

***Pa* Excavation in New Zealand Archaeology: A History and Review**

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Introduction

Archaeological research in New Zealand has focused on three particular site types: settlements with evidence of moa hunting, *pa*, and historic period sites. Moa hunting settlements were the first of these to receive archaeological inquiry late in the nineteenth century, followed by *pa* sites at beginning of the 1900s, and finally, historic sites in the late 1950s. Of these three site types, only the moa hunting settlements (Anderson 1989) and the historic period sites (Smith 1990) have been treated to an overall review to assess our current state of knowledge in that field. When considering *pa* excavation and literature in New Zealand archaeology, no detailed reviews on this aspect of archaeological research are available. This aim of this paper is to provide such a review.

Using data obtained from the *Pa* Research Databases (see below), this paper discusses the history of *pa* excavation in New Zealand archaeology considering events such as changes in excavation techniques and methodological approaches since the beginning of *pa* research, and the growth and decline in *pa* excavation and factors which affected these. Also presented is an analysis of *pa* excavation literature since the first recorded excavation. In undertaking this review, it is hoped that the data presented here and in the *Pa* Research Databases, will become consultative material for directing future *pa* research in New Zealand archaeology.

Terms, definitions and timelines

The first important question to consider for this review is: what is a *pa*? The issue of interpreting whether an archaeological feature is a *pa* (defended unit) or a *kainga* (an undefended settlement) has often been a source of concern in New Zealand archaeology (see Best 1927; Buck 1949; Irwin 1985; Davidson 1987; Jones 1989; Sutton 1990, 1993). In terms of this review, the definition of whether an excavated site is a *pa* or *kainga* is based both on the interpretation of its principal researcher, or, in a few cases, my own interpretation of the site from the excavation data.

Another major concern is: what 'counts' as an archaeological excavation of a *pa*? In answering this question a distinction is drawn between two main periods of *pa* investigation. The first is the excavation of *pa* before the introduction of systematic recording of archaeological excavations around 1955. Before this time many *pa* were heavily fossicked and the literature concerning these events only record basic descriptions of the site and the artefacts found. After 1955, the majority of excavations of *pa* described in the literature involved a site plan, some record of its stratigraphy and the identification of 'phases' or events in the history of the site. These excavations usually consisted of either conducting a series of systematic trench excavations on the site or, later on, large horizontal excavations over much of the site area.

We may, then, view the definition of a *pa* excavation before 1955 as one that has only a description of the fossicked area and artefacts recovered, while after 1955 there is a full description (and usually a map) of the area excavated, its stratigraphy and some account of the site's contents or features. This means that *pa* which are termed as having been 'sectioned' to gain information on the stratigraphy of the site, are not included as having been excavated. Sites that have been investigated during a salvage event, though, are included because the nature of the "excavation" usually involves detailed records.

There are two chronological considerations upon which this review is based. The first time frame deals with the beginning of the period covered by *pa* excavation, that is, from the time of

the earliest recorded *pa* excavation. Though an exact date for this event has not as yet been determined, the year 1900 may be taken as appropriate for the beginnings of *pa* excavation in New Zealand archaeology. It is close to this time that Lawrie Harris recorded his excavation of a *pa* called Waikakahi near Christchurch (Brailsford 1981:153-154), and so this event therefore sees the beginning of this review which then continues until 1998.

Our next temporal boundary that must be defined is what portion of the *pa* building period is to be considered. For this review, all excavations of *pa* of the pre-European period are included. In contrast, excavations of historic *pa* sites, such as gun-fighter *pa*, are excluded. However, any historic *pa* that also has one or more pre-European phases of fortification are retained. The exclusion of the excavation of historically built *pa* is based on Smith's (1990:86) setting of the boundary for historic archaeological sites. There all excavated *pa* sites that have an emphasis on the pre-European period are excluded. This effectively yields two discrete samples. Moreover, with such a boundary, a movement from the pre-European period to the historic period in the archaeological study of *pa* can be effectively illustrated.

Pa excavation: some facts and figures

The data upon which this review is based derives from the Schmidt (1998c) *Pa Research Databases* which are accessible via the [New Zealand Archaeological Association Internet Homepage](#) (see also Schmidt 1993b, 1995). These databases first came online in 1996 and were the first electronic archaeological publications in New Zealand developed specifically for the Internet. Here four databases relating to *pa* excavation and radiocarbon dating provide readily accessible data such as the old and new site numbers for each excavated and radiocarbon dated *pa*; the traditional Maori name of the *pa* if known (if no traditional Maori name has been found, either the European name or the geographic location of the site is given in italics); the year the *pa* was excavated and number of 'seasons' of excavation which have been carried out; which *pa* have been radiocarbon dated, the year they were dated, their radiocarbon ages, provenance information of the samples as well as a comment on the samples reliability; and finally literature references for each dated or excavated *pa* as well as an associated bibliography.

Also appended to each of the excavated and radiocarbon dated *pa* sites is the 'class' of *pa* investigated based on Groube (1970) and Fox's (1976) classifications. Briefly, these classes have the following characteristics: Class I *pa* are terraced; Class II *pa* have transverse ditch and banks; Class III *pa* have both transverse and lateral ditches and banks, ringditch *pa* also being included in this class; and finally Class IV *pa* are defended by palisades only and are often located in lowland or swampy locations. By applying this description to each of the *pa* sites, an idea of which types of *pa* have been the focus of research during various decades in New Zealand archaeology may be gained.

