THE 2012 FIELD SEASON AT THE PORT AU CHOIX NATIONAL HISTORIC SITE

M.A.P. Renouf[1], E. J.H. Eastaugh[2], L.M. Hodgetts[2], D.A. Lavers[1], C. Robinson[1], C. Tudor[1] and P.J. Wells[1]
Memorial University of Newfoundland[1]
University of Western Ontario[2]

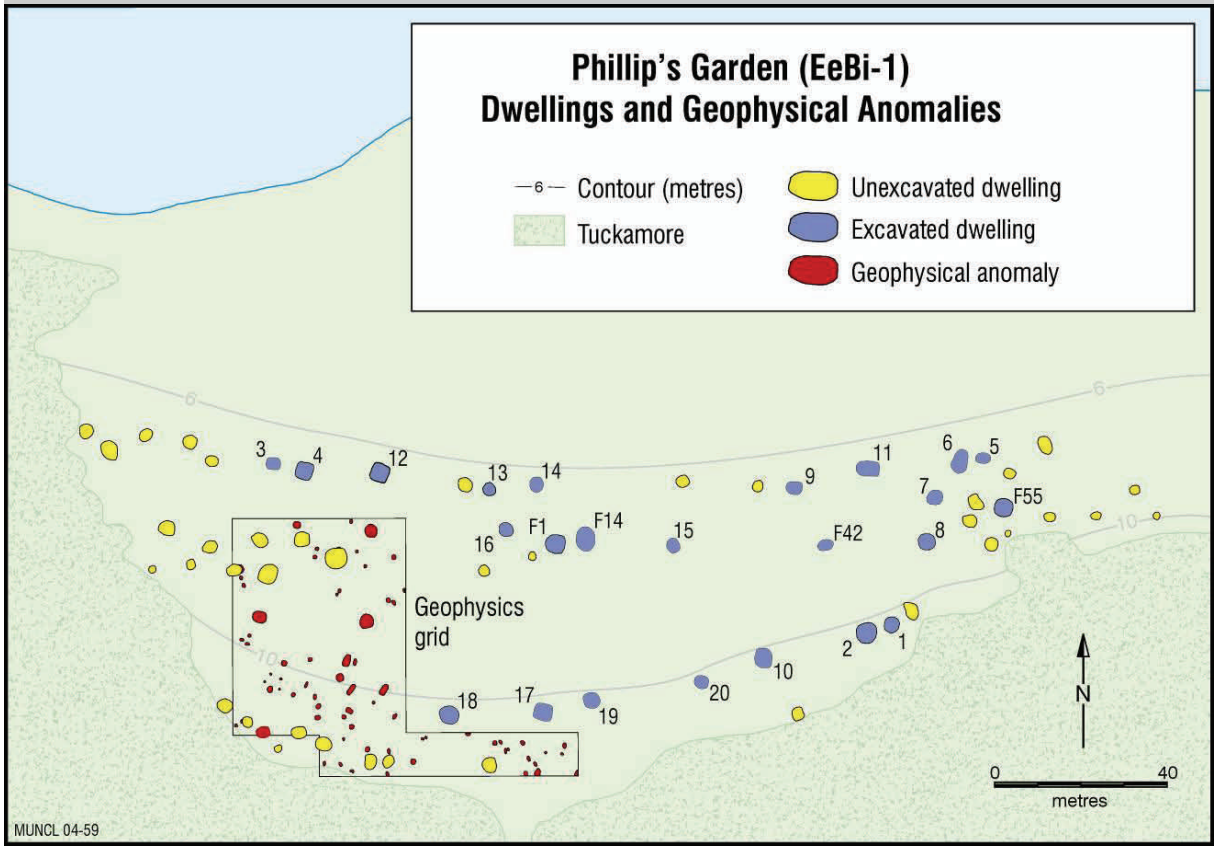

Figure 1. A simplified map of Phillip's Garden showing unexcavated (yellow) and excavated (blue) depressions and the 2001 geophysics survey grid (Eastaugh and Taylor 2011). Many additional depressions exist on the site which are not on this map. Image: PAC Archaeology Project.

Introduction

The main focus of the 2012 field season at the Port au Choix National Historic Site was to gather data to make a comprehensive digital map of the Dorset Palaeoeskimo site of Phillip's Garden. The current map of the 2.17 ha site is a digital representation based on Arc-View GIS, shown in Figure 1 in simplified form. The map of this Dorset site includes the outlines of 68 dwelling remains, 63 of which appear as visible depressions and five of which are obscured by thick midden deposit (Eastaugh and Taylor 2011; Renouf 1986). Twenty-four of the visible depressions were partially or fully excavated by Renouf (2011a) and Harp (1964, 1976). Collectively, these dwellings span 800 years, from 1990 to 1180 cal BP. This radiocarbon range uses calibrated radiocarbon dates at one sigma probability range (Renouf 2011b).

