NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

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SITE SURVEY METHODS: STANDARDISATION AND COMPARABILITY

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A problem noted in the Trust's 'Recommendations for Archaeological Site Surveying, 1979-1980' (Anon), is that different surveyors use different methods in the field: "Some people only record along ridges, some only bother with pa sites, etc". It is suggested there that the procedure actually applied should be described.

That would be better than nothing, I suppose, but I cannot see how the results of surveys carried out using different methods can be compared one with another, and it is clear that something more is needed if the site record file is to serve as an effective research tool (see Challis, in Daniels, 1979).

A description of the entire route traversed is also recommended, and this information is often included in site-survey reports. This might also be useful, but 'calibrating' surveys from complicated route maps is not going to be at all straightforward.

Vincent (1978) suggests that comparability should be ensured by finding all the sites in all areas surveyed. Certainly that is attractive as an ideal, and it might be practicable in the case of historic sites, but it is unrealistic to believe that all prehistoric sites would actually be found even given an inspection of 'every square yard' (ibid). That kind of search would be hopelessly inefficient anyway, as prehistoric sites are unlikely to be scattered across the countryside to the same extent as are traces of the pakeha gold-fever. For prehistoric sites what is required is a search pattern that can be applied reasonably consistently in any area, and which will locate a good proportion of the sites present reasonably quickly. Some worthwhile methods are in general use. Walking the ridges is popular, and this often produces pit sites. A walk along the coast is also useful, because there is often a convenient section cut by wave action at about the high-water mark. Also, as shell middens are generally to be found close to the water and as food wastes are often discarded above high-water, a traverse of the edge of the coastal terrace is desirable.

This strategy of walking the ridges, the high-water mark and the edge of the coastal terrace was applied in a survey of three areas on the eastern shore of the Mahurangi Harbour (Nichol, n.d.) - see Figure 1.