Pa Class	Number Excavated
I	22
II	38
III	36
IV	14
? (Unknown Class)	5
Total number of <i>pa</i> excavated	115

Table 1. Classes of *pa* excavated in New Zealand archaeology.

The *Pa Excavation Database* shows that the total number of *pa* excavated in New Zealand archaeology is at present 115. Of this total number of excavated *pa*, the majority of excavations have been undertaken on the Class II and III sites, with the Class IV *pa* being least excavated overall (Table 1). The total number of excavation seasons undertaken on *pa* is currently 205, table 2 and figure 1 showing the trend in the number of excavation seasons carried out during each decade of this century since the first excavation in *ca.* 1900.

	1900s	1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s
Number of excavation seasons	2	0	0	2	4	31	65	32	49	20
Total number of excavation seasons = 205										

Table 2. Number of *pa* excavation seasons in New Zealand archaeology per decade since the first known excavations in the early 1900s.

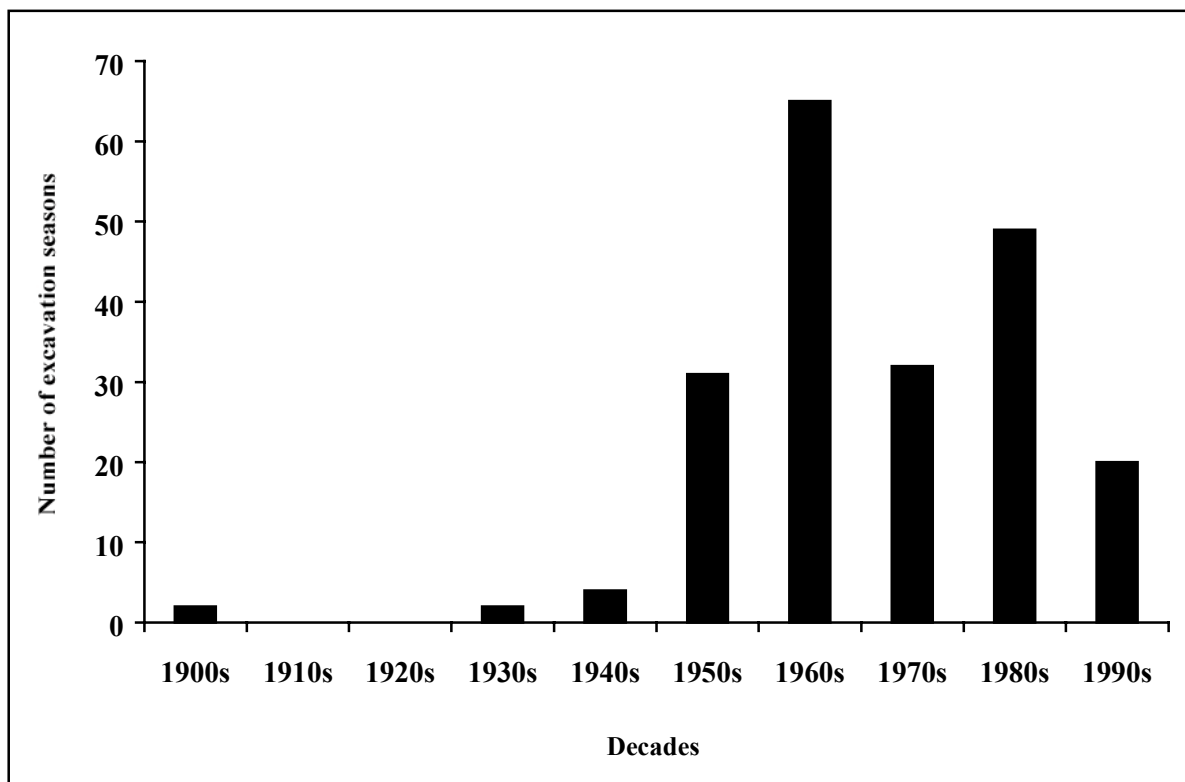


Figure 1. Trend in the number of *pa* excavation seasons in New Zealand archaeology per decade since the first known excavations in the early 1900s.

When the number of excavation seasons per *pa* class is considered (Table 3 and Figure 2), the focus of research on Class II and III *pa* is again apparent, both *pa* classes receiving the highest number of seasons of excavation.

Both table 3 and figure 2 also illustrate the changes in the direction of *pa* research during this century. Prior to the 1950s, few *pa* excavations took place and lowland 'swamp' *pa* (Class IV) dominated the excavations. During the 1950s, *pa* excavation took a sudden and dramatic jump occurring notably in 1955 (see discussion below), with the more complex Class II and III *pa* being the predominant site type studied, followed closely by Class I *pa*. However, during the 1960s, Class II and III *pa* became dominant among *pa* excavations, this being associated with

another dramatic jump in *pa* research in general. The 1970s saw the converse of the 1950s and 1960s with a sudden drop in *pa* excavation and a change in focus to the Class I *pa* such as those found in the Auckland volcanic zone. In a turn around of the 1970s, the 1980s saw a large rise in *pa* excavations, with Class II and III *pa* again being the predominant type studied. The 1990s appear to see a drop in the number of *pa* excavations compared to the 1980s, the few excavations undertaken still concentrating on the Class II and III *pa* for research.

<i>Pa</i> Class	1900s	1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	Total Excavation Seasons
I	0	0	0	0	1	10	11	13	6	3	44
II	0	0	0	0	0	15	24	6	17	4	66
III	0	0	0	1	0	4	19	8	24	8	64
IV	2	0	0	1	3	2	11	4	0	3	26
Total number of excavation seasons = 200*											

Table 3. Number of *pa* excavation seasons in New Zealand archaeology per decade based on class of *pa* excavated (*five excavated *pa* are not included in this table as their class could not be determined).