However, there is an undetermined number of less visible and hidden depressions on the site that, as of the beginning of the 2012 field season, were not identified and are therefore not included on the site map. The reasons for this are several: many depressions

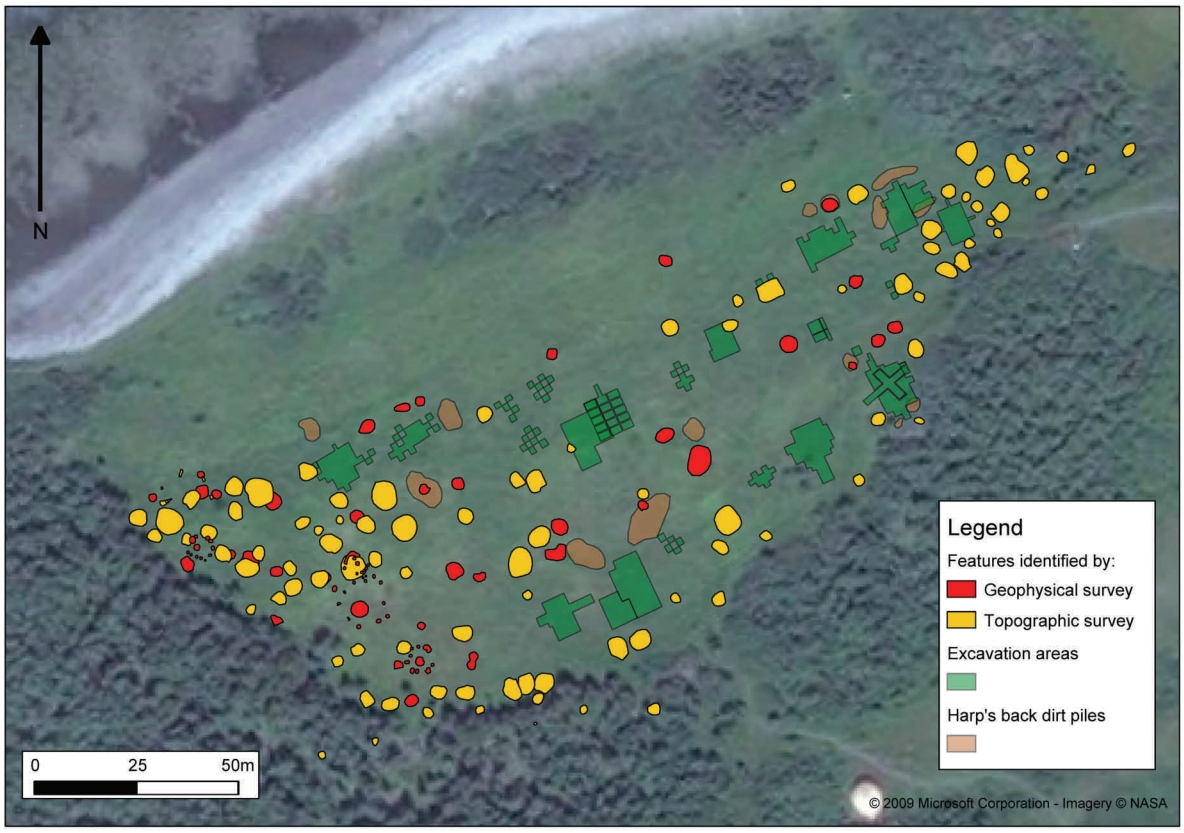

Figure 2. Topographic map of Phillip's Garden including data collected in the 2012 field season. Image: C. Robinson

are so shallow that they can be seen only under oblique light or before summer growth of meadow vegetation. Others are hidden in the stunted spruce and fir trees that surround the site on three sides. Still others are not visible at all, filled in by midden deposits.

In the 2012 field season, we collected data to make a new, more detailed map. This was accomplished through a multi-layered approach which comprised: (1) two dimensional recording of visible depressions and other anomalies using a total station, (2) fine resolution three dimensional data collection to reconstruct site topography using a high precision global positioning system, and (3) two dimensional geophysical survey to identify buried depressions and other anomalies using a magnetometer.

