

Dionisio Point Village Archaeology Project

Dr. Patrick Dolan (co-PI, Washington State University)

Dr. Colin Grier (co-PI, Washington State University)

Summary of work undertaken in collaboration with SPARC

In June 2014, a Spatial Archaeology Research Collaborations (SPARC)-funded joint team from Washington State University and the University of Arkansas CAST-AIL undertook geophysical survey of the 1,300-year old Dionisio Point village. The practical goal of this research was the construction of a magnetic gradient map of several large house platforms that comprise the core of the site. The research objectives were to (a) delimit house deposits, (b) delimit high and low activity areas within houses, and, if possible, (c) identify the number and location of domestic hearths from which we could extrapolate household organization

The core of the Dionisio Point site archaeological complex is a 1,300 year-old village comprised of five contemporaneously occupied houses. These were substantial structures at the time of their occupation with floors covering between 200 and 400 square metres. They are among the largest pre-contact era houses presently known for the region. Today, none of the standing post-and-beam architecture survives and, with the exception of one intensively excavated house floor, the scale of these features has limited architectural reconstructions to data obtained from surface topography and limited excavation. Magnetic survey provided a means to rapidly and accurately obtain information from these structures critical to establishing the spatial organization of this ancient village.

Plank houses at Dionisio Point and elsewhere on the coast share a number of common architectural features, several of which are either directly and regularly subject to intense heat or form from secondary the accumulations of heated materials. Large hearths were the centre of domestic life in these dwellings. At Dionisio Point, these take the form of large, but diffuse, areas of carbonized plant material, animal remains, and burnt sediments. Food preparation associated with these features generated an enormous amount of thermally-altered rock, some which remained in the hearth, but much of which was transported out of the house forming rim middens that encircle the structures. Of the range of geophysical techniques available, magnetic survey was selected because of its specific capacity to rapidly identify and delineate these features.

Magnetic survey grids were tied into the existing Total Station site grid. WSU provided the equipment and expertise necessary to coordinate this task. CAST-AIL geophysicists surveyed each of the house deposits, where possible tying house survey grids together to provide continuous data coverage across intervening outdoor areas. Excavations both prior to and following survey permitted validation of the interpretations of several magnetic anomalies. In many of these cases, archaeological characterization matched our expectations.

Survey of the site took ten full days, in large part because it faced several methodological challenges: the site is forested, the terrain is undulating and in some cases steep, bedrock geology contains iron-rich deposits, and there is some historic period disturbance. In addition to survey of the village deposits the SPARC collaboration developed an approach to data collection that generate fine-grained, high-quality, promising results appropriate to the environments of the Northwest Coast.

Summary of Results

The outcome of the magnetic survey was a magnetic gradient map of the four currently accessible archaeological house floor deposits and several intervening areas. Standing and fallen vegetation precluded access to the fifth, which had previously witnessed intensive excavation and was a low priority target for geophysical data recovery. Survey results fall into three broad categories:

1. They confirmed many of our *archaeological interpretations of the position, boundaries, and functions of these structures*, adding considerably to our knowledge of the site.
2. They provided *novel, unexpected data on variation in house architecture* across the village, suggesting that some structures were more elaborately organized than others.
3. They confirmed that *house features can be identified through geophysical survey*, providing a promising alternative to large-scale excavation of house deposits in the future.

As expected, burnt material generated during the occupation of the houses was visible in the magnetic gradient map of the site. House floor boundaries were reflected in broad bands of highly positive anomalies formed from the accumulation of considerable quantities of burnt materials, the majority of which were thermally-altered rock. Exterior areas were differentiated from high-traffic areas of house floors by the latter's moderately negative values. This was a novel result, as prior to the survey we expected the entire floor to be reasonably positively magnetic as a result of the incorporation of burnt materials. The boundaries of these two zones, one indoor and one outdoor, confirmed our expectations of the size and boundaries of these structures.

Probable and confirmed hearths were reflected in amorphous highly positive magnetic anomalies. In several cases these agglomerated into linear or diffuse features that prevented enumeration and, unfortunately, precluded estimating household size. Nevertheless, the repeated size, position, and orientation of these features across house floors suggests that, in addition to any other functions they served, these were residential structures and the social entities that inhabited them were households. In several cases, magnetic survey identified unusual constellations of highly magnetic features. These have yet to be investigated in detail, but they are suggestive of

unexpected architectural elaboration of some houses over others concordant with inferences of variation in prestige if not status.

The identification of house floors is promising in a region where excavation is laborious and these features are obscured by subsequent archaeological deposition or modern development. In part for these reasons, few villages have been identified on this part of the Northwest Coast and as a result our knowledge of domestic and social life is limited to a few outstanding examples. Magnetic survey at Dionisio Point provides the necessary basis for arguing for the inclusion of geophysical methods at other sites where similar features are more difficult to evaluate using traditional archaeological excavation.

Presentations and Publications Completed:

The magnetometry results were incorporated into Patrick Dolan's PhD dissertation, which was successfully defended and degree awarded in May 2015.

Presentations and Publications In Press/Planned:

Abstract submitted for presentation of research results at the 2016 meeting of the Society for American Archaeology, Orlando, Florida. (Authors: Dolan, Grier, Markussen, Simon)

Publication detailing magnetometry results is in progress , and will be submitted to the *Journal of Field Archaeology* within the next several months. (Authors: Dolan, Grier, Markussen, Simon, Opitz)