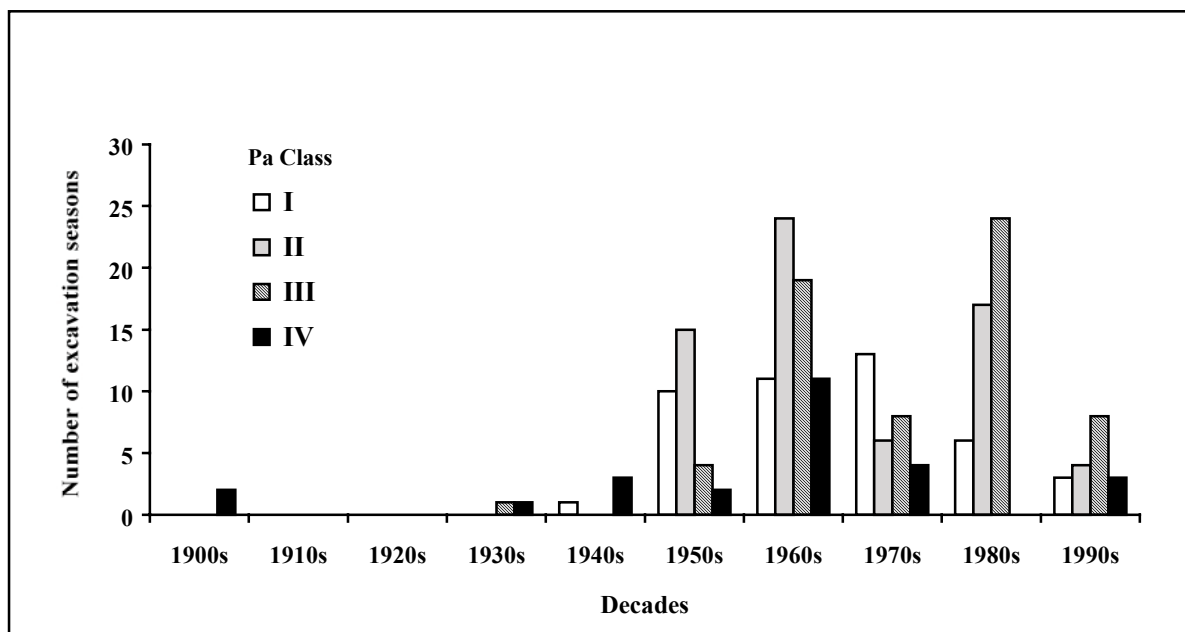


Figure 2. Trend in the number of *pa* excavation seasons in New Zealand archaeology per decade based on class of *pa* excavated.

Particular geographic regions have been a focus for the archaeological excavation of *pa*. Figure 3 illustrates the distribution of excavated *pa* in New Zealand archaeology derived through their site location numbers. Of the 115 excavated *pa*, 99 of these are in the North Island. These *pa* occur predominantly in upper half of the island with 83 being north of Taupo. Specific study areas have been at Pouto and Pouerua, the Auckland Region, the area from Thames to Tauranga in the Bay of Plenty, and around the Waikato lakes (Figure 3). Characteristic excavated *pa* in Pouto, Pouerua and the Thames/Bay of Plenty areas are the Class II and III. The Auckland Region has Class I as the major type of excavated *pa*, whereas the Waikato investigations