Our secondary objective was to continue testing the nearby Bass Pond area where in previous field seasons we had found small amounts of Groswater Palaeoeskimo material in waterlogged test pits.

The new Phillip's Garden map

This comprises three layers of data that are integrated to define a high resolution and detailed map of Phillip's Garden

Layer 1

This was a two dimensional map of all the visible depressions and anomalies across the entire site, including those in the surrounding tuckamore (Figure 2). Anomalies included artificial mounds (excluding Harp's backdirt piles), rock alignments of probable cultural origin, iris concentrations not associated with a depression, and fire-cracked rock. Renouf, Wells and Lavers traced the outline of each visible depression and surface anomaly with a Nikon Nivo 3.M total station with XYZ Fieldworks data collector. These data were then added to the digital site map.

These data comprised previously iden-

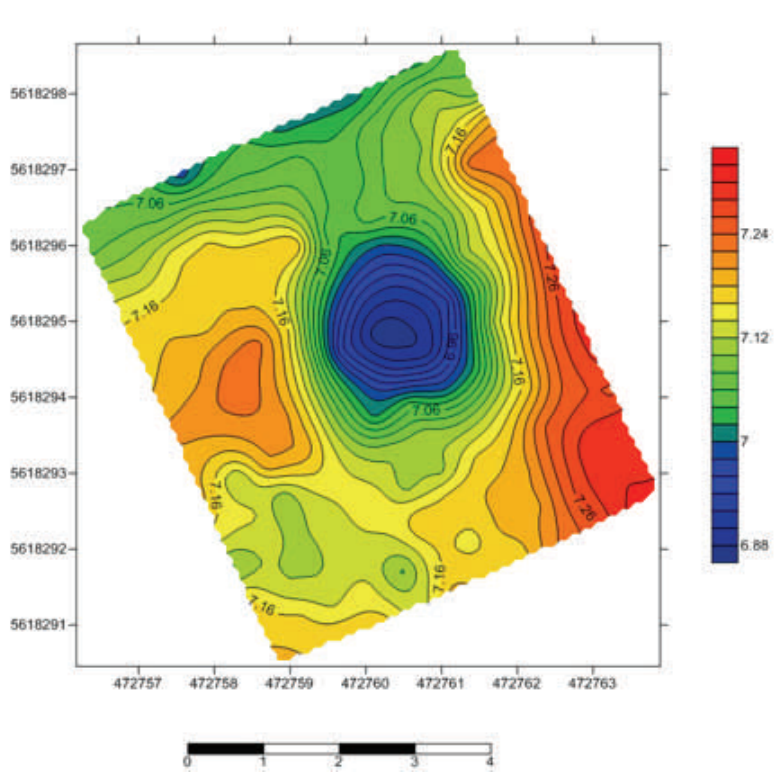

Figure 3. Contour map of one of the Figure 2 depressions showing a break in the northern perimeter berm. Image: C. Robinson

tified depressions, newly identified depressions and newly identified surface anomalies. We did not remap the boundaries of excavation areas but the depressions over which they centered were counted. Our mapping increased the total number of visible depressions and anomalies to 104, which included five depressions and one concentration of fire-cracked rock in the tuckamore. Adding the 24 excavated and tested dwellings (Harp 1964, 1976; Renouf 2011a) the number of visible depressions/anomalies at Phillip's Garden increased to 128.

Layer 2

This was a three dimensional map of Phillip's Garden with data collected using a Promark 500 differential global positioning system, also known as an RTK. Robinson took surface reading at 50 cm intervals covering all of Phillip's Garden, to recreate a high-resolution surface topography (Figure 3). She was able to confirm the depressions identified in the total station topographic survey (Figure 4) and to see additional depressions (analysis in progress).

The sampling interval was sufficiently fine that Robinson could zoom in on each depression to create a contour map by which to assess whether the depression is cultural. For example, Figure 4 is a depression that we interpret as a dwelling, based on the break in the contours in its northwestern perimeter berm. Our prior excavations have shown such a break to be an entrance, usually oriented north or northeast (Renouf 2003).

Robinson's RTK data have provided a centimeter-accurate landscape model of the site. Figure 4 shows that there are six terraces comprising the Phillip's Garden meadow, rather than two, as usually shown (Figure 1).