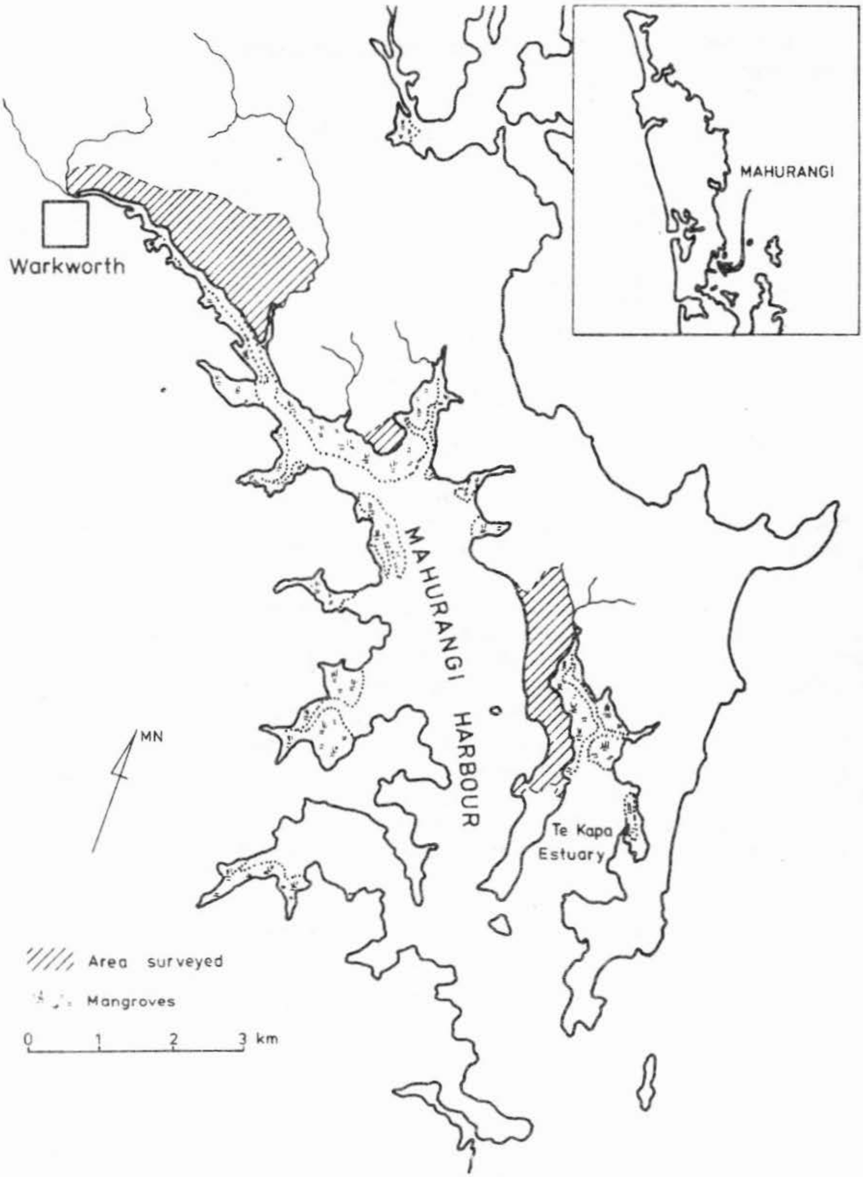

FIGURE 1. The Mahurangi survey area.

Results

A total of 179 sites were found, as summarised in Table 1. These sites are shown in Figure 2.

SITE TYPE	NUMBER FOUND	
Pa	1	with pits and middens
Pits	26	2 with terraces, 4 with middens
Terraces	7	1 with midden, 1 with taro
Middens	141	
Fish-trap	1	
Find spot	1	
European sites	2	
Total:	179	

TABLE 1. Total sites recorded.

To test the value of the search pattern it is useful to examine the frequencies of site classes in the different areas, but only pits and middens are common enough to be worth considering here.

So that comparison is as direct as possible, I have divided sites into their elements, i.e. each pit of a group will be counted separately; and a pit with midden counts as both. However, neither pits nor middens on the pa, nor the midden on Grant's Island are included. The middens in the southern area can be divided into those on the 'east' and those on the 'west' coasts because they are all very close to the water, but I am not willing to do the same with the pits, as these are more widespread and no certain dividing line can be suggested. On these assumptions the frequencies of pits and middens in each of the survey areas are set out in Table 2, and data about the surveyed areasare listed in Table 3.

AREA		PITS	MIDDENS
North		23	20
Central		2	20
South	West	10	72
	East		33

TABLE 2. Site frequencies by area.

Certain sections of some areas could not be examined, including 0.7km of the top of the coastal terrace in 'north' and 0.3km and 0.2km of foreshore in 'south (west)' and 'south (east)' respectively; these places are shown in Figure 2.