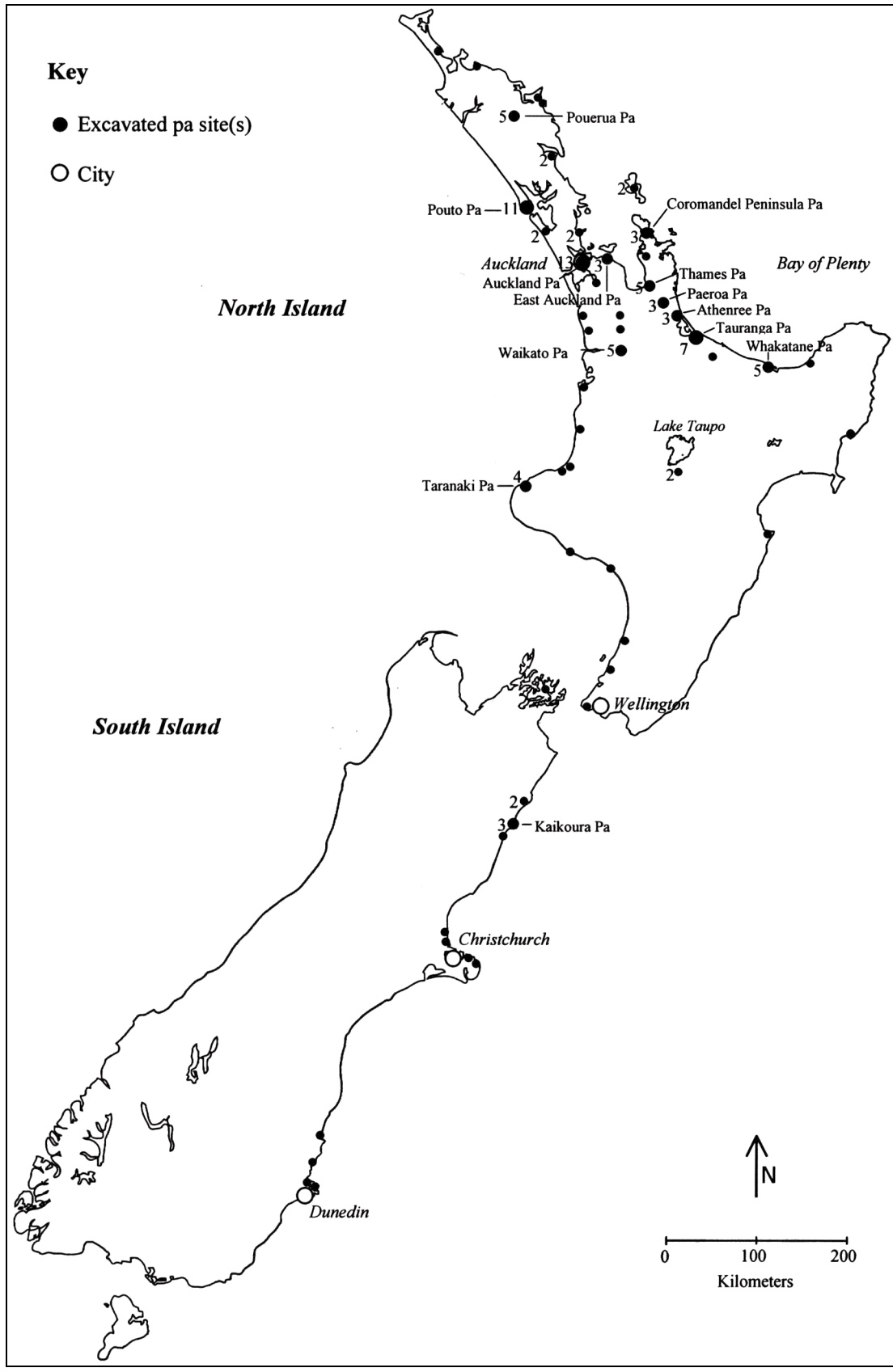


Figure 3. Distribution of excavated *pa* sites in New Zealand (value to left of dot indicates multiple *pa* excavated in that location).

concentrated on the Class IV *pa*. Though these foci of study may not reflect the dominant *pa* type in their respective areas, it could be argued that these areas do contain good excavation samples of the form of *pa* found in that region.

Pa excavation in the South Island has been distributed along the east coast with most *pa* being investigated in the Kaikoura and Christchurch region and in the Dunedin to Palmerston vicinity. As can be seen, only 15 of the 115 *pa* excavated in New Zealand are located in the South Island, thus constituting a small proportion (13%) of the total. All Classes of *pa*, however, have received almost an equal proportion of investigation, with five Class I *pa*, four Class II *pa*, three Class III *pa*, and three Class IV *pa* being excavated. An analysis of the available *pa* excavation literature provides an insight into what data is readily accessible on excavated *pa* in New Zealand archaeology. *Pa* excavation literature can be divided into two groups: published reports and unpublished reports (or grey literature). The *Pa Excavation Bibliography Database* contains 241 references which relate directly to the various *pa* sites which have been excavated in New Zealand. Table 4 and figure 4 illustrate the growth in published and unpublished reports on *pa* excavations during the decades of this century.

	1900s	1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s
Published	0	0	3	4	6	7	53	55	49	32
Unpublished	1	0	0	0	0	0	6	6	14	6
Total reports per decade	1	0	3	4	6	7	59	61	63	38
Total number of reports on excavated <i>pa</i> = 241 (consisting of 209 published and 32 unpublished reports)										

Table 4. Growth and decline in the number of published and unpublished reports on excavated *pa* in New Zealand archaeology during the decades of this century. Though the number of unpublished reports appears small in proportion to published through the decades, this probably does not reflect the true amount of unpublished literature which exists.

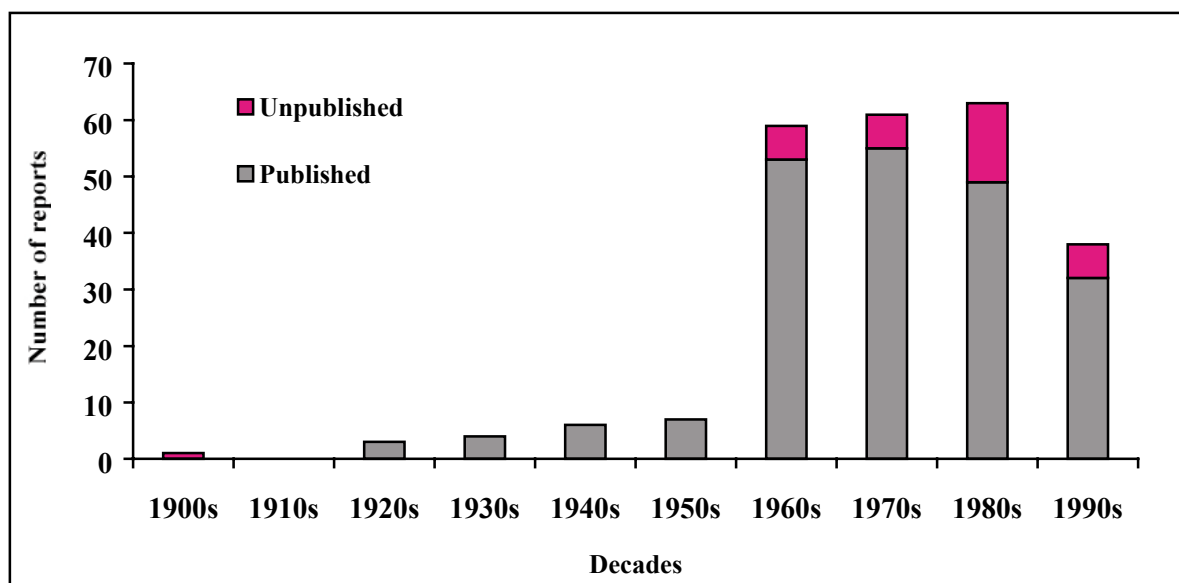


Figure 4. Trend in number of published and unpublished reports produced on excavated *pa* in New Zealand archaeology since the first recorded excavation by Harris *ca.* 1900.