Layer 3

This is the hidden layer of the site where depressions and anomalies are infilled by midden deposits or are otherwise invisible. In a 2001 magnetometry survey of a small area of Phillip's Garden, Eastaugh and Taylor (2011) identified four hidden depressions. In 2012 Phillip's Garden was surveyed using a

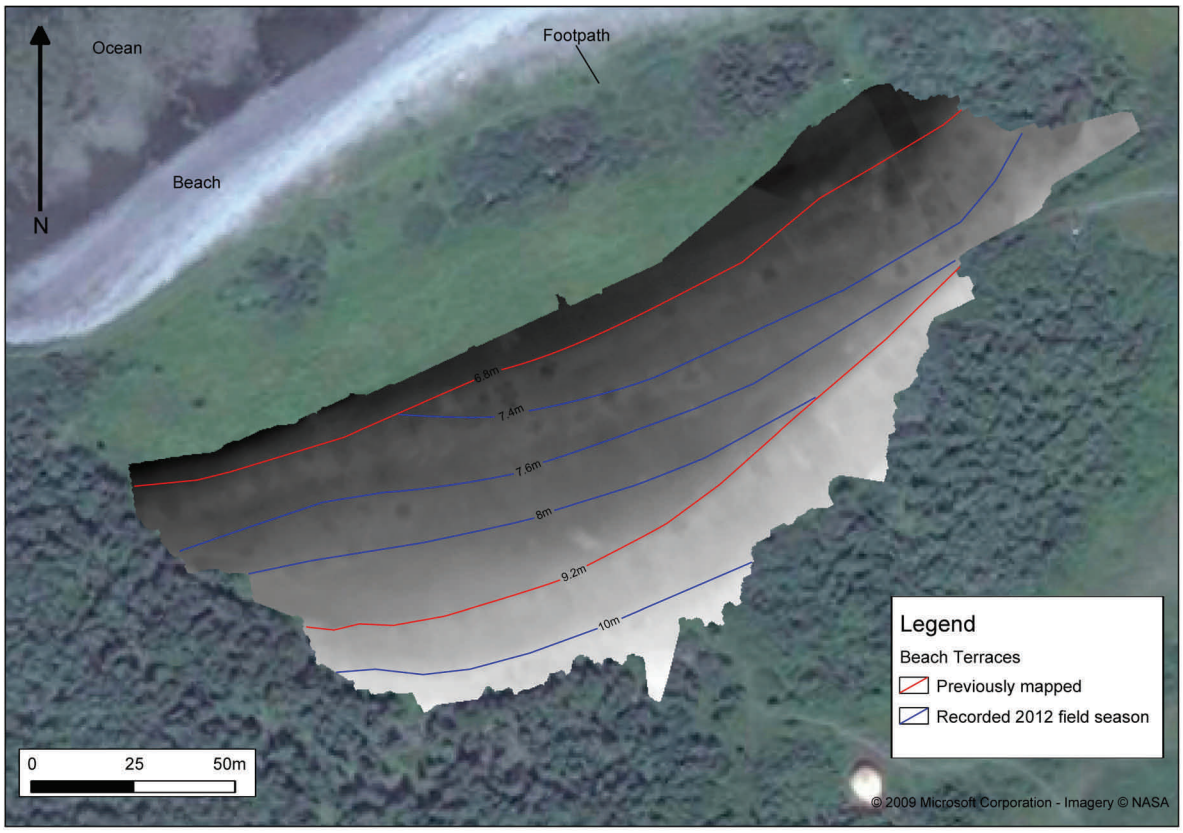

Figure 4. Three-dimensional map of Phillip's Garden. Note the dark grey circles surrounded by lighter halo, which are the depressions shown in yellow on Figure 2 map. Image: C. Robinson.

Bartington Grad 601 magnetometer with operation and data processing by Eastaugh (Eastaugh and Hodgetts 2012) assisted by Renouf, Wells, Lavers and Tudor.

The magnetrometry survey was positioned to cover most of the site, avoiding those areas that had been previously identified and disturbed through excavation (Figure 5). The grid was also extended offsite to establish the magnetic properties of the natural substrate. The geophysical survey was carried out within 20 m x 20 m grids, logging readings at 0.125 m intervals along parallel traverses spaced 0.25 cm apart. Twenty-four complete and ten partial grids were surveyed.

The results showed many hundred small and large positive (seen as black) and dipolar (seen as black and white) anomalies resulting from both buried cultural and natural features that were not visible on the surface of the ground. Many of these were likely beach erratics whose magnetism contrasted with the limestone substrate. However, many other anomalies appeared to be cultural. Particularly striking were 13 large, round, positive anomalies that averaged 4 m in diameter and formed a regularly spaced, gently arcing line running east-west through the centre of the survey area (Figure 6); three of these had been identified in 2001 (Eastaugh and Taylor 2011). Potentially these depressions were large middens that filled the central depressions of buried dwellings. Preliminary findings in 2012 also suggest the presence of three possible tent-like dwellings, with erratics used as hold-down rocks, five hidden middens, and a number of invisible midden deposits associated with identified depressions (Figure 7).

