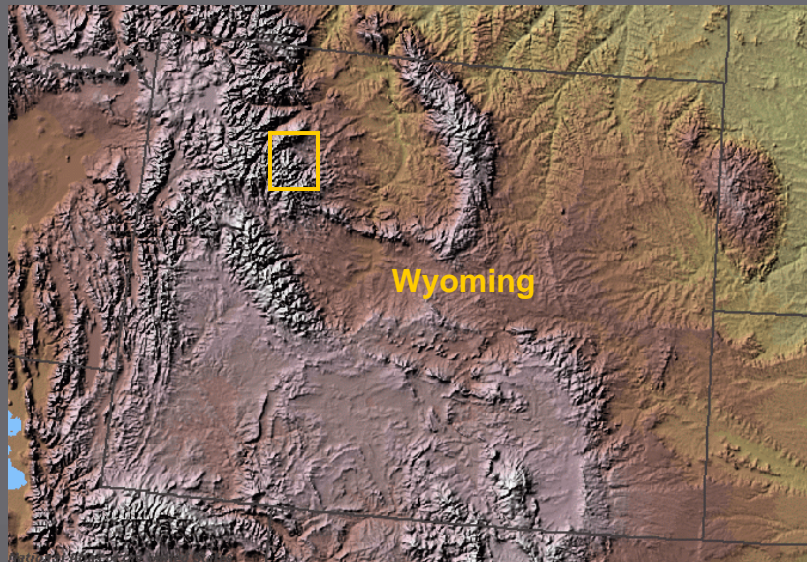


# Horizontal Seriation of an Archaeological Landscape Using GIS:

## A Case Study from the Absaroka Mountains of Northern Wyoming

Paul Burnett

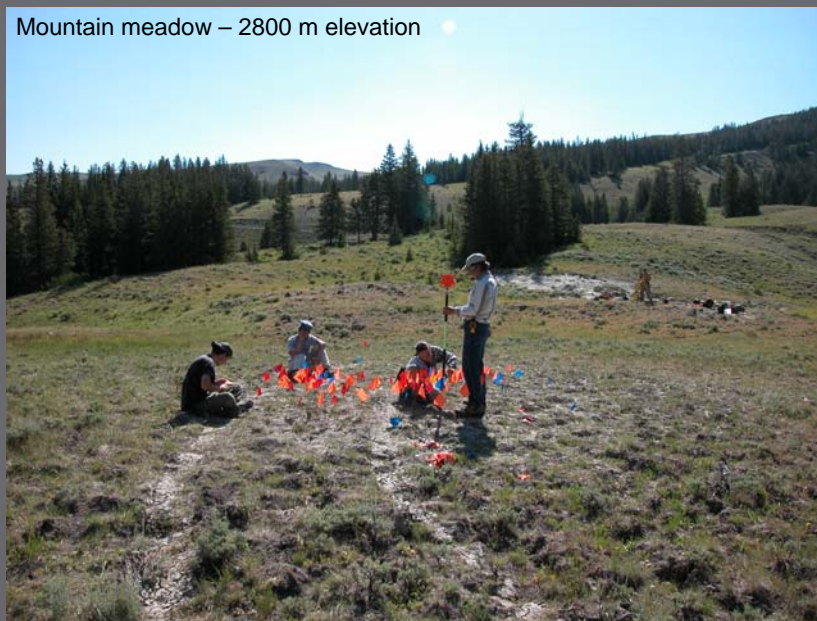
Colorado State University  
and  
SWCA Environmental Consultants



