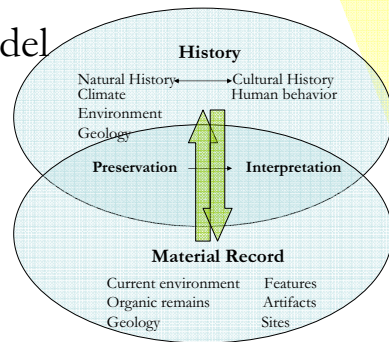


Naomi Ollie, Alisa Hjermstad, Larry Todd

Introduction

An archaeological investigation beginning in 2002 in the Absaroka Range of northwestern Wyoming shows a robust record in the boundary area between the Bighorn Basin and the high peaks of the Absarokas. A large portion of the study area is wilderness and, due to access, the archaeological record is predominantly restricted to surface palimpsest deposits. This study shows potential for using the surface geology to understand relationships between the archaeological record and natural processes. Surface geologic deposits give evidence of the long-term impacts of mass-wasting on a landscape. Archaeology provides a finer temporal scale for investigation of landscape dynamics. Additionally, the Venus Creek fire which began on June 18th of 2006 burned through the majority of the study area and will add to an understanding of the geomorphic history of the area and archaeological associations.

Model



Cultural and natural histories are interconnected and understanding the processes influencing preservation of these records is essential for interpreting history.