Conclusion

The new data from Phillip's Garden have added significantly to the total number of features (depressions and surface anoma-

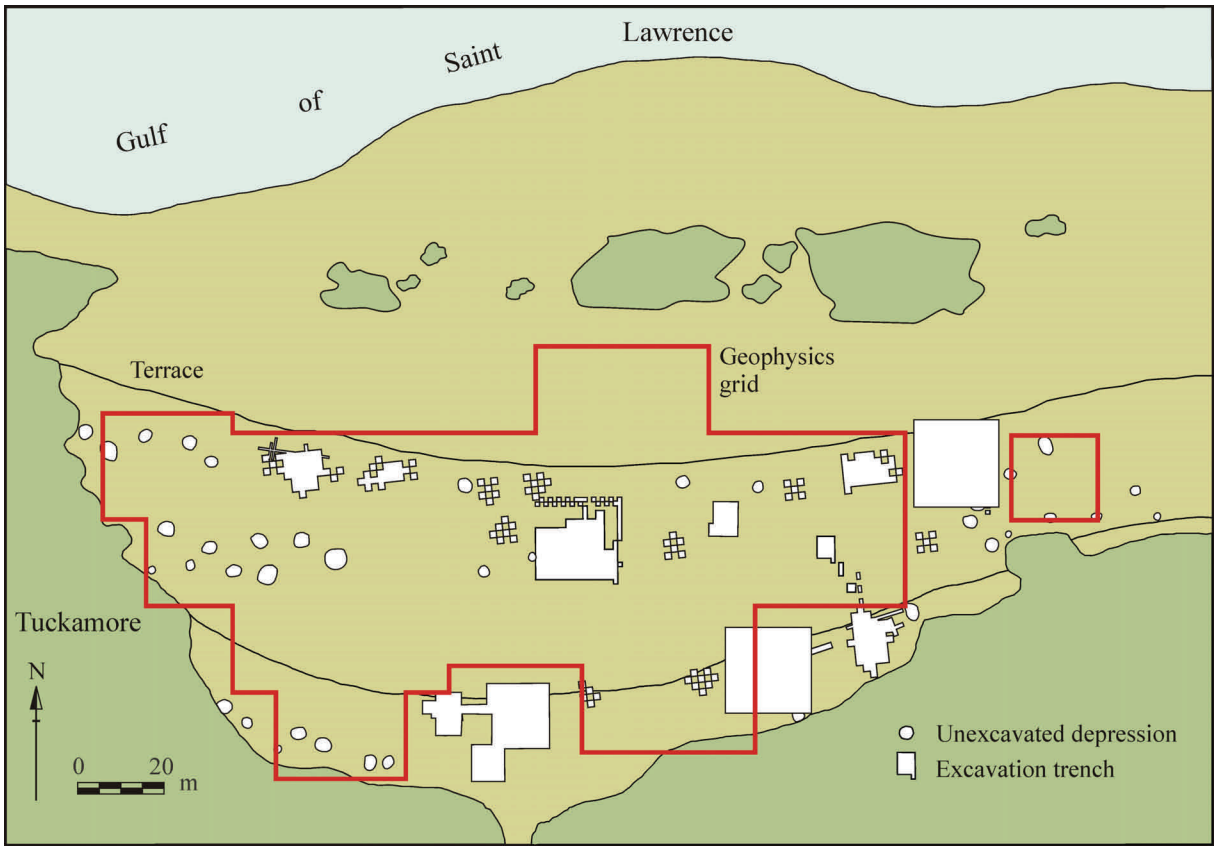

Figure 5. 2012 geophysics grid outlined in red. Image: E. Eastaugh.

lies) that we know for the site, increasing the previously cited count of 68 to 160. Additional features may be identified as Robinson's analysis of her three-dimensional data progresses.

Bass Pond Investigations

In 2010 shovel tests approximately 20 m north of Bass Pond yielded Groswater material including an endblade, some Groswater-type flakes and some fire-cracked rocks (Anstey et al. 2010). These finds may indicate an extension of the Trike site (EeBi-16; 7A52), which was first located in 1984 (Renouf 1985) in the same general area. The material recovered at Bass Pond is consistent with Bell et al.'s (2005) interpretations about Palaeoeskimo impact on Bass Pond ecology. The following year we used the GEM Systems Overhauser magnetometer to survey two small areas near the pond (Wells et al. 2012).