It can be seen that with the explosion of *pa* excavation in the mid 1950s (Figure 1), there was a follow-on effect of a sudden surge in the reporting of these excavations in the 1960s (Figure 4). Although the number of *pa* excavations has fluctuated between the 1960s to the present, the various published reports on excavations has remained consistently high. The forum in which the majority of published reports on *pa* excavations have appeared has been through the New Zealand Archaeological Association's newsletter and monographs (39%) (Figure 5). The next most important single source of data on *pa* excavation has been *the Records of the Auckland Institute and Museum* (13%). Other refereed journals such as the *Journal of the Polynesian Society* (which dominates reports on *pa* excavations before 1955), *Records of the Canterbury Museum*, *Historical Review* and the *Journal of the Royal Society of New Zealand* all together make up 24% of the total number of published reports on excavated *pa*.

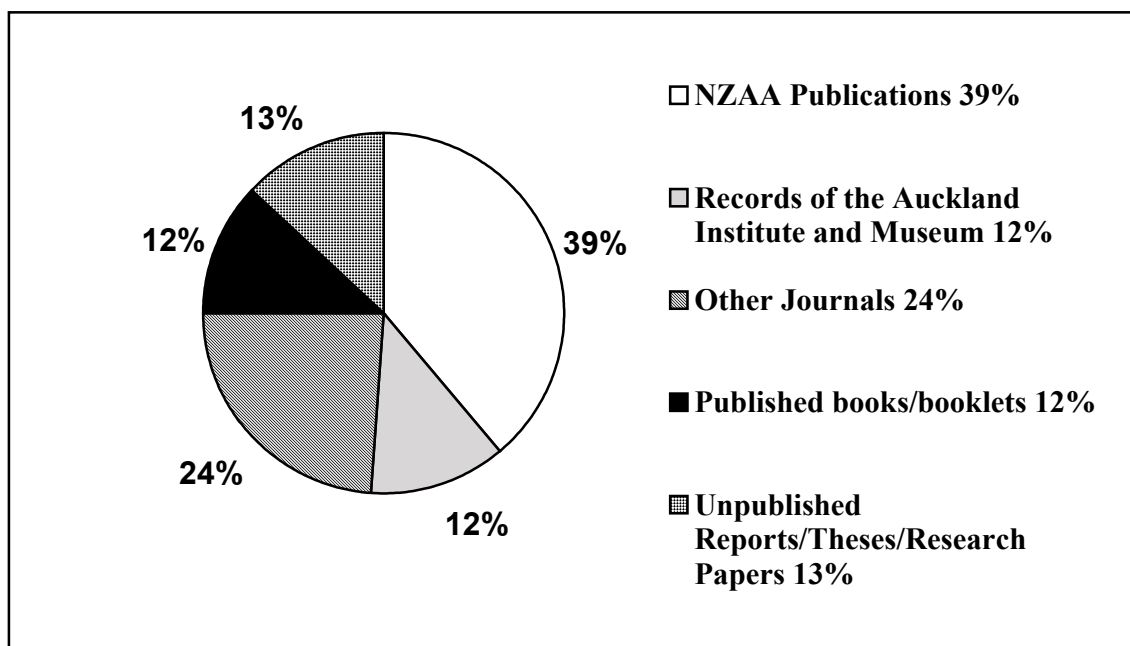


Figure 5. Pie chart showing where *pa* excavation reports have most often been published in New Zealand archaeology (NZAA publications include the New Zealand Archaeological Association Newsletter/Archaeology in New Zealand and the NZAA Monographs). Though the amount of unpublished literature appears small in proportion to published, this probably does not reflect the true amount of unpublished literature which exists.

The amount of unpublished or grey literature on *pa* excavation is probably underestimated in table 4 and figure 5 due to the difficulty of obtaining such material outside of theses and dissertations produced in the Universities. It appears, however, that many of the detailed reports on *pa* excavations during the late 1950s, 1960s and the early 1970s were published within five years of when the excavations were undertaken, and so the associated unpublished literature most often relates to additional information on the site gained from additional analysis of data at a later date. During the 1980s and 1990s, there has been a trend to publish a brief report on where and when an excavation has taken place incorporating a basic map and description of the site, but the detailed report of the investigation remaining unpublished and produced for research, legal or commercial reasons.

Discussion: a change in tactics

The literature associated with *pa* research in New Zealand archaeology not only reflects the rise and fall in the frequency of *pa* excavation through time, but also documents the changing aims

and strategies associated with the excavation of *pa*.