Mountain meadow – 2200 m elevation



Mountain meadow – 2800 m elevation



Upper treeline – 3200 m elevation



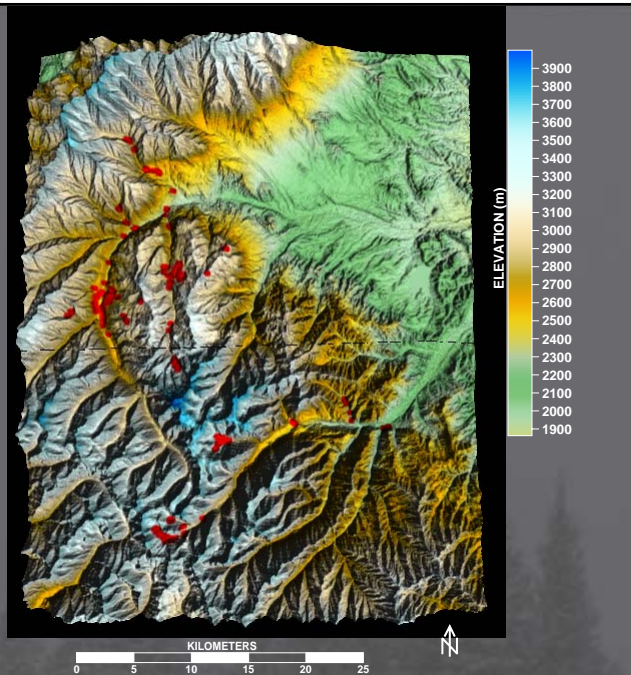
Tundra - 3370 m elevation



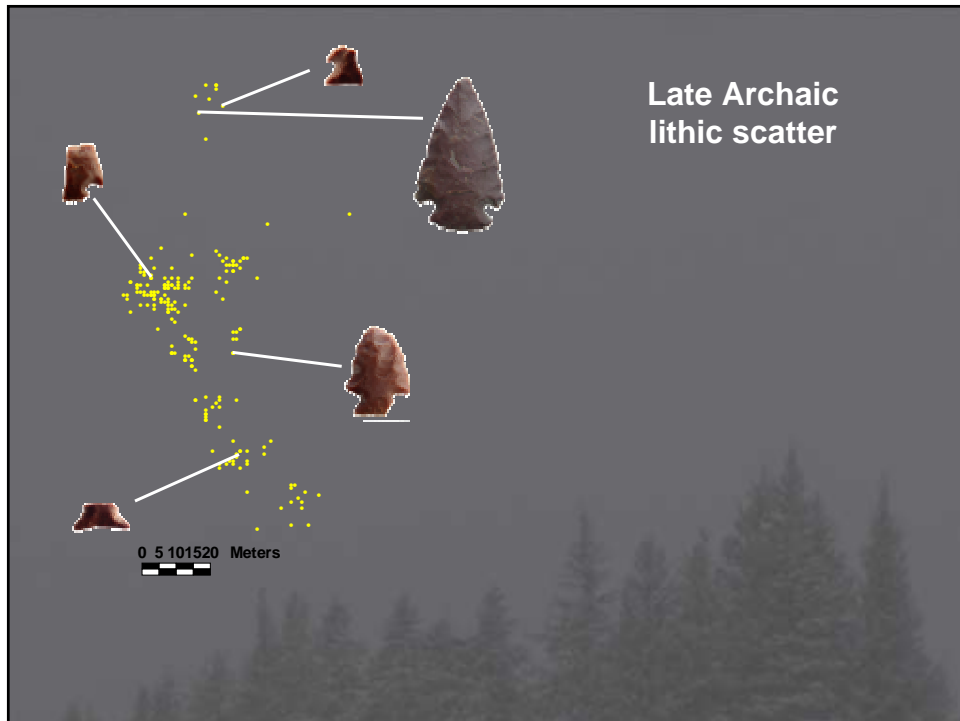
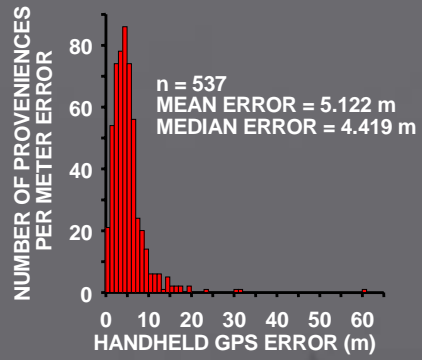
Tundra - 3340 m elevation