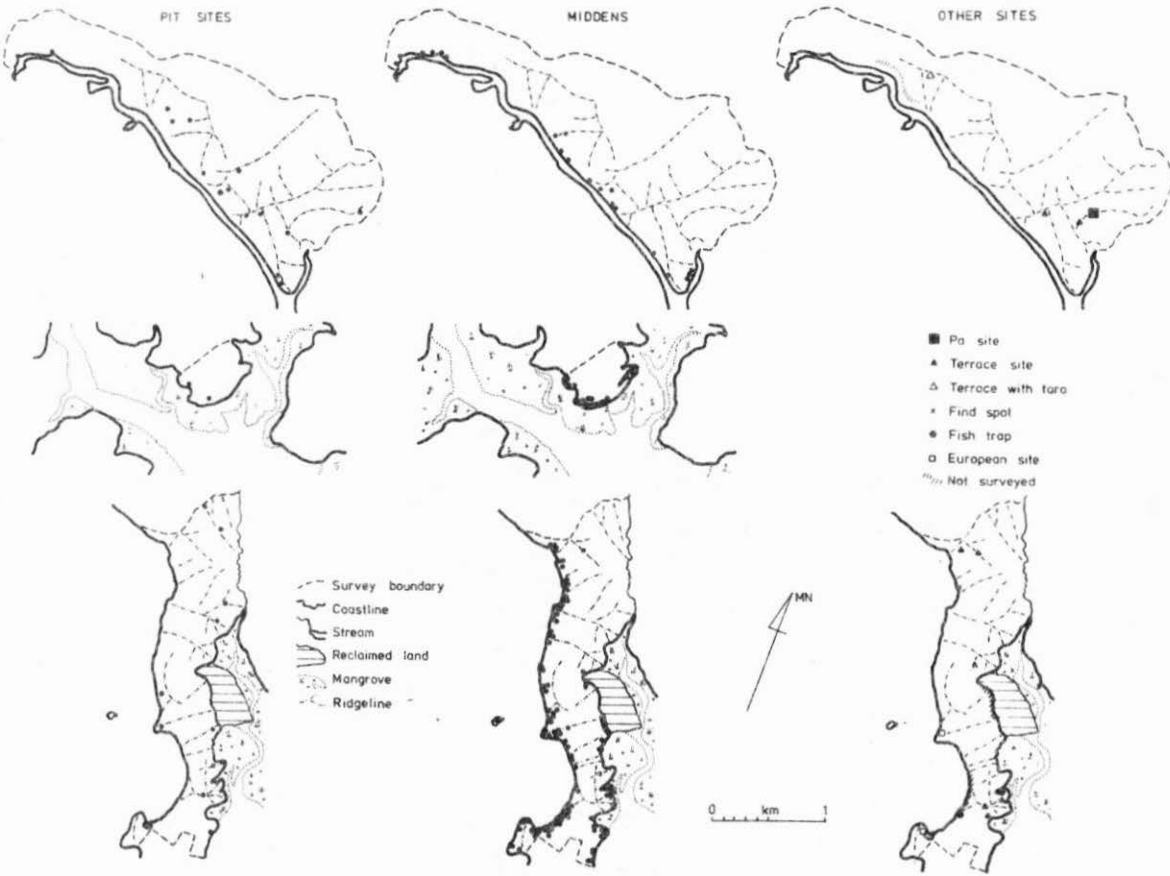

FIGURE 2. Results of the survey.

		AREA OF SURVEY (ha)	LENGTH OF COAST (km)	LENGTH OF RIDGES (km)	AREA OF INTER-TIDAL ZONE ADJACENT (ha)
North		295	4.6	10.2	20
Central		35	1.3	-	59
South	West	154	3.9	8.8	51
	East		3.1		62

TABLE 3. Characteristics of survey areas.

The frequencies of pits and middens in the different areas in terms of some of the dimensions of the areas listed in Table 3 are set out in Tables 4 and 5.

'Frequency dispersion' in Tables 4 and 5 is a crude assessment of the value of the different parameters in predicting the numbers of sites in the two categories in each of the survey areas. They are found by calculating the ratios between the highest and lowest values in each row of the tables, so the nearer to unity the value the better the prediction.

If the strip of land examined when walking the ridges and the coast was just a random sample of ground then the length traversed should be a good predictor of site frequency, but it is clear that this is not the case. The 'area of survey' is the best predictor of the frequency of pits, and as soils and topography are similar in all three areas the implication is that pits are indeed to be found on the ridges. There are good reasons for this (see Sutton and Phillips,1980), and the correlation is generally accepted.

PITS PER:	NORTH	CENTRAL	SOUTH	FREQUENCY DISPERSION
km of ridge	2.3	-	1.1	2.1+
km of coast	5.0	1.5	1.4	3.6
km of search path	1.2	0.77	0.45	2.7
ha of area surveyed	0.078	0.057	0.065	1.4

TABLE 4. Pit frequencies.

