: Introducing single context recording methods
• Sequence: clean, photo, draw, measure, excavate
• Cleaning the site
• Taking photographs
• Identifying and recording units: layers, cuts, fills, features, structures
• Drawing multi-context and single-context plans
• Taking elevations
• Keeping track of multiple relationships between layers
• Taking samples

Stage 4: Introducing excavation methods
• Excavating: spading and troweling techniques
• Moving dirt off the site
• Screening: when to sieve sediment and how to do it
• Dealing with finds: recording, lifting and storing fragile finds
• Interpreting contexts

Stage 5: Beginning unsupervised excavation
• Recording and excavating a unit on your own, then another, then another…

Stage 6: Closing down the excavation
• Covering, returfing, and protecting the site

Fieldwork Logistics

Working day: 8:30 am to 4:30 pm, Monday to Friday. Please make sure that you are on time every day.

Breaks: 20-minute coffee breaks in the morning and afternoon, and a 40-minute lunch break.

Facilities: At the site, we will have a large, locked trailer where we can store our equipment. I will provide a grill, ice, and a large cooler should you want to cook your own food or store cold items. I will also provide all excavation equipment and supplies except for food. We will also have several large canopy shelters where we can take our breaks and lunches if the weather is bad. We will have two portable toilets at the site that will be maintained weekly. Please remember to keep the toilet as clean as possible.

Post-Excavation Work

On a daily basis students will help deal with the material and records taken from the excavation. In addition, you will have a number of practical on the various aspects of post- excavation work using material that has been recovered from the site.

Artefact processing
• first aid for artefacts
• cleaning artefacts if appropriate (washing or dry-brushing)
• weighing, measuring, describing artefacts and entering data in the digital register (pictured right)
• packaging artefacts for safe transport and storage

Faunal analysis
• preliminary identification, sorting, and quantification of bones

Botanical analysis (contingent on quality of find)
• flotation of bulk sediment samples to recover organic remains (pictured left)
• drying of light and heavy fractions
• preliminary identification and quantification of botanical material

Lectures

On some weekday evenings you will attend lectures on the Peopling of the New World, Pleistocene megafauna, geoarchaeology, and flintknapping. These will be given by the core Dr. Speer and Dr. Thompson and possibly a number of visiting archaeologists and/or specialists. The lecture schedule will be provided when you arrive at the field school, and may be somewhat flexible depending on the schedules of the visiting lecturers.

Assignments

You will be evaluated on the basis of your participation in the field and in post-excavation practical work, your attendance at lectures, and the quality of your assignments. These assignments are designed to be flexible, to allow you to concentrate on the subjects that interest you most, while at the same time satisfying the course requirements of the affiliated universities.

Field journal

You must keep a daily journal on A4 or letter-sized loose-leaf paper or on your laptop computer in the style of an excavation daybook, which all excavation projects use. In this journal you should record what you are doing on the site each day, the progression of the excavation, your understanding of the site stratigraphy, your preliminary interpretations, and how what you are doing is related to what is going on elsewhere in the trench or on the site. You should illustrate your notes with sketches of the features you are working on, and photographs of features and finds, and you should record how the interpretation of the site progressed each day. Your journal will be checked periodically during the course, and if you require transfer credits a copy must be provided to the director of the field school before you leave in order to satisfy the written requirement of the affiliated universities. Your journal must include the following information at the very least:

• information about the site (name, location, setting, date, type of site)
• research aims and strategies of the project
• the methods you are being taught to excavate, record, and sample in the field, and the rationale behind the selection of particular methods on site (i.e. Why are you excavating or sampling a deposit in a certain way? What do you hope to achieve?)
• the types of features and contexts you are excavating on site on a daily basis
• your thoughts on the interpretation of the deposits and features you are excavating
• general comments about the progress of the excavation, and your ongoing interpretations, drawing on any other excavations you have worked on (include your own ideas and opinions)
• sketches and photographs of features being excavated and their interpretation, especially features that you are directly involved in excavating
• descriptions of any interesting finds made
• the methods you are using in your field survey and post-excavation practical work
• the sites and landscapes you are encountering during your survey work and field trips
• a self-evaluation (i.e. What skills have you learned? Have you made improvements?)
• comments about any experiences that you find especially interesting or difficult (e.g. certain lectures, field trips)
• the ways the project engages with the general public

Feature Report

At the end of week three of the field school you must submit a short feature report (500 words or 1 page of text, plus illustrations) that demonstrates that you fully understand the recording process associated with a particular feature you excavated or helped to excavate, and that you understood the formation processes that led to the archaeological feature and its interpretation. You should focus on one discrete feature at the site, a wall, or layer, and include the following elements:

• a description of the location of the feature, its composition, interpretation, and its relationship to other features or elements on the site
• **photographs** illustrating the feature using appropriate scales and conventions. At least one should have been taken by you (please specify which ones).
• a list of **finds** from the feature and a brief description of these.
• a list of all **sample numbers, photo numbers**, etc. associated with the feature.