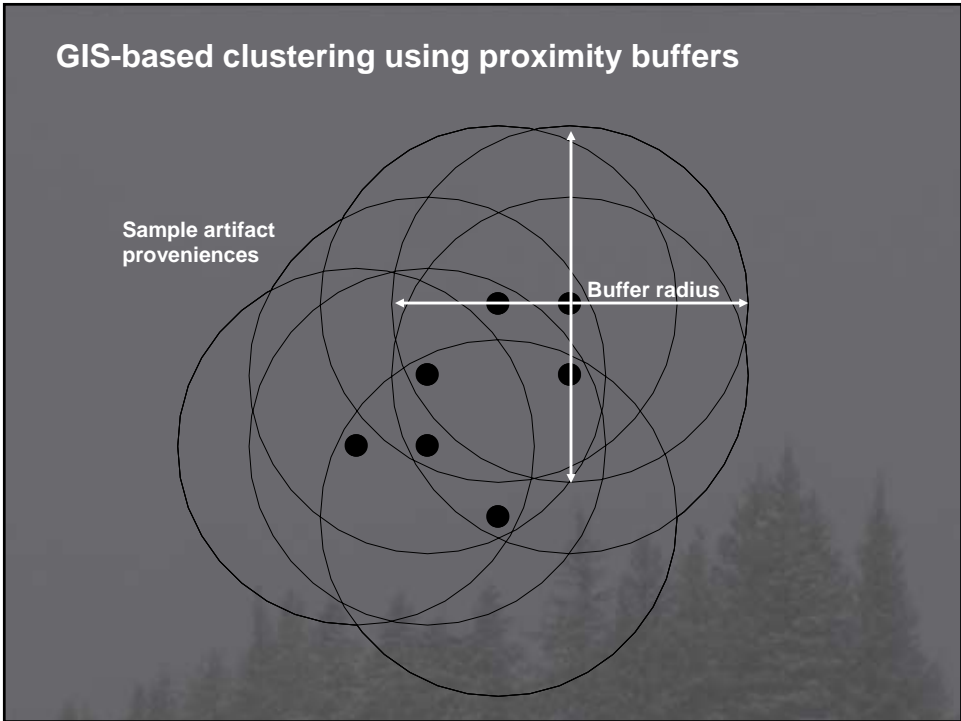
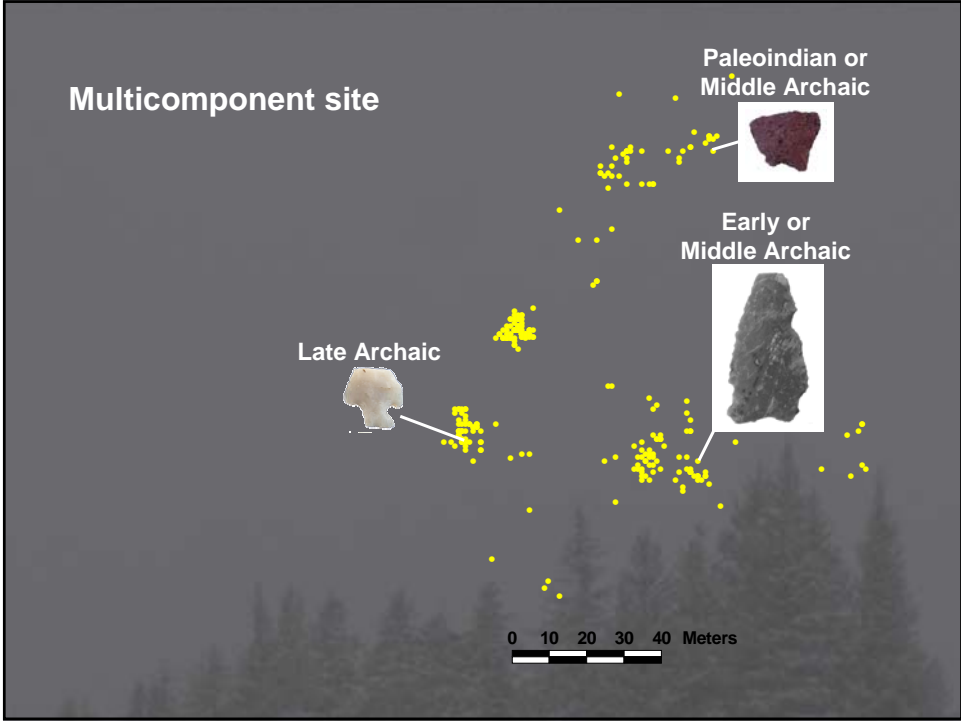