Before the 1955 surge of archaeological interest in *pa*, New Zealand archaeology had been dominated by the study of moa hunting sites with fieldwork concentrated in the South Island. The early excavations of *pa* were undertaken more in terms of their curiosity and artefact value, rather than being part of some aim of scientific research. Two examples of such excavations were Harris's investigation of a house pit at Waikakahi *ca.* 1900, and the salvage-like recovery of wooden artefacts from the Ngaroto site by Bourne in 1906. Harris carried out his excavation while he waited for horses to be changed on a stage coach he was taking to Christchurch (Brailsford 1981:154). The excavation took at most only a few hours with Harris concluding from his inquiry that the large pit he had excavated was once a pit house (Brailsford 1981:153).

The 'salvage' excavation at Ngaroto Swamp *pa* in the Waikato by R.W. Bourne recovered the famous Uenuku carving (displayed in the Te Awamutu Museum) along with other wooden artefacts such as spinning tops, pieces of canoe and wooden patu (Best and Anderson 1926:70; Schmidt 1993a). The site was revealed during the lowering of the lake through the unblocking of the outlet stream by local farmers earlier in the century. Palisades were also noted as surrounding the *pa* site, but were later destroyed by fire (Schmidt 1993a).

The early studies on *pa*, then, from the late nineteenth century to the close of the 1940s, were weighted almost entirely on the side of ethnography with little excavation having been done. Other than their value as a source of portable artefacts, *pa* were seldom viewed as part of the sociological workings of Maori culture, but more as representations of military prowess and architecture of a native people. This view of Maori *pa* was probably carried over from the way in which they were tackled as fortifications during the land wars of the nineteenth century and also from analogies with Iron Age forts in Britain (Firth 1927; Best 1927). Still, the early ethnographic works provided an initial archaeological approach or theoretical direction to the study of *pa*. This can be seen in Best's *The Pa Maori* (1927). Best not only considered ethnographic data, but also compiled a wealth of descriptive and mapped information on *pa* sites around New Zealand and made analogies with both Fijian and Tongan fortifications. This methodological approach was not taken up again until the sudden surge in the excavation of *pa* beginning in 1955.

Prior to this, *pa* were often excavated without research goals other than the general aim of gathering additional data to supplement the ethnographic record. For example, the 1930s saw the emergence of *pa* excavation by the early archaeologists more on an accidental level than from any research objective. This is indicated in the excavations of the Oruarangi and Paterangi sites near Thames at the base of the Coromandel Peninsula. These sites had long been known to be the centre of fossicking by local amateur 'archaeologists'. Many of the portable artefacts from the sites were purchased by the Auckland and Otago Museums from the fossickers, such as a Mr. H.S. Hovell, with few excavation data accompanying them (see Fisher 1934, 1935, 1936). The only recording of the excavations of Oruarangi and Paterangi (Grey's) *pa* was furnished by Teviotdale and Skinner in 1932, the investigations carried out more as salvage excavations than anything else due to the heavy fossicking of the sites at the time. Though Teviotdale was keen on obtaining stratigraphic information from the sites, the data gained was more of a general description of the *pa* structure and artefacts recovered. Teviotdale (1947:342) noted, when referring to the activities of Hovell, who had largely dug over Oruarangi before Teviotdale and Skinner arrived, "It is to be regretted that the site was not excavated by a scientific party rather than by a private collector, for much information could have been obtained, that, under the actual conditions of excavation, was inevitably lost."

One reason for the heavy fossicking of *pa* before 1955 (with little attempt at recording) lay in the accessibility of certain sites known to contain artefacts that could easily be 'dug over'. It was often the case that local farmers would allow access to such *pa* sites by the interested

parties without much hesitation. Permission was sometimes granted in exchange for the clearing of land. An example of this was at Oruarangi and Paterangi (Grey's) *pa* where Hovell was able to undertake his own 'excavations' subject to his clearing the land of its "sweet briar and blackberry bushes" for the owners (Teviotdale 1947:342).

Rolston's (1944, 1947, 1948) excavations at Mangaroa between 1942 and 1947 was another swamp *pa* site that also produced many artefacts. His excavations were one of the few well documented investigations before 1955. These excavations produced a great variety of artefacts, similar in content to those from Oruarangi and Paterangi *pa*. Recovered were greenstone chisels and adzes, a shell trumpet, grinders, pounders, wooden digging sticks, canoe prows, pieces of canoe, wooden bowls, adze hafts, spear points, human bones and many other items. Along with the descriptions of the artefacts, Rolston also recorded the lines of palisades and the structure of the site.

The Thames, Ngaroto and Mangaroa sites therefore illustrate how the emphasis in *pa* excavations before 1955 fell upon swamp *pa* (Class IV) due to these sites having many portable artefacts with wooden items often being recovered. Because of this overwhelming emphasis by archaeologists on the recovery of such artefacts, sites were chosen and excavated in line with this aim. This saw the literature associated with the excavations concentrating upon the artefacts with details of the stratigraphy being of secondary importance. Artefacts also had more of an aesthetic 'museum piece' value reflecting the activities of the pre-European Maori. Ideas on the origins and development of *pa* were thus based on minimal archaeological evidence from excavation, much of the discussion instead using analogies with similar fortifications in Polynesia and Britain.

The sudden surge in the excavation of *pa* in New Zealand in 1955 was due largely to the founding of the New Zealand Archaeological Association (NZAA) in 1954. It is from the Association's Newsletter and Monographs that 39% of all published reports on *pa* excavations this century derive, with the huge leap in formal publications on excavated *pa* in the 1960s directly due to the NZAA's quarterly newsletter.

