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IN SEARCH OF PĀ A TU PARE TANIWHA (I44/11), TAIERI PLAINS, OTAGO: GEOPHYSICAL SURVEY AND EXCAVATIONS

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Introduction

Several sources of ethnohistoric traditions report that there was once a pā called Pā a Tu Pare Taniwha (I44/11) located on the Taieri Plains, Otago (Figures 1, 2 and 3). The New Zealand Archaeological Association (NZAA)

Figure 1. Reported location of Pā a Tu Pare Taniwha (I44/11).

Site Recording Scheme indicates Pā a Tu Pare Taniwha (I44/11) is a 'traditional pā site' situated on what would have been an island surrounded by swamp adjacent to the Taieri River before the area was drained for farming in the 19th century (Joseph 1899: 51). No archaeological surface features are visible, however, on the island, locally known as Amoka, nor have any been recorded in the past. Therefore, we set out to determine if subsurface cultural material was present through a resistivity survey that produced anomalies warranting ground truthing. While we are now aware of finds reported from this location, shovel test units and wider excavation areas failed to identify the presence of

archaeological material. This project raises larger questions, not only about the location of the site, but about how archaeologists generally view geophysical survey data and ethnohistoric traditions in guiding research and management decisions, as well as the place of ambiguity in site databases.

Figure 2. Oblique Google Earth image of the location of Amoka, a hill located between the Taieri River (foreground) and the western foothills that define the Taieri Plains (background). This feature would have been an island surrounded by swamp prior to modern farming.

Figure 3. Panoramic view taken from the summit of Amoka (view to the east). At far left is the bank of the Taieri River and low farmland, centre a natural scarp, and right the location of geophysical survey on top of the hill.

Warfare in the southern South Island

The southern South Island is not well known for its pā sites. Most are likely to be late, having been constructed in the 18th century and during the historic period. Southern pā have generally been identified in the landscape by tradition rather than a compelling body of material evidence visible on the modern ground surface (Potts 2010). Pā a Tu Pare Taniwha, known by oral traditions recorded in the late 1800s, is just such a case. The former island where the pā is reported to have been located, Amoka, is a triangular-shaped hill, or mound, approximately 150 m by 100 m, with steep sides rising higher on the northern and western sides. The Taieri River is located approximately 100 m from the northern side. To the south the Taieri Plains Highway (State Highway 1), roughly 500 m distant, would have been the closest dry land in the past (Figures 1 and 3). No terracing or features are identifiable. It has been suggested that 'ramparts' are still visible (Taylor 1952: 180), but this is presumably a reference to the naturally steep slope rather than documented built features. The area is now used for dairy farming.

Ethnohistoric traditions of Pā a Tu Pare Taniwha

Traditions suggest there were four pā on the Taieri Plains and these were occupied by separate factions. These sites are at present best known by oral traditions regarding these rivalries. The rivalries are estimated to have started around A.D.1720, suggesting that Pā a Tu Pare Taniwha was established well before the introduction of muskets to the region (Parer and Hislop 1980: 38-39, Bray et al. 1998: 28). Three of the local pā sites are recorded in the NZAA Site Recording Scheme (I44/1, I45/25 and H45/5), although only one has confirmed archaeological evidence, in the form of midden and ovens (H45/5). Pā a Tu Pare Taniwha was established by Ngāti Kahununu whom came into the area to participate in feuding between various hapu of Ngāti Mamoe. It is reported that 240 warriors built a pā which was surrounded by a double palisade and other features that make it a good candidate for archaeological investigation:

> he [Taparetaniwha] spied an ideal spot for a stronghold – a high mound of considerable extent, with the river on one side and a chain of deep lagoons almost around it, which could easily be fortified, so that it would be pretty well nigh impregnable. They therefore resolved to build a pā there…With great labour they dragged trees from the noble forest that grew on the Otakia hillside, and built a very strong pā, securely guarded by a double palisade. The space between was used for a meeting place and for the men on guard, while the whares were within the central enclosure
>
> Joseph 1899: 51 (emphasis added)

Traditions further suggest the warriors of Pā a Tu Pare Taniwha invited the occupants of a pā located in nearby Henley (I45/25) to a feast. The rivals accepted the offer only to be killed and have their bodies taken back to Henley Hill to be consumed (Anderson 1998: 43, Beattie 1916: 9, 11, Joseph 1899, Roberts 1910: 35, Taylor 1952: 180-81).

Previous archaeological finds

Amoka is reported to have been ploughed for the first time in the middle of the 20th century. The site record form reflects this history of land use and notes that archaeological features are likely to remain in situ below ground.