● Flaked Stone



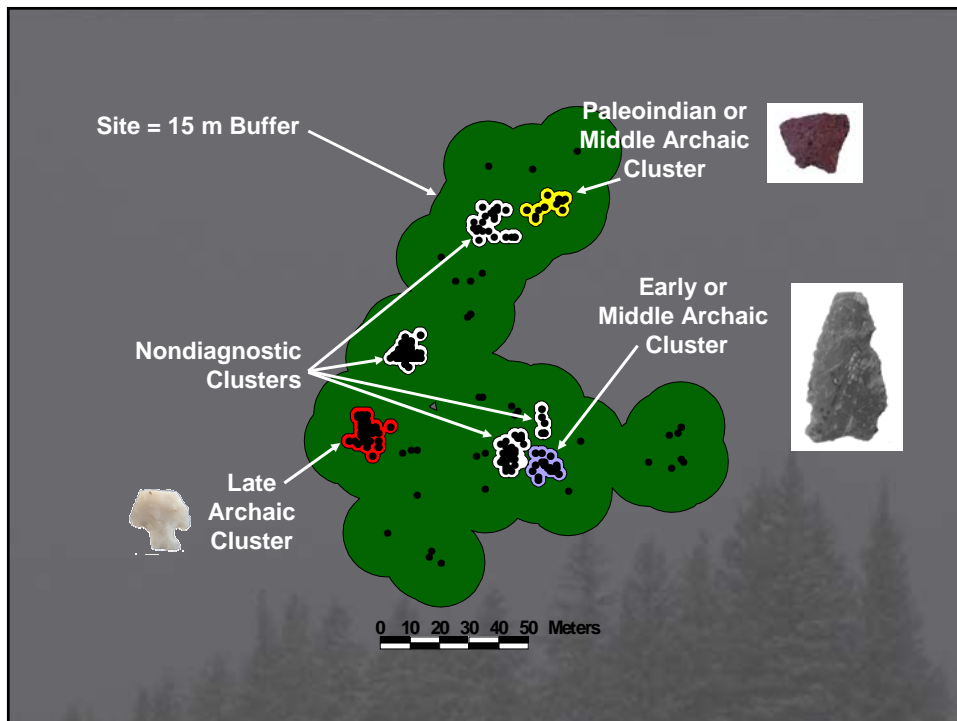
## WAAS-enabled handheld GPS deviations from sub-centimeter Total Station proveniences



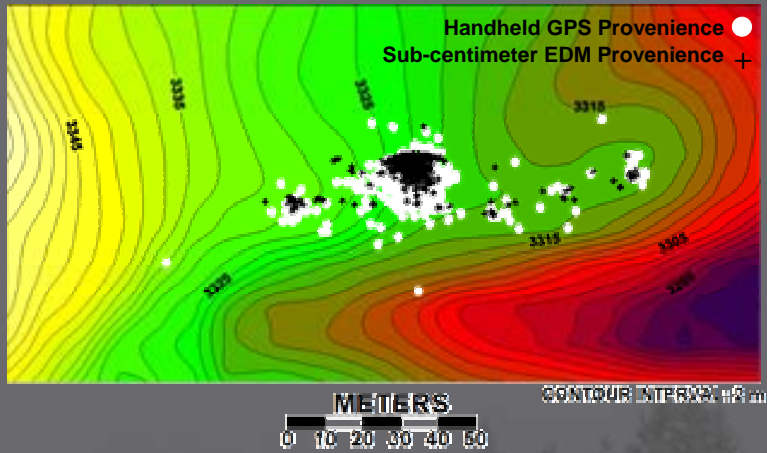


Two Parameters:

1. Minimum number of artifacts per cluster
2. Maximum distance between artifacts



## Accuracy of clusters created by handheld GPS



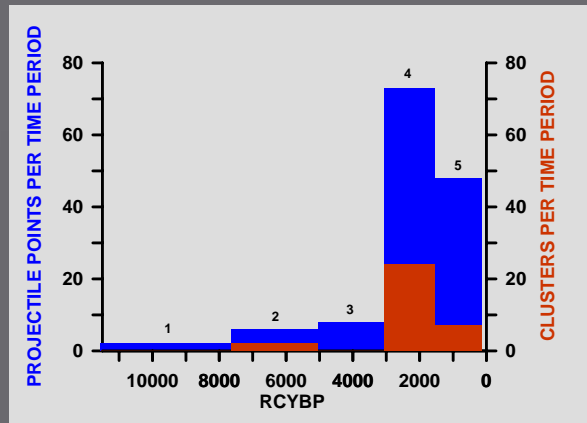
## Comparing clusters derived from handheld GPS and sub-centimeter Total Station data

CLUSTER	HANDHELD COUNT	SUB-CENTIMETER COUNT	IN HANDHELD CLUSTER BUT NOT IN SUB-CENTIMETER CLUSTER	% ACCURACY OF HANDHELD CLUSTER
1	30	31	0	97
2	462	465	3	98
3	8	8	1	75
4	0	6	0	0
5	21	21	1	90