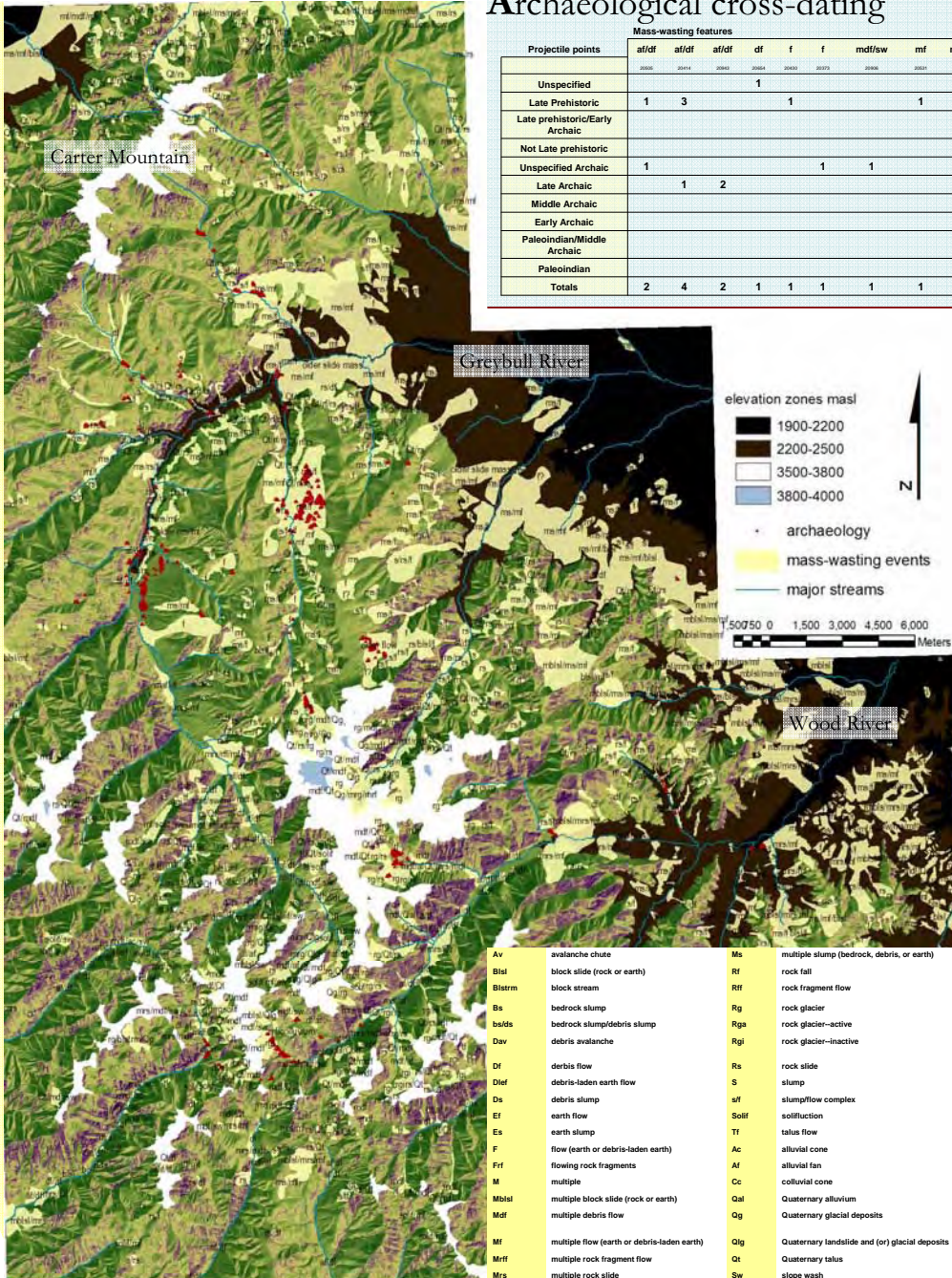
Objectives

- ❖ Build an understanding of the context of the archaeological record.
- Identify potential for sub-surface archaeological components.
- Identify patterns of occupation among specific landforms.
- Identify impacts of natural disturbances on the archaeological context.
- ❖ Demonstrate how archaeology can be a valuable tool in monitoring landscape change.
- Show the frequency of change in a landscape through time
- ❖ Investigate impacts of mass-wasting at site-level
- Build a landscape history through different human occupations
- Identify microenvironmental change after disturbance and in landscape recovery

Acknowledgements

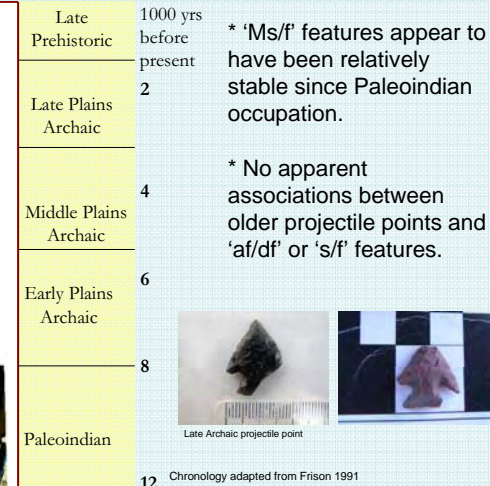
Dr. Larry Todd and all the students and volunteers have helped create this robust archaeological database. Marcy Reiser, Allison Bohn, and Jill Bechberger provide the graduate support network. Special thanks to Courtney Hurst for GIS technical support and Suellen Melzer for so much soil help and sharing of lab space. Dr. Gene Kelly and Colin Pinney gave guidance with soil analysis. The Palette Ranch folks of Meeteetse and the Meeteetse, Wyoming community have been very welcoming through the years. John Laughlin helped immensely during the FOTM (fire on the mountain) Piney Creek project. Funding provided by the Buffalo Bill Historic Center of Cody, Wyoming.

Upper Greybull River Park county, Wyoming



Archaeological cross-dating

Projectile points	Mass-wasting features															Totals				
	af/df	af/df	af/df	df	f	f	md/sw	mf	ms/f	ms/f	ms/f	ms/mf	ms/mf	older flow	rgi		s/f	s/f	s/f	s/f
Unspecified				1					1	7	7	1	1	4						22
Late Prehistoric	1	3			1				1	12	26			2					1	47
Late prehistoric/Early Archaic											2									2
Not Late prehistoric											5									5
Unspecified Archaic	1				1	1				3	14		1	5	1	1	1	1	1	30
Late Archaic		1	2							12	24		2	6	1	3	1	1		53
Middle Archaic										1	3			4						8
Early Archaic										1	1			2	1					5
Paleoindian/Middle Archaic											1									1
Paleoindian										2	2			2						6
Totals	2	4	2	1	1	1	1	1	1	38	85	1	4	25	3	4	2	1	2	179

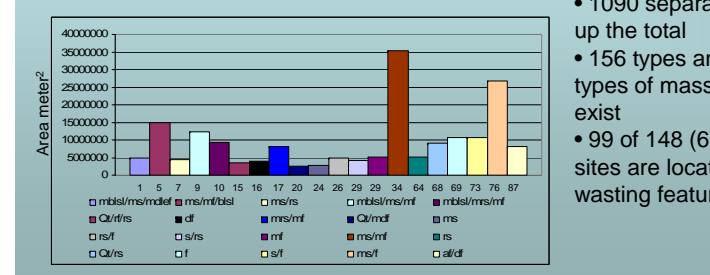


Future Sampling

Sites appearing to be intersected by mass-wasting features are targets for investigation. Site 48PA2769 is at the confluence of Warehouse Creek and the Greybull River. While 48PA2769 does not contain projectile points, two sites located on the 'af/df' deposit do.

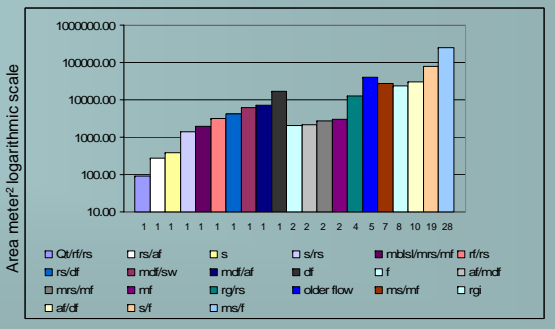
Mass-wasting and archaeological record

Below chart shows 20 most dominant mass-wasting features based on area. X axis is number of occurrences.



