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# Is it Human? Engaging in the academic and forensic applications of Zooarchaeology

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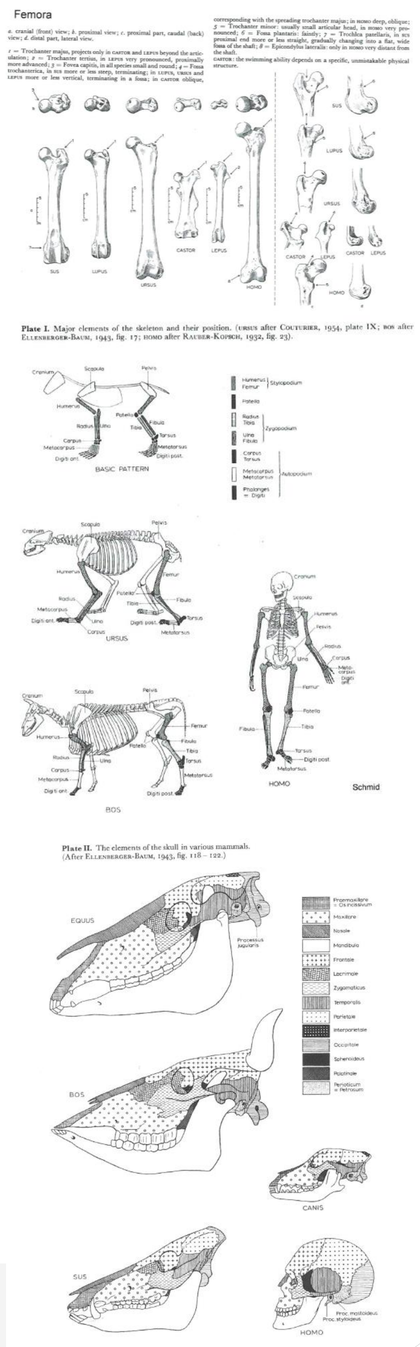
## What is Zooarchaeology?

- The study and identification of animal skeletal remains and their relationship with human interaction.
  - An important consideration in every geographic region around the world
- **Goal:** To identify bone fragments to the most specific species level and element possible using the size, shape, and density of the remains
- **Applications:**
  - **Archaeology-** Help reconstruct past environments
  - **Forensics-** Determine Forensic Significance of remains

## Methods & Training

- Morphological (Size & Shape of bone)
- DNA Analysis
- Histological Analysis (Examining cell structure)
- Comparative Collection
  - Having as many complete skeletons from as many different animals as possible
  - Direct comparisons with available fragments

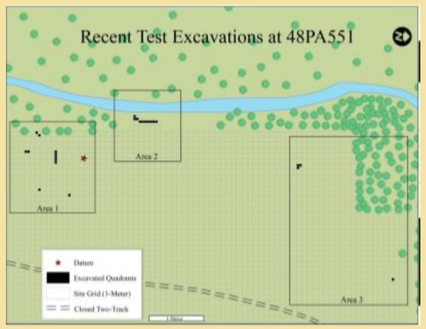



## Broader Impacts

- Philip L. Wright Zoological Museum (UMZM)- one of the largest comparative collections of North American animals in the collection
- University of Montana Forensic Collection (UMFC)- Human osteological collection
- The ability to teach & provide lab training for UM students
  - Marketable, interdisciplinary (biology, zoology, anatomy, anthropology) lab skills
- Engagement in both the law enforcement & archaeological communities

## 48PA551: Sunlight Basin, WY

- **3800 – 4400 radiocarbon years BP**
- **Analysis & Database Development**
  - Archaeological Research Questions
- **10, 843 Total faunal fragments**
- **Variables Recorded:**
  - Species, Element, Side, Age, Fracture type, Burning, Cut & Tooth Marks, etc.
- **Species Represented:**
  - Deer, Rabbit, Sheep, Rodent, Bird
- **Conclusions:**
  - Combination of site formation processes consistent with intensive field processing of large game and some small, local animals
- **Why does it matter?**
  - Site Conservation, Academic Research, Public Outreach





## Forensic Case

- Comingled Human & Non-Human skeletal remains in 22 evidence bags
- **The Non-Human Inventory:**
  - Bovid (Cow), Lepus (Rabbit), Cervid (Deer), Avian (Bird), Lupus (Wolf/Dog), Rodentia, Crustacean
- **The Human Biological Profile:**
  - **Sex:** Female
  - **Age:** 19-29 years old
  - **Ancestry:** Probable Native American
  - **Stature:** 4"11" – 5'3"
- **Conclusion:** Likely archaeological; Not of forensic significance
- **Recommendation:** Follow NAGPRA protocols and contact regional tribe for consultation



Special Thanks to Dr. Kirsten Green Mink and Dr. Anna Marie Prentiss with the University of Montana Anthropology Department for providing me with research opportunities in both forensic anthropology and archaeology. And to the University of Montana Zoological Museum for allowing me access to their skeletal collection.