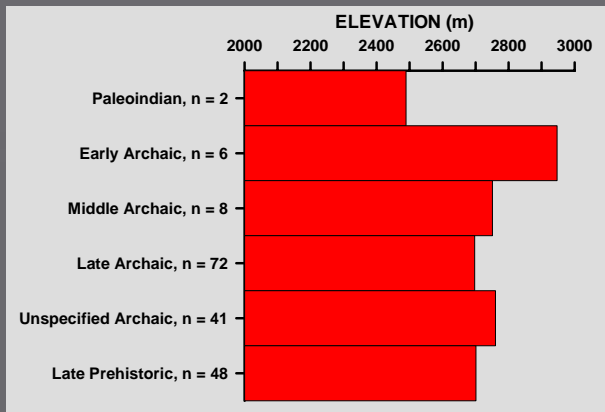
## Chronology of hunter-gatherer land use

### The abundance of projectile points and clusters per time period

Time Periods	RCYBP
1. Paleoindian	11,500-7600
2. Early Archaic	7600-5000
3. Middle Archaic	5000-3000
4. Late Archaic	3000-1500
5. Late Prehistoric	1500-200



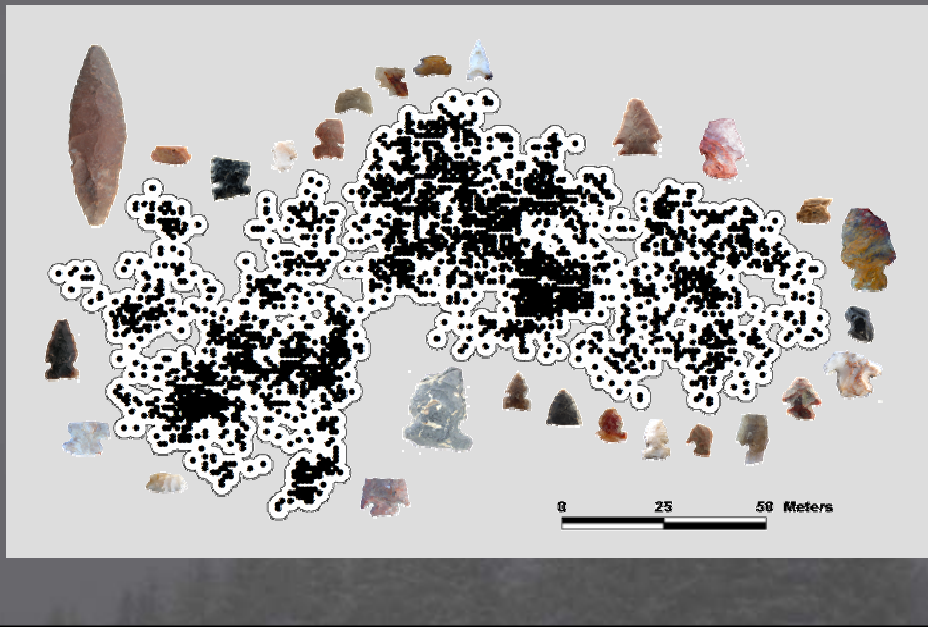
### Average elevation of projectile points in the study area



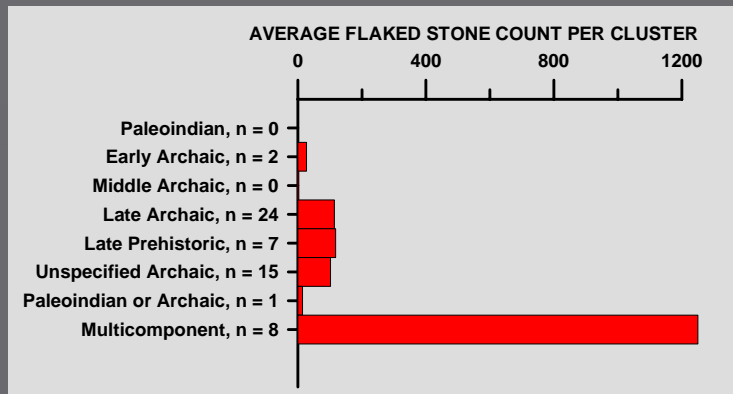
### Sample from 46 unspecified Archaic projectile points