In 2012, we returned to Bass Pond to map the area with a total station and continue geophysical survey and subsurface testing. Wells and Lavers excavated a 1 m test pit near Bass Pond where in 2011 the magnetometer had indicated the presence of an anomaly; they found a Groswater tool fragment and a few Groswater-type flakes. Following this, Eastaugh used his Bartington magnetometer to survey a larger area on the north side of Bass Pond, including where Groswater material had been found in 2010. He surveyed 8.5 20 x 20 m grids and found a pattern of magnetic anomalies that may be natural (beach erratics) and/or cultural (Figure 9). Wells and Lavers dug a 1 m^2 waterlogged test pit where there was an anomalous magnetic reading, finding a small amount of Groswater material.

Conclusion

There is archaeological evidence of Groswater Palaeoeskimo activities at Bass Pond. In addition, magnetometry results show evidence of anomalies in the same area. Ground-truthing through further archaeologi-

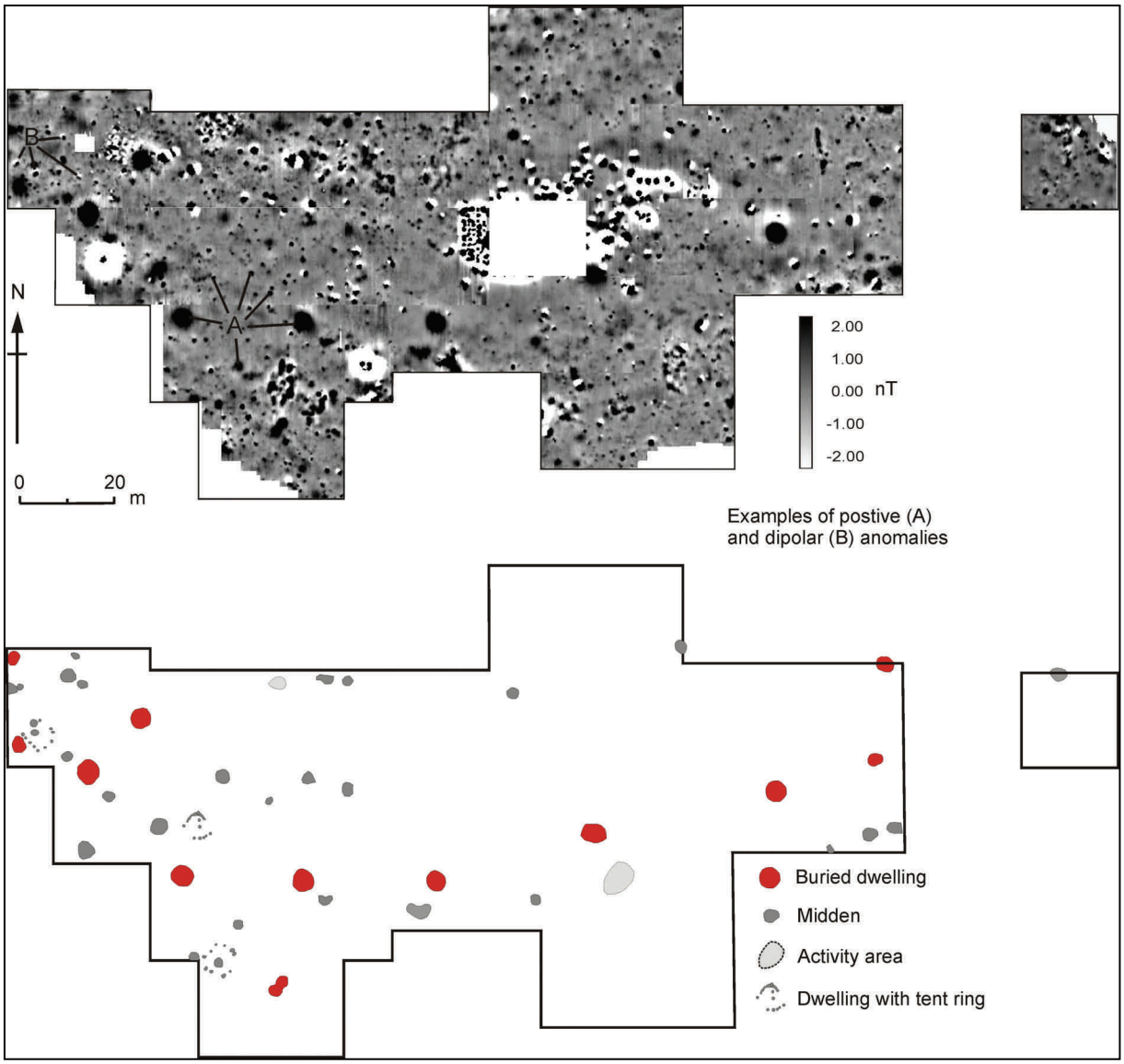

Figure 6. Magnetic data (top) showing positive (A) and dipolar (B) anomalies. Bottom shows the interpretation of those data. Image: E. Eastaugh.

