Atsena Otie Cemetery Cleanup & Documentation

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This past December, archaeologists teamed up with volunteers from Cedar Key to clean up the historic cemetery on Atsena Otie. The cemetery clean up served two purposes: to aid in the preservation of the existing grave markers and to document the cemetery for future generations. The effort was part of the first stages of an archaeological project spearheaded by University of Florida archaeologist Ken Sassaman which aims to reconstruct the impacts of past climate events (e.g. hurricanes and storm surge) on the greater Cedar Key area. Sassaman is joined by fellow archaeologists Ginessa Mahar (University of Florida), and Ed and Diana González-Tennant (Digital Heritage Interactive).

With a little help from our friends...

Prior to our field work, staff and "Friends" from the Lower Suwannee and Cedar Keys National Wildlife Refuge completed some clearing of the path to and perimeter of the cemetery. Their efforts helped considerably towards our project as the path and cemetery area had become quite overgrown in the last few years. With the heavy lifting complete, we were able to focus more on the vegetation impacting the grave markers. We learned that vines and other vegetation should always be clipped, and not pulled, so as to not damage the fragile markers.

Trimming vegetation from around headstones. From left to right: Caitlyn Johnson, Crosby Hunt, and Nigel Rudolph.

Cleaning headstones with water and brushes. With fragile stones, it is important to support them in place while brushing off mildew and lichen. L to R: Nigel Rudolph, Pam Dees, and Frank Patillo.

Staff from the Florida Public Archaeology Network (FPAN) joined us the first day to instruct us on the proper procedures for cleaning historic grave markers. We learned several tips to ensure that we did not harm the markers, many of which are over 100 years old and quite fragile. Using freshwater, soft brushes, and wooden skewers, volunteers cleaned up headstones and footstones. Nigel Rudolph of FPAN warned never to use bleach when cleaning headstones as this can often do more harm than good. Most of the mold, mildew, and lichen came off quite easily and in many cases our cleaning efforts uncovered beautiful detail on the stones including fine etchings and heartfelt memorials.

Before its too late.

As sea-level rise and storm events continue to threaten Cedar Key and other coastal communities, seaside cemeteries like Atsena Otie are in danger of damage and erosion.

Above: Documenting the past for the future. Frank Patillo records the information and detail of a headstone at the Atsena Otie cemetery.

In addition to cleaning the graves we also employed several forms of documentation. FPAN provided forms and instruction in recording grave markers. Information recorded included a literal transcription of the detail on the marker such as names, dates, and memorials (including misspellings!) as well as any imagery. The most common images on the Atsena Otie markers were anchors, hands, crosses, flowers, and crosses. We also documented grave marker material, condition, and damage and made a small sketch of the marker. These forms will be filed with the Florida Division of Historic Resources and shared with the Cedar Key Historical Society so that the public may access the recorded information.

Left: A selection of headstone designs represented at the Atsena Otie Cemetery. From left to right: a floral wreath, a hand with a broken chain, ivy, and an anchor.

Towards a virtual Atsena Otie

Above: The headstone of Elizabeth Dillingham as reconstructed using 3D photogrammetry.

After the graves were cleaned up, they were ready for photo documentation. Ed and Diana González-Tennant use a special technique called photogrammetry in their work. By taking numerous photos of each grave site (including headstone and footstone) they are able to make a 3D representation of any photographed object. Over 3,000 photos were taken over the course of two days, representing 32 grave sites. These images will be used to make a 3D virtual reconstruction of the Atsena Otie cemetery. They noted that using computer software they can also "virtually fix" any damage to headstones, recreating what the cemetery may have looked like while it was still in use by the local community. The image to the left is one such example. While in reality the top half of Elizabeth Dillingham's tombstone rests on the ground, the virtual reconstruction shows the top reconnected to the base. Additionally, the photogrammetry can help to decipher inscriptions on headstones that are too worn to read visually.