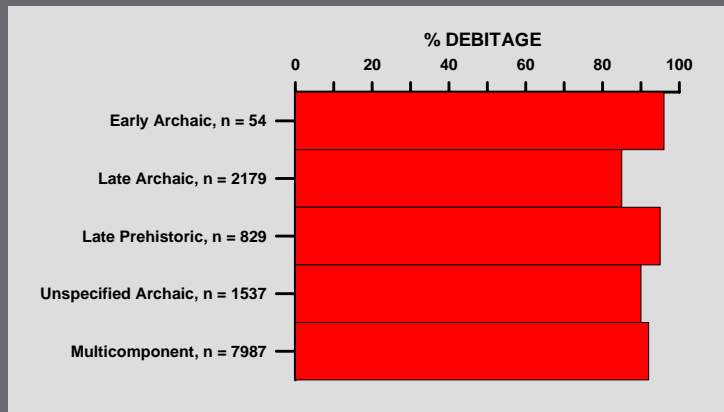
## Multicomponent Cluster



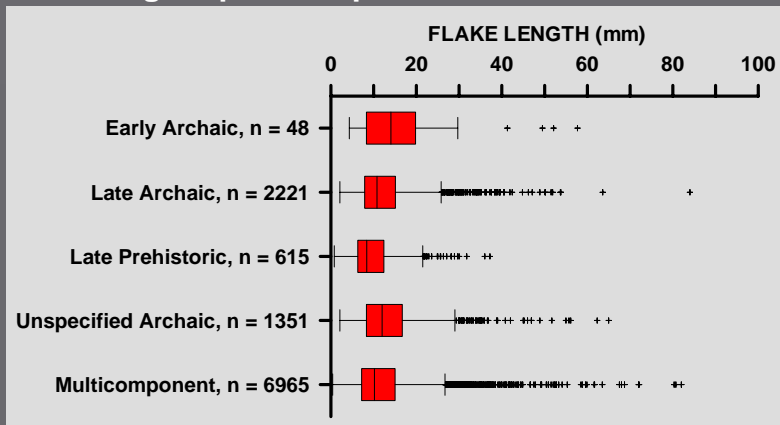
## Cluster Sizes per Time Period



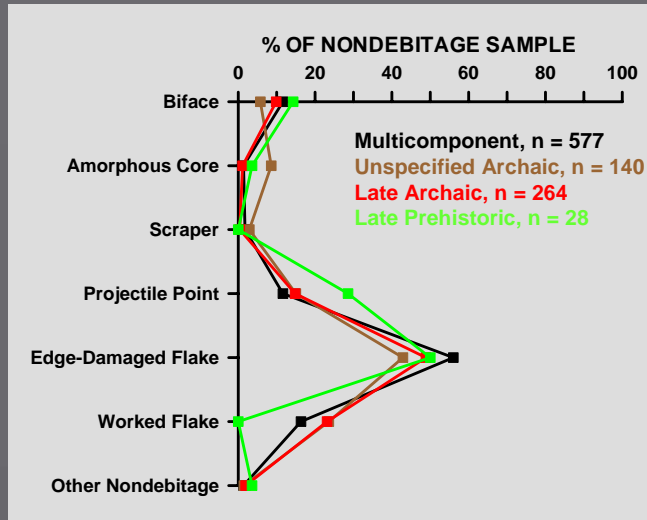
## Percentage of debitage per time period



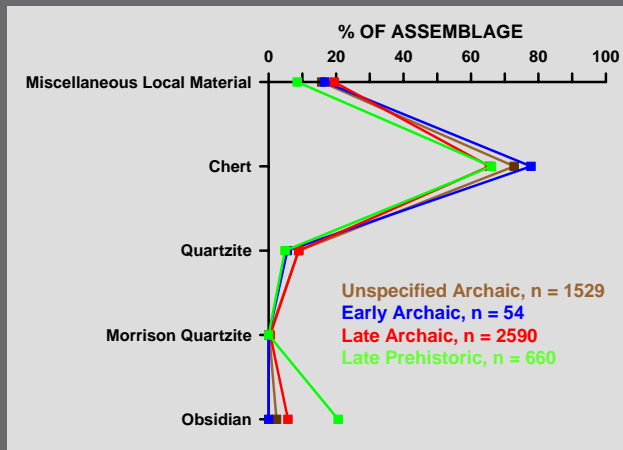
## Flake lengths per time period



### Artifact diversity per time period



### Raw material diversity per time period



## CONCLUSIONS

- Creating clusters using proximity buffering functions available in GIS software
- Keep data from concentrations separate from the complete site matrix
- Light Paleoindian Occupation in the upper Greybull area
- High-country use increases during the Early Archaic
- Light Middle Archaic/McKean use
- Heavy Late Archaic use leaving a relatively diverse artifact assemblage
- Sustained Late Prehistoric use, reduced artifact diversity, and increased manipulation of obsidian

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