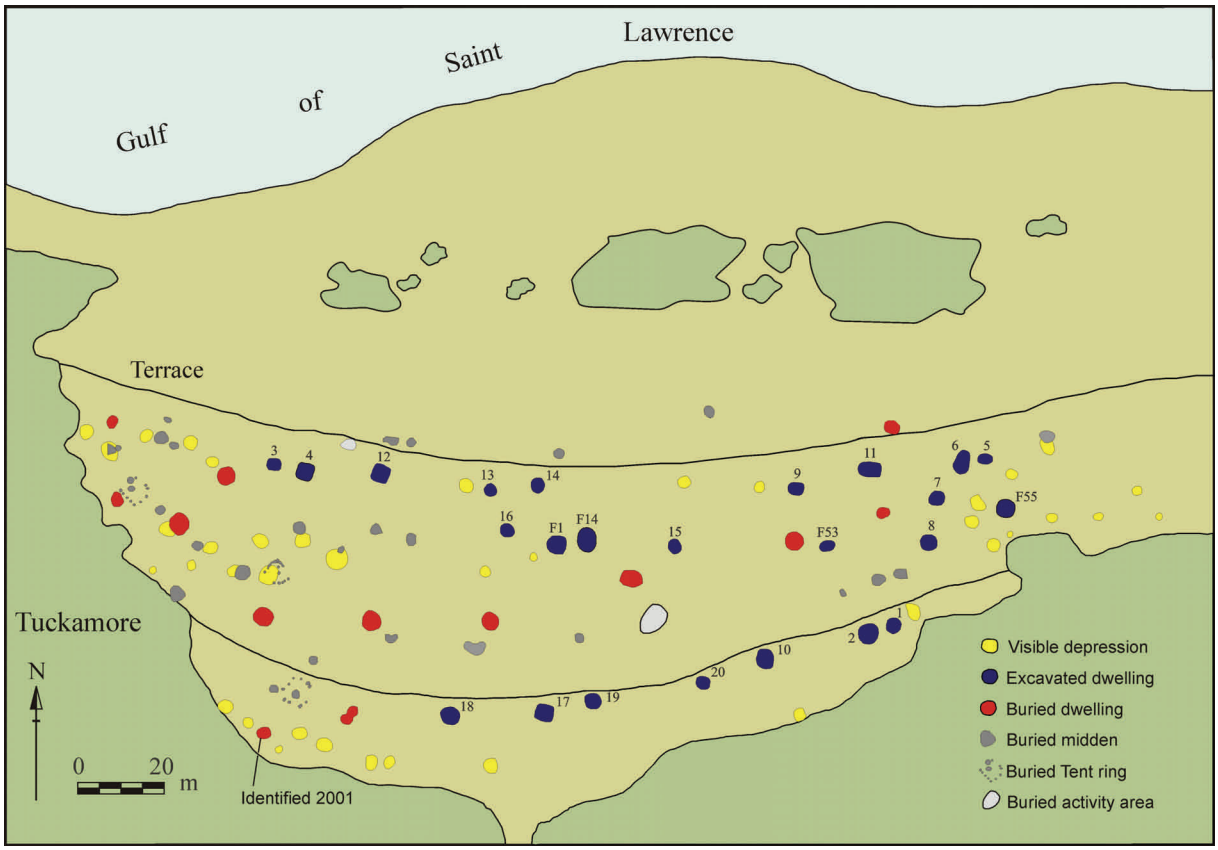

Figure 7. Summary of magnetic data interpretation. Image: E. Eastaugh.

cal testing is essential to establish what the magnetic anomalies are reflecting.

References

Anstey, R.J., M.A.P. Renouf, P.J. Wells and D. Lavers
2010 A Report of the 2010 Archaeological Field Season at the Port au Choix National Historic Site: Excavations at Point Riche. On file, Parks Canada, Archaeology, Atlantic Region, Halifax.

Bell, T., J. Macpherson and M.A.P. Renouf
2005 Late Prehistoric Human Impact on Bass Pond, Port au Choix. Newfoundland and Labrador Studies 20(1): 107-129.