The constitution of academic archaeology in the Universities and the creation of the NZAA saw the formal introduction of scientific approaches to archaeology in New Zealand. In 1953 the Anthropology Department of University College Auckland advertised for an archaeologist. This position was to be the first professional university position for an archaeologist in New Zealand and was taken up by Golson in 1954 (see Groube 1993:6-17). From here, Golson introduced a scientific methodology to New Zealand archaeology, his influences coming from the English archaeologists of Wheeler and Clark (see Golson 1986; Groube 1993:9). Golson was also influential in founding both the New Zealand Archaeological Association (becoming its first secretary) and the Archaeological Field Group (now the University of Auckland Archaeological Society) in 1954 (Groube 1993:10-11). From these organisations, Golson influenced the acceptance and use of his foreign scientific expertise (Groube 1993:10). This can be seen in the theme and topics discussed at the NZAA's first conference:

"The Natural Sciences and the Archaeologist: the contribution of the natural scientist to the interpretation of archaeological material. The subject will be broken down into three sections:-

- (a) Scientific aids to dating;
- (b) Scientific reconstruction of prehistoric climate and prehistoric landscapes;
- (c) Scientific investigation of the prehistoric economy.

The aim of the Conference will of course be to discuss these questions in relation to Maori and New Zealand prehistory." (Golson 1955:349).

Key archaeologists associated with the surge in *pa* excavation were Golson, Groube, Shawcross, Bellwood and Green whom, from 1955 to 1970, generated a rapid growth in the

systematic excavation of *pa* sites. The first of these was Golson's 1955 excavation of Stingray Point *pa* on Great Mercury Island. Though the excavation was undertaken in the fashion of the 'spade' excavators early this century, Golson did have an aim for his excavation which complimented his excavation technique. With volunteers from the New Zealand Archaeological Association, a 64 foot by 6 foot trench was dug across the *pa* to investigate the structure of both defences and pits (Golson 1955:349-351). *Pa* studies in archaeology were taking on a similar research perspective as what Best had done in his text *The Pa Maori*. Here many forms of data were combined to examine the role of *pa* in prehistoric Maori society, now archaeological excavation was playing a major part in the reconstructions.

From 1955 to 1970, identifying the time in which undefended sites became fortifications in New Zealand prehistory and thus the Archaic/Classic boundary became a topic of concern (see Schmidt 1996). The time of this change in settlement type was believed to be able to be seen through the recovered artefact assemblages and their associated stratigraphy and structures as illustrated in the excavations of Kauri Point and Ngaroto *pa* sites (Golson 1961; Shawcross 1968). In particular, Shawcross's (1968:5) discussion on the aims of the Ngaroto excavation emphasised how this site could help solve the chronological problems of Kauri Point *pa* and the Hauraki sites Oruarangi and Paterangi. He also believed that the Ngaroto site would possibly be as fruitful in artefacts as the Hauraki sites, but with their provenance being known (Shawcross 1968:5).

In conjunction with the emphasis on artefacts and their provenance was a distinctive methodology in excavation. This involved the systematic excavation of a series of squares (with intervening baulks eventually removed) creating a trench through and across the site. An important element of this technique was the identification of 'phases' introduced by Golson in 1959 (1959c:33). The site therefore produced a detailed stratigraphy with accurate provenance data of artefacts and the ability to see the changes in 'phases' of site occupation and construction over time. The excavations were a vertical exploration of the site with no real horizontal expansion, however, and it was often the more complex Class II and III *pa* from which phases of defence building were being sort.

The few horizontal excavations that were undertaken in the late 1950s and 1960s were predominantly from the South Island *pa* sites such as Pari-Whakatau by Duff, Bell and Fomison (Duff 1961), and *Pa Bay* by Thacker (1960). This was due to the shallow depth of these sites requiring horizontal excavation to derive a history of site formation, as well as Bell's interest in the Maori house site "as a cultural trait in Maori prehistoric research," (Duff 1961:269). Sarah's Gully and Tarata *pa* (excavated from 1958 to 1962) were the only North Island excavations which undertook horizontal investigations of the sites (Birks 1960; Smart 1962; Groube 1964), the next major areal excavation being by Bellwood (1978) at Mangakaware 2 in 1968. Other than these few examples, trench excavations were the norm during this time, even though Groube suggested in 1964 that to answer future questions on *pa*, area excavations should be carried out (Groube 1964:133,155).

In defining the Archaic/Classic boundary, *pa* became chronological markers and so non-portable artefacts distinctive of the transition of prehistoric Maori society from the Archaic/Moa Hunter Phase to the Classic Phase (though Groube (1964:150-155) saw complications in analysing *pa* as artefacts) (see Golson 1960:13; Shawcross 1968:24). The strategy for defining this boundary meant that research aimed at one site and its associated defences, features and artefacts, with this site then being incorporated into a larger regional archaeological model. This research strategy was unusual, considering that a settlement pattern approach was seen as being an important avenue for New Zealand prehistory. For example, Green (1967:125) believed that "...only the intensive type of survey of a local area, coupled with selected excavation, was likely to yield effective results in Polynesia at the present time." (see also Green and Shawcross 1962;

Green 1963, 1967; Groube 1964, 1965). The reason for the single site strategy was because two theoretical and methodological approaches were in conflict in explaining culture change in New Zealand prehistory.