The midden results are less straightforward. The best predictors, 'area of adjacent inter-tidal zone' and 'length of coast' are poor, and they may be even worse than they appear, as it seems that not all the shells in the middens were gathered close to where they were deposited. An analysis of the shape of cockles from the different areas indicated that all the samples had approximately the same growth rate (Nichols,n.d.:Appendix 1). Given the relationship between growth-rate and environmental variables such as distance from the open sea (Larcombe,1971), it seems likely that shells in middens in the 'central' and especially the 'north' areas have been imported from further down the harbour. If allowance is made for this the result is a general decrease in the importance of middens as one proceeds up the harbour. Also, the contrast between 'south (west)' and 'south (east)' areas, apparently very close together, is probably related to the proximity of the Te Kapa River. The fresh water from this source means that 'south (east)' is comparable with an area much further up the Mahurangi than 'south (west)' just across the peninsula. Overall, the midden results seem reasonable.

MIDDENS PER:	NORTH	CENTRAL	SOUTH	SOUTH(WEST)	SOUTH (EAST)	FREQUENCY DISPERSION
Pit	0.87	10.0	10.5	-	-	12.1
ha of survey	0.068	0.57	0.68	-	-	10.0
km of coast	4.4	15.4	15	18.9	10.6	4.3
ha of inter-tidal zone	1.0	0.34	0.93	1.4	0.53	4.1

TABLE 5. Midden frequencies.

Discussion and conclusions

No doubt there are problems with the approach adopted here. The definition of site classes is the first issue. It isn't going to be of much use sitting down with a pocket calculator and lists of the site frequencies in different areas if 'pit' means different things to different surveyors. The degree to which traces of occupation in close proximity have been combined into larger 'sites' is important here (Daniels,1979:19-21). I have tried to get round this problem by using minimal units - each pit and each patch of shell is considered separately - but for both of these classes the things on the ground that come to be included are still very diverse.

It also has to be admitted that there are differences in the likelihood that sites will be found in the different areas; in the 'south', more completely developed, pits are more likely to have been filled either accidently or deliberately, and so will be less visible, while the greater incidence of broken ground there means that middens are more likely to be visible.

Nevertheless, given the similarities and differences between the surveyed areas the patterns of site frequency produced generally make sense. On the assumptions that the pits are agricultural features, that the pits are on ridges, and that the exploitation of the similar soils on similar topography was proportional to the areas available, it was predictable that the number of pits found in an area would be proportional to the size of the piece of ground whose ridges were searched. On the assumption that the importance of shellfish middens in an area was related to the food supply available to the shellfish in the area, and allowing for reasonable ease of water transport permitting importation of shellfish, the decline in midden frequency up the harbour is also predictable.

Fundamentally, the search pattern used here has not made nonsense of things. This suggests that even this simple method could form the basis of a standardised site survey with research application, because similar surveys in dissimilar areas could show what differences in site frequencies are associated with which differences in the surveyed areas. This could provide information about the environmental factors affecting settlement. The problem with the alternative - that differences in environment should lead to different search patterns - is that it would always be tempting to ascribe changes in the frequency with which sites are found to the changed survey method rather than to the changed environment, as it is far from clear that prehistoric occupation and modern survey are going to make the same response to a changed environment.

It must be remembered that sites are going to be missed by the search pattern applied here, and it would be interesting and very useful to test the effectiveness of this pattern (and others) by comparing their results with those of really intensive surveys. But while other sites can probably be located by looking in other places, the basic strategy has advantages in that it is easily calibrated, readily applied to any area, and seems to be good at actually finding sites, as up to 2.3 pits/km of ridge and up to 18.8 middens/km of coast were found when the pattern was applied on the Mahurangi.

There is a possible modification that might keep everyone happy: that the survey of an area take place in two sections. First, the ridges and the coast are surveyed, the results going to form part of a standardised record. And after that any other areas that take the fancy of the surveyor are examined, and these and the earlier results together form the general record.

It seems to me that the value of standardised survey is obvious, and it also appears that consistency and comparability between surveys is more easily achieved by standardised data collection, which means standardised survey method, rather than by later feats of compensation and adjustment during data analysis. The Trust could give a lead here by setting survey standards, rather than just by asking that a description of the method used in the field be provided.

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