

## Bioarchaeology II

Zooarchaeology  
Archaeozoology  
Paleoanthropology

## Zooarchaeology's Substantive Questions

- What was the environment like?
- What was the diet like?
- How did people and animals interact?
- Big Game Extinctions, Domestication, Population profiles

## Zooarchaeology's Methodological Questions

- How do you count from Animal bones to Animals?
- How do you calculate the value of an animal's dietary contribution?
- How do you discern human actions from other predators and natural agents?

## Fauna, not Flora

- | <i>Microfauna</i>   | <i>Megafauna</i>   |
|---|--|
| <ul style="list-style-type: none"><li>• Rodents</li><li>• Birds</li><li>• Fish</li><li>• Mollusks</li><li>• Insects and Worms</li></ul> | <ul style="list-style-type: none"><li>• Big Game Mammals</li></ul> |

## Bone Basics

- Proximal and distal
  - Dorsal and ventral
  - Epiphysis and diaphysis
  - Species, Element, Portion, Side
- 
- Sheep/Goat problem

## Dem Bones, Dem Bones

Besides Species,  
Element, Portion, Side

### Sex and “race”

- Sexual Dimorphism
  - Pelvis, Skull, Stature, teeth, skull.
  - Metrics for subspecies identification

### Age of Animal at Death

- Tooth eruption pattern
- Annuli on shell, otolith, mammal teeth, fish vertebrae
- Epiphyseal fusion at sutures
- Tooth Wear

### Season of Death

- Antler shedding
- Migratory patterns in birds and fish
- Mollusk annuli
- Mammal teeth annuli

### Quality of Animal’s Life

- Animal Diet
  - Harris lines for stress, isotopes
- Labor
- Paleopathology

### Butchering Practice

- Cut or Gnaw?
- Knife or Saw, hack or band?

### Technology of Hunting

- Net Size
- Herd Management

## Cultural Identity

- Ethnic, religious, or socio-economic choice in butchery, cooking, and eating

## Thorny Problem

- How do I count bone fragments and extrapolate to know herd composition?

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- How do I count bone fragments and extrapolate to know herd composition?
- Taphonomy and Counting
  - Was all the bone from this meal preserved?
  - How many individuals does this pile of bones represent?
  - How much edible meat, calories, or fat could people extract from the meat on this much bone?

## Counting I

- NISP
  - Number of Identified Specimens
  - ID Species
  - Fragmentation? Preservation?
  - # bones in skeleton?

## Counting II

- NISP
- MNI
  - Minimum Number of Individuals
  - ID Species, Element, Portion, Side, Sex.
  - Aggregation?

## Counting III

- NISP
- MNI
- MAU
  - Minimal Animal Units
  - Use MNI, but divide final count by # elements in skeleton to get final count.
  - Normalizes for species with greater/fewer bones.
  - Preservation?

### Counting IV

- NISP
- MNI
- MAU
- MNE
- Minimum Number of Elements
- MNI computed using element and side, but only count most common and well preserved bones from each species.

### Counting V

- NISP
- MNI
- MAU
- MNE
- NISP least manipulated number
- All of these can be calculated with slightly different methods, so pay attention.

So, I've found four cow femurs.

What does that mean  
for historical sites?

### Meat Weight

- Allometric growth (fish, cows, etc.)

### Next Time: Intersections of Environment and Culture

Herd Management  
Domestication  
Evolutionary Ecology

### The Copper Country Miner and The Kalahari Forager

- Landscape is an unevenly distributed (patchy) set of resources.