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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

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

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

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