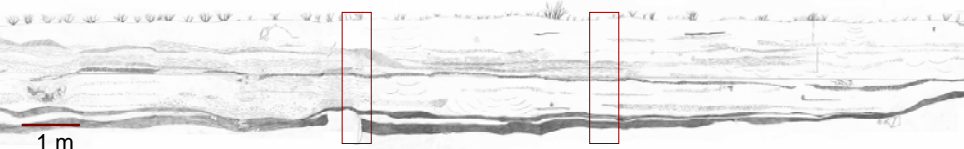
- Mass-wasting events make up ~20% of the above mapped landscape
- 1090 separate features make up the total
- 156 types and combinations of types of mass-wasting features exist
- 99 of 148 (67%) archaeological sites are located on top of mass-wasting features

Below chart is area shared by archaeological sites and mass-wasting features. X axis is number of associations

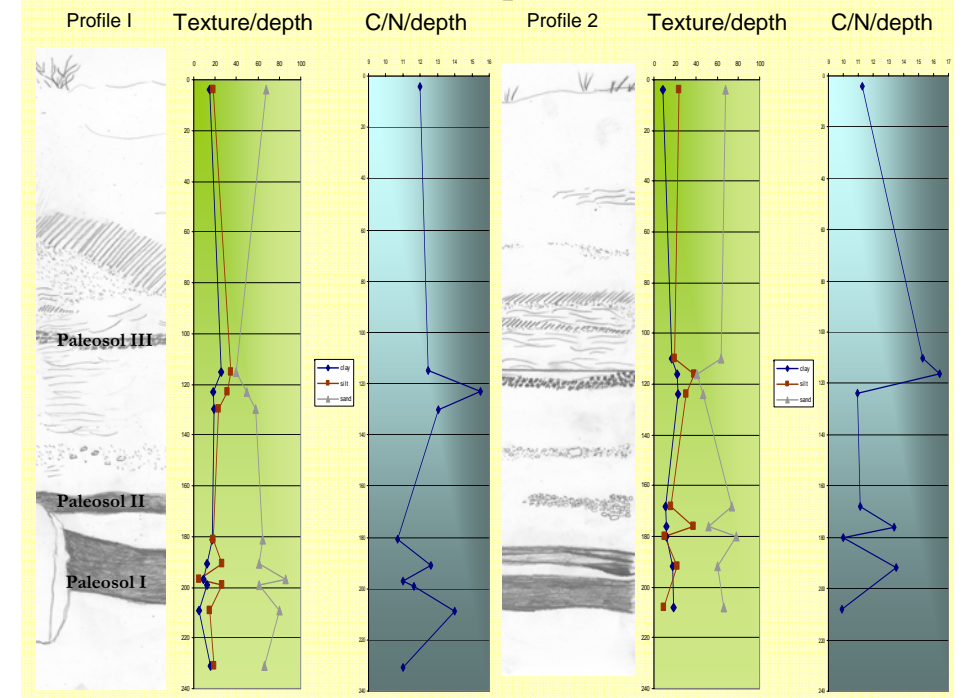


Site-scale investigation

Site 48PA2811 is located on a 'ms/mf' deposit. The creekbank located to the west of the surface archaeological deposit shows multiple soil forming events between high energy deposition. 48PA2811 is the first opportunity to look at a subsurface context to view landscape recovery and disturbance regimes. Radiocarbon dates for two buried soils are pending. An AMS date of 1070BP was acquired from a buried hearth feature.



Disturbance and soil development



Soils have little inorganic carbon. Carbon/nitrogen ratios indicate weak soil development with high amounts of organic matter. Texture results also show little soil development with high percentages of sand. All three buried soils produced large amounts of charcoal particularly Paleosol three. We hypothesize that past fires promoted surface instability, burying these soils.

Future Directions

- Field investigation of a sample of mass-wasting/archaeological site association areas
- Revisit historic sites for erosion such as Wood River mining district
- Monitor site 48PA2811 sites for fire-damage and spring runoff



References and contacts

The landslides were mapped over a 15-year period by the Geologic Hazards Section of the Wyoming State Geological Survey. <http://www.wrds.uwyo.edu/wrds/wsgs/hazards/landslides/lshome.html>
 Maps based on USGS Quadrangles, Transverse Mercator Projection, UTM Coordinates
 Archaeological Dataset from Greybull River Sustainable Landscape Ecology (GRSLE) project 2002-2006 more information at <http://greybull.org/>
 Frison, George 1991 Prehistoric Hunters of the High Plains. Academic Press, San Diego.