Eastaugh, E. J. H. and L. M. Hodgetts
2012 Report on the 2012 Magnetic Gradiometer Survey of the Dorset Palaeoeskimo Site of Phillip's Garden (EeBi-1), Port au Choix, Newfoundland. On File, Department of Archaeology, Memorial University. St. John's.

Eastaugh, E.J.H. and J. Taylor
2011 Settlement Size and Structural Complexity: A Case Study in Geophysical Survey at Phillip's Garden, Port au Choix. In The Cultural Landscapes of Port au Choix, M. A. P. Renouf (ed), 179-188. New York: Springer.

Harp, E
1964 The Cultural Affinities of the Newfoundland Dorset Eskimo. National Museums of Canada Bulletin 200. Ottawa.

Harp, E
1976 Dorset Settlement Patterns in Newfoundland and Southeastern Hudson Bay. In Eastern Arctic Prehistory: Palaeoeskimo Problems, M.S. Maxwell (ed.), 119-138. Washington, D.C.: Society for American Archaeology.

Renouf, M.A.P.
1985 Archaeology of the Port au Choix National Historic Park: Report of 1984 Activities. On file, Parks Canada, Archaeology, Atlantic Division. Halifax.
1996 Report of 1985 Excavations at the Point Riche and Phillip's Garden Sites, Port au Choix National Historic Site. Report for Parks Canada, Archaeology, Atlantic Region. Halifax.
2003 A Review of Palaeoeskimo Dwelling Structures in Newfoundland and Labrador. Études/Inuit Studies 27(1-2): 375-416.
2011a On the Headland: Dorset Seal Harvesting at Phillip's Garden, Port au Choix. In The Cultural Landscapes of Port au Choix, M.A.P. Renouf (ed), 131-160. New York: Springer.
2011b Appendix: Radiocarbon Dates from Port au Choix. In The Cultural Landscapes of Port au Choix,

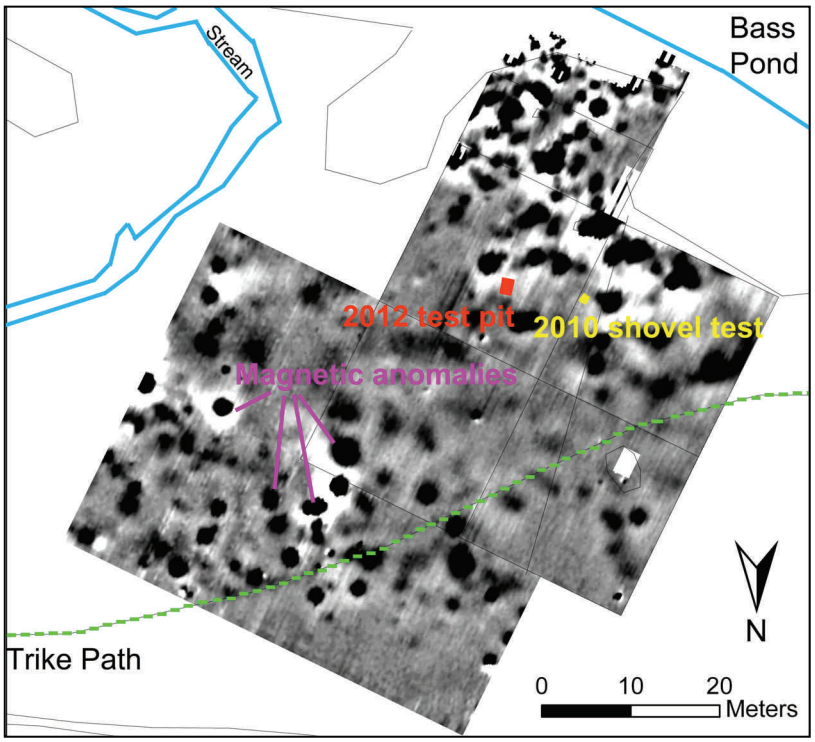

Figure 8. 2012 Magnetic data from Bass Pond showing positive (black) and dipolar (black surrounded by white) anomalies. Image: PAC Archaeology Project.

M.A.P. Renouf (ed), 301-315. New York: Springer.

Wells, P.J., M.A.P. Renouf, C. Tudor and D. Lavers 2011 The Re-excavation of House 10 and Geophysical Survey at Phillip's Garden, Port au Choix National Historic Site: Report of the 2011 Field Season. Report for Parks Canada, Western Newfoundland and Labrador, Rocky Harbour.