You can see more of Ed and Diana's work on their website:

Digital-heritage.net

Left: Diana González-Tennant (front left) records photo numbers and grave information as Ed (back right) photographs one of the graves. Tents were used to create even lighting for the photos which is important for the creation of the 3D model.

Mapping of the cemetery was also completed in the two days of field work and involved two parts: recording the spatial location of the visible graves and searching for missing or unmarked graves. With the help of FPAN staff member Caitlyn Johnson, Ken Sassaman mapped 32 marked grave sites using a laser total station which records the coordinates and elevation of the object being mapped. The data collected from this survey will help to preserve the location of each grave in real 3D space and these data will be included with the documentation forms filed with the state and historical society. Mapping data will also help to provide the spatial framework for the photogrammetry and virtual reality model of the cemetery.
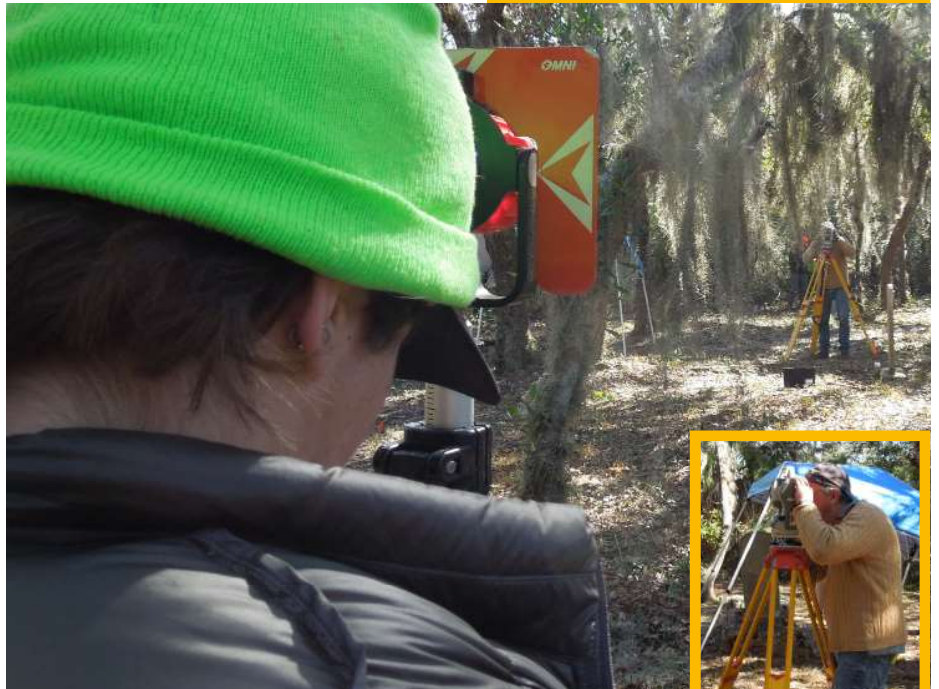
Above and right: Caitlyn Johnson holds a prism pole steady while Ken Sassaman aims the laser total station. Both marked and unmarked graves were mapped and coded accordingly.

Mapping marked and unmarked graves

Above: Mike Halderson using a steel probe to locate a buried headstone. Existing alignments of adjacent headstones were also helpful in this effort.

Markers in historic cemeteries are vulnerable to damage and theft as well as erosional processes over time that can result in a grave becoming unmarked. This is especially tragic when the historic cemetery plot map is lost or damaged. In the case of the Atsena Otie cemetery, the historic plot map from 1888 only partially represents the existing graves. However, it was very useful in guiding us in our effort to identify additional graves sites. Using a short steel probe, volunteer Mike Halderson, with the help of Mahar, was able to identify the location of a number of additional graves, many of which lined up with plots on the historic cemetery map. The probing helped to identify buried grave markers at the head or foot of the grave plot and in some cases we were able to discern whether the marker was made of stone or shell. Marking graves with shell was a favored practice in Cedar Key in historic times and the tradition continues among many local families to this day. While we were not able to identify the persons buried in these unmarked graves, we hope to work with the local community and archives to get them marked and identified.

Our team