Advanced Geospatial Technologies at Wormsloe

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Wormsloe State Historic Site
Geographic Information Systems (GIS) organize data from different sources.
Historical Data (1)

- **1800**
  - Ila of Hope map

- **1828**
  - Plan for original Wormsloe house

- **1870**
  - Hand drawn map of roads, fields and buildings

- **1871**
  - Plan for proposed causeway to Skidaway Island

- **1890**
  - Hand drawn map of roads, fields and buildings
  - Stereo photo cards

- **1897**
  - Hand drawn and colored map of roads, fields, fence lines, drainage ditches and buildings
  - Trees and plantings with species labeled

- **1908**
  - Crude map of fields and land cover
Historical Data (2)

- **1928**
  - Plan for formal garden
  - Detailed planting plan with species and plant locations
- **1930's**
  - Photographs of buildings and landscape
- **1937**
  - Blueprint of Wormsloe Fields
  - Many photographs from Library of Congress
  - Blueprint for remodeling of main house
- **1940's**
  - Undated low oblique aerial photograph showing house, library, dock, forest and fields
- **1960**
  - Survey plat of Wormsloe property on Isle of Hope
- **1971**
  - Air photos (0.5 m B&W)
    - Before pine beetle outbreak
- **1972**
  - Aerial photographs (1:24,000 True color)
    - Before pine beetle outbreak
- **1974**
  - Air photos (0.5 m B&W)
    - After pine beetle damage and clearing
- **1988**
  - Aerial photographs (B&W)
- **1993**
  - USGS DOQQs (1m B&W)
- **1999**
  - USGS DOQQs (1m CIR)
- **2003**
  - Orthophotos and stereo photos (0.5 m true color)
- **2009**
  - 1 m true color NAIP
  - Lidar (Chatham County)
- **2011**
  - Terrestrial LiDAR
Wormsloe GIS Database

Vegetation (by year)
Roads and Trails
Archaeology
Historical Buildings
Aerial photographs
Historical Maps
LiDAR
Base Map
LiDAR – Light Detection and Ranging

Multiple LiDAR Returns from each individual pulse

- Laser pulses from aircraft
- 50,000-100,000 per second
- Return precise X, Y, Z locations
- Vertical accuracy ~ 15 cm (6 inches)
- Returns describe canopy, structure, understory, terrain

2009 Chatham County collection
Airborne LiDAR Point Cloud – House and Library
LiDAR Digital Elevation Models
Hydrology, terrain, wetland analysis
Formal Gardens

Year: 1899

Year: 2010
Civil War Earthworks – Battery Wimberly

Lidar DEM

Field perspective
Battery Wimberly
LiDAR DEM with 2-foot contours
Trimble GX Terrestrial Laser Scanner

Acquires 5,000 pts/second. Accuracy about 2-3 mm. Range about 200 m

Courtesy of West Point Military Academy: COL Steve Fleming and LTCOL Curtis Edson
The Trimble GX 3D Scanner covers 360x60 degrees field of view when scanning. 38 degrees above and 22 degrees below horizontal.
Wormsloe Lidar Sites

Proposed Survey Sites
1. Library and Garden
2. Historic Cabin
3. Tabby Ruin
4. Avenue and Vegetation Plot