The site record form also notes that:

> The pa site was located and a new grid reference was taken, however, no archaeological features could be found and the only obvious indication, other than the oral traditions are the site's natural defensive position.
>
> NZAA site record form I44/11

We have become aware of two adzes reported to have been found in the southwest corner of the mound (Figure 4; Brian Allingham, pers. comm.). When Amoka was ploughed in 2001 this area is reported to have produced fire affected rocks and darker soil (Brian Allingham pers. comm.). A former owner, Jack Harwood, also recalled that during the early 1950s a group from the Otago Museum found some small adzes in this same area, above the silage pit.

Figure 4. Two adzes reported to have been found on the southwest corner of Amoka (courtesy of Brian Allingham).

Geophysical survey of Pā a Tu Pare Taniwha (I44/11)

In May 2011, a three-day geophysical survey was carried out at the site to attempt to locate subsurface features (Figures 5 and 6). The survey was carried out using resistivity (R15) and a mobile sensor platform (MSP40) by GeoScan. Twenty-eight grid units were surveyed, each 20 by 20 m with transect spacing (x-axis) at 1 m and interval spacing at 0.25 m (y-axis). After post-processing, a total area of 1.1 hectares (11,270 m2) was surveyed by a total of 44,800 individual soil resistivity readings. A nearest-neighbour interpolation was used to transform this data in to a raster (ESRI ArcMap 10). The resulting map suggested a number of areas of interest and these were selected for excavation.

Figure 5. Resistivity survey of the site.

Test excavations

Nineteen shovel test units (STU #1 to #19; 0.5 x 0.5 m) and three excavation areas (A to C; 8 x 2 m) were excavated in order to test the results of the geophysical survey.

Shovel test units (STU)

STU were excavated, sieved (6.4 mm), and the results were used to help test resistivity values and plan where to place excavation areas. Nine units were located in areas that were either low or high resistance on the geophysi-

cal survey and an additional transect of seven units were excavated at a 20 m interval across the cross-section of the mound.

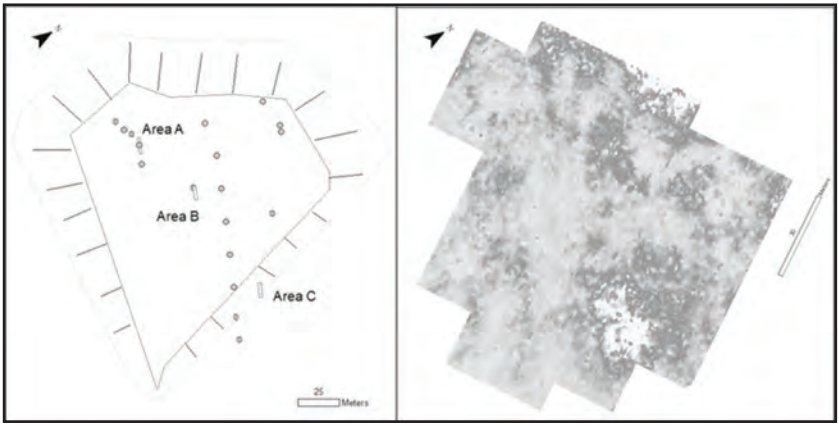

Figure 6. Plan view map showing location of excavations and soil resistivity. This raster is displayed at one-quarter standard deviations (range: -0.36 to 5.9 ohms).

Stratigraphy consisted of two layers: Layer I, a very dark grayish brown loam when wet (3/2 on 10YR of the Munsell chart); and Layer II, a greyish brown clay when wet (5/2 on 10YR of the Munsell chart) with reddish brown clay inclusions (pebble size), which increase with depth. Cuts in the side of Amoka suggested the inclusions eventually decrease and disappear altogether.

From these units we determined that the relative depth of ploughing was probably a major factor impacting soil resistivity, with lower resistivity values associated with deeper disking and high resistivity associated with shallower ploughing. For example, Layer I was between 20 and 30 cm in depth in most units, but in broad areas of low resistivity, such as the area where STU #15 was placed, Layer I and Layer II were mixed between a depth of 27 cm to 51 cm below the surface, indicating deeper ploughing.

Excavation areas

Areas A, B and C were excavated in 8 x 2 m units in locations where intact deposits were deemed most likely to be found based on the results of resistivity and shovel test pits. Deposits were initially partially sieved, but the difficulty and unproductive nature of the task resulted in a sampling strategy of sieving only if charcoal was identified. No artefacts were found in any of

the three areas. Each showed what have been interpreted as plough marks at the Layer I/II transition.

Area A

Area A was located in the southwest portion of Amoka (Figure 7). The resistivity survey results indicated an area of higher resistance (i.e. shallow ploughing) in an area about 10 x 10 m in size. This region of the island is highest in elevation and would be a likely spot for a defendable area, taking advantage of both elevation and the afforded visibility. No cultural material or features were identified, however.

