Western Carolina University’s Forensic Osteology REsearch STation (The FOREST).

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The FOREST

• History
  • Part of the Chancellor’s initiative in forensic science
  • Forensic Anthropology Program
  • Outdoor Taphonomy and Decomposition Research Facility
  • Donations
    • Paperwork to donate is approved by WCU attorney
    • NC Commission of Anatomy
    • Not accepting the embalmed or anyone who had a communicable disease.

The FOREST

• Choosing a site
  • Three potential sites
    • Near the old county dump
    • Millennial Campus (2 sites)

• Permits
  • Health Department
    • Not in a watershed

• Construction
  • WCU Facilities Management
  • Trees left in place
The FOREST

- Description
  - 18 m X 18 m (58' X 58')
  - On a slope
  - Wooden privacy fence
  - Chain link protective fence topped with razor wire
Other Facilities

- University of Tennessee, Knoxville
- Western Carolina University
- Texas State University
- Sam Houston State University
- Southern Illinois University
- Mesa State University

Geography

- Blue Ridge Physiographic Province
  - 39 peaks over 5000 feet in NC and TN
  - Mt. Mitchell 6684 ft.
- FOREST altitude = 2271 ft.
Climate

• High microclimatic variation
  • Temperate rain FORESTs
  • Xeric FORESTs

Biodiversity

• Great Smoky Mountains National Park All Taxa Biodiversity Inventory
  • 10,000 known species
    • biologists project another 90,000
  • As of November, 2012
    • 923 species new to science
    • 7636 species new to the Park

Initial Questions...

How can we better understand the role of the environment in decomposition in WNC?

• Baseline environmental data
• Environmental monitoring
The FOREST

• Summer 2007
  • Started the environmental survey
  • ANTH 486
    • Student teams created plans for documenting the environment at the facility
    • Concentrated on plants

The FOREST

• Summer 2008
  • Invertebrate Sampling
    • Terrestrial arthropods (spiders, beetles, etc.)
    • Pitfall traps
Field Recovery of Human Remains (ANTH 486)

Estimating postmortem interval
Many things influence decomposition

- Weather
  - Temperature
  - Humidity
  - Animal activity
  - Vertebrates
  - Invertebrates
  - Human variation
    - Size, weight
    - Health
    - Trauma
  - Buried/not buried
    - Depth
    - Soil chemistry
    - Surface characteristics
  - Misc.
    - Clothing
    - Body Chemistry

Megyesi et al. 2005

- Megyesi MS, Nawrocki SP, Haskell NH.

\[ \text{ADD} = 10^{0.002 \times (\text{TBS} \times \text{TBS})} + 1.81 - 388.16 \]

\[ \text{Accumulated Degree Days} = \text{ADD} \]

\[ \text{Total Body Score} = \text{TBS} \]

Our results: degree of decomposition at the FOREST can be predicted from TBS using the formula.
Research Protocol

• Photographic documentation
• Detailed notes recording observations
• Scoring procedure to aid in quantification of degree of decomposition

Recent Initiatives...

How can we understand the role of the environment in decomposition elsewhere?
• Collaborate
• Database

Law Enforcement Training

• Information at bones.wcu.edu
Research & Education Goals

• Cadaver Dog Training

Research & Education Goals

• Provide training materials
  • "Dirty dirt"
  • cloth/clothing

Research & Education Goals

• Site formation processes
  • Students design and create a mortuary deposit using an animal model
  • Based on knowledge of the archaeological record.
Cremation Analyses

Composting as a Mortuary Treatment