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Geophysical and Archaeological Investigations of Enslaved Peoples at Cannons Point Preserve, Georgia

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Geophysical and Archaeological Investigations of Enslaved Peoples at Cannons Point Preserve, Georgia

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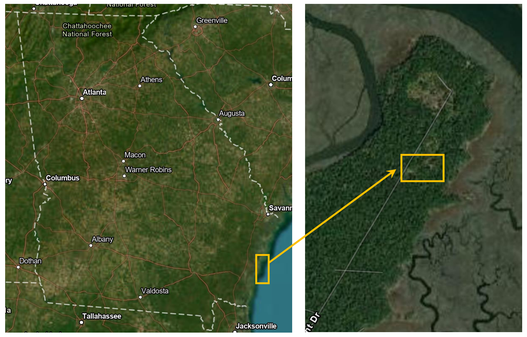
Introduction

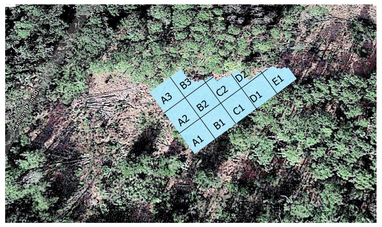
Cannon's Point Preserve at St. Simons Island, Georgia was the site for the 2022 East Tennessee State University archaeological field school. The study area was believed to have once housed enslaved peoples at a plantation. Ground penetrating radar (GPR) and magnetometry surveys were performed at the preserve. These geophysical surveys are a common first step in archaeological research, because they can detect and map buried historic and prehistoric features prior to excavation.



Research Methods

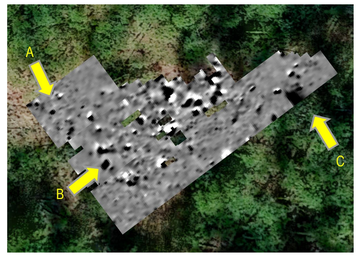
- A real time kinematic (RTK) global navigation satellite system (GNSS) instrument was used to place stakes in the ground demarcating 10m x 10m grids for data collection.
- GPR data were collected using a GSSI-SIR-4000 system with a 400 MHz center-frequency antenna in south-north traverses spaced 0.5m apart. The system was set to record 100 scans per meter, 512 samples per-scan, using a 50 ns range.
- Magnetometry data were collected using a Bartington Grad601-2 fluxgate magnetometer in south-north traverses every 0.5m. Magnetometry collects eight readings per meter along transects.
- GPR data were processed using *GPR-Slice* and magnetometry data were processed with *ArchaeoFusion*.

Survey Site

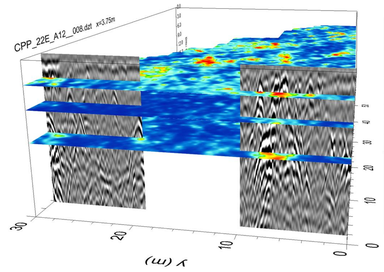


The magnetometry and GPR survey area was arranged with 10m x 10m grids. All traverses were in the grid north direction.

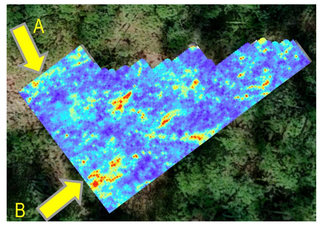
Geophysical Results



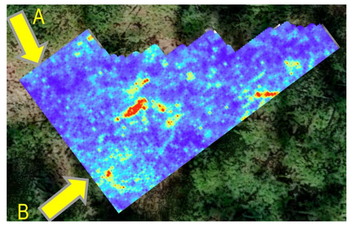
Magnetometry



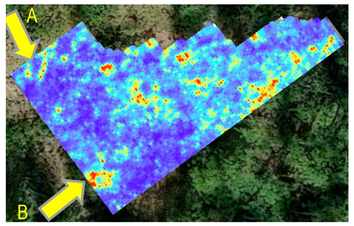
GPR Slices at 0.3m, 0.6m, 1m with radargrams



GPR Slice at 0.3m



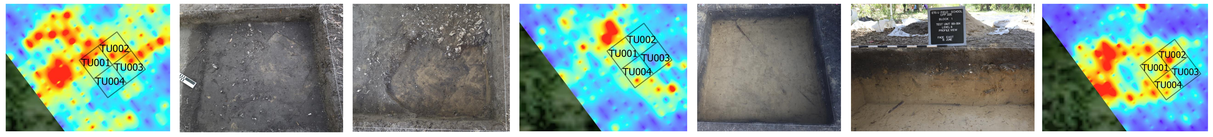
GPR Slice at 0.6m



GPR Slice at 1m

Excavation Results

Block 1 Test Unit (TU) 001-TU004



Block 1 excavations and GPR Slice at 0.3m below surface

Block 1 excavations and GPR Slice at 0.6m below surface

GPR Slice at 1m

- GPR 0.3m slice and excavations showed feature across TU002, TU003, and TU004
- Block 1 excavations and GPR slice at 0.6m showed possible postholes but not structure
- GPR slice at 1m showed appearance of linear structure, but 0.2m of sterile soil was excavated before increasingly wet soil at final excavation layer of 0.6m

TU008

GPR Slice at 0.3m | GPR Slice at 0.6m | TU008 excavations | GPR Slice at 1m | Magnetometry

- Features were found and cross section excavated between 0.45m and 0.6m
- GPR slice at 1m showed linear structure, but time did not permit excavation beyond 0.6m
- Artifacts recovered from TU008 showed items including brick, burned brick, metal, pottery, and burned pottery that would be expected as positive magnetic anomalies

Artifacts from TU008

Shovel Test Pit (STP) 008

Strong magnetic anomaly in vicinity of STP008

Cast iron pot lid and base found at STP008

- Strong magnetometry results at STP008 correlated with artifacts found in pit

Geophysical Instruments

Ground penetrating radar with a 400 MHz antenna

Magnetometry w/ fluxgate gradiometer

Discussion

- Magnetometry anomalies that could be archaeological features were detected on the west and north side of the survey site.
- Two rectangular features were detected at 1-1.10m below the surface with GPR.
- Several linear features were also detected with GPR in the central and southeastern sections of the site.
- Although no test units were excavated deeper than 0.6m, some of the anomalies in the 0.3m-0.4m GPR slice were verified by excavation.
- Excavations in focused areas detected with magnetometry yielded ferrous (iron-containing) materials, burned pottery sherds, and burned bricks, as expected at a historic site.

Conclusions

- GPR and magnetometry successfully mapped buried archaeological features and helped direct excavations.
- Insight into the material possessions and living conditions of enslaved peoples on the island helps tell the history of those who were not recorded in the written record.

Acknowledgements

Thanks to all who participated in the ETSU 2022 archaeological field school and those who helped with geophysical surveys. Thanks to Jennifer Stout for additional photographs.