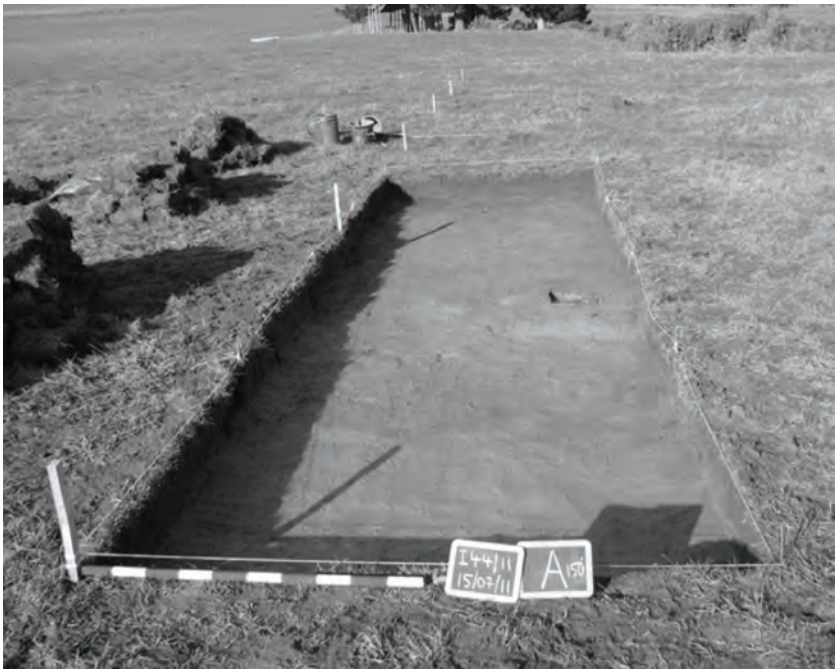

Figure 7. Area A (smaller square excavation in middle is STU #2). Photograph: Ben Teele.

Area B

Area B was located on the lower area of a gentle slope and level section near the middle of Amoka. Resistivity indicated areas of very high resistivity surrounded by lower resistivity responses. No cultural material or features other than plough marks were identified (Figure 8).

Figure 8. The Layer I/II transition exposed in Area B.

Area C

Area C was positioned to include the scarp on the eastern side of Amoka (Figure 9). It included a level area, the top of the scarp, and some of the slope. Layer I became shallower over the lip of the scarp. Plough marks were clearly visible on the flatter area on the western side of the excavated area. Slumping and slope wash appeared to have occurred on the eastern side, visible as small variations and the generally decreasing depth of Layer I.

Summary

The only cultural material identified during the excavation was a small amount of charcoal. STU #19 showed the remains of a burnt tree stump. Other burnt stumps were visible along the side of the mound where there are a number of pine trees. STU #1, STU #6 and Area A had traces of charcoal; however, these areas were all close to the burnt tree stumps and the small pieces of wood and pine cone also found in Layer I would suggest they are likely to have resulted from farming activities. Ploughing of Layer I has resulted in any specific context being lost.

Figure 9. Area C, view to the south.

Results

Through the use of the shovel test pits and larger excavations a picture of the former island called Amoka has emerged. The variations of the resistivity results have now been interpreted as a mixture of natural variations in the soil and modification to soils by modern ploughing activities. Only STU #19 and the east end of Area C were definitively outside the extent of the plough zone but neither contained cultural material indicative of Māori occupation.

There are at least three scenarios that could account for the lack of sub-surface archaeological evidence of a prehistoric occupation: our excavations 'missed' locations of intact deposits; the pā and all remains associated have been destroyed; or our interpretation of traditions regarding the location and/or composition of the pā are incorrect. We evaluate each of these in turn below.

First, all things being equal, the broad geographic extent of our survey, locations of test units on spots of varying resistivity, broad excavation areas, and the shallow, simple stratigraphy discovered, all make it unlikely we simply excavated in the wrong parts of the site to uncover intact features. Naturally, further excavation may prove us wrong.

Second, we find it hard to comprehend that a site of such intense use, albeit perhaps for a brief time period, could be so thoroughly destroyed as not

to leave even the faintest archaeological signal. Excavation areas were placed in ideal positions to detect undisturbed subsurface features but careful excavation should have allowed us to detect even well mixed deposits that contained cultural material. There is the possibility that natural erosion on the sides of the island could have carried away deposits and the western side may have been quarried for sediment to build nearby flood banks. The location of the extant silage pit (which is reported to be about 80 years old), however, would suggest this scarp has been stable for some time. In addition, the pā as described by traditions would presumably have covered a larger area than could have been removed by known natural or human modifications.

Lastly, we must consider that our interpretations of ethnohistoric traditions regarding either the location or composition of the pā are incorrect. The finds from Amoka would suggest that people visited the island in the past but we detected no examples of the features detailed in traditions about Pā a Tu Pare Taniwha. For example, traditions agree that there was a feast held, which would suggest cooking areas should be present. Nonetheless, the creditability of this tradition is enhanced by the two original publications of the story having come from different oral sources (Joseph 1899 and Stack 1898).

In terms of the general location of the site, nearly all traditions suggest Amoka, often referred to as a 'mound,' was the location of Pā a Tu Pare Taniwha:

> "the mound in Mr W. Palmer's paddock at Otakia, which, I am told, was the site of the Otakia pā" (Joseph 1899: 48)

> "The mound in Mr W. Palmer's paddock at Otokia (the damp place), not Otakia, was the site of the Otokia pā." (Roberts 1909: 18)

> "between Otokia and Allanton near the estate of the late Johnathan Shore at the Elbow… The Elbow is called Amoka" (Taylor 1950: 181)

There are some indications that the pā may have been located elsewhere. Bray et al. (1998) record different descriptions of the site's location:

> "A feature of the farm is a low hillock rising from the plain which was used by the earlier Māoris as a pā site for the pā A Tupari Taniwha [sic]" (Stuart 1981: 54, in Bray et al. 1998: 5)

> "at Otokia on a site where the river ran around one side, and there was a chain of lagoons on the other" (Parkes and Hislop 1980: 39, in Bray et al. 1998: 28)

The Parkes and Hislop (1980: 39) description does not mention a mound and clearly refers to lagoons; we are unsure if Amoka had such features around it in any period of the past. Furthermore, the present landowner recalled that during the construction of the current State Highway 1, 10-12 ovens were exposed

by construction when much of the hillside where Palmers Creek reaches the plains was destroyed. A reconnaissance of this area did not show evidence of said features but this report gives us hope that other archaeological sites may still exist in the vicinity.

Discussion – how do we deal with ambiguity?

The NZAA Site Recording Scheme represents an invaluable tool for recording known archaeological sites and there are many ways in which ambiguities can be recorded in the scheme. In light of the above research, the following question needs to be asked: what course of action is best when excavations add newfound ambiguity in site location, form and interpretation?

Site I44/11 has been rightly recorded as a 'traditional pā site' based on ethnohistoric information. The simplest solution is to treat the record as a cumulative document of research about the location and simply add the new evidence to it; and in fact, this is the course of action we advocate in this case. But, this is not the only path one could take. For example, take the case of another traditional pā, Pā a Te Whara, which ethnohistoric evidence suggests was located in Preservation Inlet (Beattie 1922: 104). A search of the area which, like Pā a Tu Pare Taniwha, is described in traditions with specific location information, found no cultural material (NZAA site records B45/40-41). The individual site record was removed and the information included with the geographically closest sites. We chose not to advocate for this for I44/11 as it would have 'lost' the site in future searches of the database.

Another alternative would be to change the site type to a 'findspot', in reference to the two adzes reported, or some other site type designation. The classification as a findspot would be more precise in terms of a purely material-based site recording scheme. The disadvantage of this path is that future researchers would not be made aware of valuable ethnohistoric information as this would essentially be pushed into the background. Certainly, we would not like to discourage research on the question of the location of Pā a Tu Pare Taniwha by making it less likely to be found in a database search for pā, and this is the disadvantage of other methods that could be used to highlight the ambiguity surrounding this site. For example, the use of a question mark in the site type field (i.e. ?pā) or changing the site type to 'unclassified'. These would alert researchers to the uncertainty that exists. But the difficulty here is the potential confusion arising regarding the source of ambiguity. In this case, ethnohistoric sources are clear that there was a pā built somewhere in the area; it is the archaeology that needs clarification.

Conclusions

In our search for the location of Pā a Tu Pare Taniwha (I44/11) we have effectively ruled out the most likely candidate, the 'mound' and former island called Amoka adjacent to the Taieri River. Upon reflection, if we had not completed test excavations and limited our investigations to either attributing the location of the site based on the majority of traditions, or to geophysical survey, we would not be in a position to make this assessment. While we wholeheartedly endorse restraint in the use of excavation at important sites like Pā a Tu Pare Taniwha this case illustrates a real and common danger in Pacific archaeology. The recording of site locations as points provides a wonderful tool but one which can give the appearance of precession and mask inaccuracy. The danger here is that without careful use, this can lead to false security regarding the location of sites that discourages new research and leads to management decisions based on incomplete information.

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