At the same time the Archaic/Classic boundary was being debated (Shawcross 1968; Groube 1969), Golson was employing a cultural historical framework to explain culture change which depended heavily on the recovery of artefacts, while Green was more concerned with an "interlocking of ecology, subsistence and settlement to explain culture change" (Golson 1986:4), this often being directed by an evolutionary framework (see Golson 1959c, 1965, 1986; Green 1963, 1967; Green and Shawcross 1962). This debate resulted in the excavation of single sites only by archaeologists, each having their own research aims, and excavated *pa* were never really incorporated into a settlement pattern based model in a specified region.

Excavations were also overwhelmingly limited in the scope of forms of *pa* excavated and the geographic locations of the excavations. Not only were *pa* associated with ditch and bank features those predominantly researched, but the majority of excavations were carried out in the Thames to Tauranga region. It was in this vicinity that many archaeologists believed the Archaic/Classic boundary for New Zealand prehistory could be found.

In the 1970s the excavation of *pa* in New Zealand archaeology shifted from a single site approach to a settlement pattern based 'landscape archaeology' approach. It is during this decade that many *pa* were excavated in the Auckland region, with 12 of the 30 excavations in New Zealand taking place here. The terraced *pa* of the Auckland volcanic cones were the dominant form of *pa* investigated, the archaeologists Davidson, Sullivan, Bulmer, Fox and McKinlay directing much of the research. These excavations were distinctly horizontal in nature looking at the site structures and features. Portable artefacts were of secondary importance (and generally few in number anyway).

Although at this time there was a concentration upon the excavation of *pa* in one region, an overall analysis of *pa* and their settlement pattern seldom resulted. Exceptions are Fox's and Davidson's review of excavated *pa* in the Auckland Region, and Davidson's research on Motutapu which provided a general idea of changes in settlements over time (Fox 1977; Davidson 1972, 1978). Cassel's (1972) "Locational Analysis of Prehistoric Settlement in New Zealand" saw a discussion of the location of *pa* sites around Lake Ngaroto in relation to nine resource zones, but again the excavation evidence from the *pa* was limited, only one site having been excavated - Ngaroto (which had never received a final excavation report). Also lacking was a radiocarbon chronology for the sites in question so change in settlement over time could not really be investigated.

The only settlement pattern study undertaken during the 1970s which concentrated on a specified study area and involved the surveying, mapping, and extensive excavation of a number of sites, was the Wairarapa Archaeological Research Programme (Leach and Leach 1979). This project did not involve the excavation of *pa*, but can be viewed as paving the way for *pa* research in the following decade. An extensive amount of archaeological data from the excavations was collected which considered prehistoric economy, seasonality, technology, social relationships and settlement patterns. Together with this information was a radiocarbon chronology which reflected change in the settlements, people and resources over time. In short, even though the 'landscape archaeologists' of the 1970s recognised that settlement patterns was a future goal for *pa* research, this was not actually undertaken during this decade.

It is difficult to find an overall explanation for the dramatic decline of *pa* excavation during the 1970s. A rethinking of how *pa* should be approached archaeologically, as seen above, was probably only one reason for this occurrence. Other factors also appear to have affected the number of *pa* excavations. For example, a notable feature of the mid 1950s and 1960s

excavations is the use of volunteer labour from the New Zealand Archaeological Association and the Auckland Archaeological Society. Often in the literature of this time it is noted that either organisation took part in fieldwork, but during the early years of the 1970s, the assistance of both groups markedly reduces. Because of this, research on *pa* shifted from a more 'public' domain, seen in the role of volunteers from public organisations, to less public sectors such as the universities and the Historic Places Trust. The affect of these sectors saw access to archaeological sites more restricted than before due to the necessity of gaining permits, and an emphasised importance on obtaining permission from local Maori.

It would also seem that there were financial reasons behind the decline of *pa* excavation, as although there was a concentration upon the volcanic cones in Auckland, the activities in the Auckland region were due more to economic developments rather than to an overall research funded goal directed towards terraced *pa*. Many volcanic cones were under threat to quarrying or other destructive activities therefore requiring a somewhat 'rescue archaeology' approach to their study. It appears the only research funded excavation in this decade was Fox's study of Tiromoana *Pa* at Te Awanga which was extensively excavated and radiocarbon dated (Fox 1974, 1976a, 1978).

It was a combination of reasons, therefore, which brought about a slump in *pa* excavation in the 1970s. This culminated in *pa* research becoming mainly the domain of the university anthropology departments, the Trust, and other less public sectors, with many excavations being rescue orientated.

The 1980s saw a resurgence in *pa* studies with two research areas in particular being of most importance in the archaeological study of *pa* during this decade. The first of these was at Pouto under Geoff Irwin (1985) from 1981 to 1982, and secondly, the study of *pa* at Pouerua under the direction of Doug Sutton (1993) from 1983 to 1985. A characteristic of these projects was the study of *pa* on a regional scale which involved a specified study area containing many *pa* on which many horizontal excavations took place (recalling Greens 1967 settlement pattern strategy).

Irwin's (1985) study at Pouto was the first archaeological application of settlement pattern studies for *pa* in New Zealand archaeology. Though Buist (1964) had undertaken a similar study on Taranaki *pa*, this only involved the one excavation, that being of Kumara-Kaiamo *pa*. Irwin's work involved the mapping of twenty *pa*, the excavation of two *pa* and the test excavation of a further nine. This information was combined with data such as soil fertility, distance of *pa* to water, *pa* elevation and traditional evidence, with 12 of the 20 *pa* under study also being radiocarbon dated. What set Irwin's study aside from earlier investigations on *pa*, was that his research specifically considered a finite study area where all *pa* were researched as part of one project. Also, his excavations provided the stratigraphic and radiocarbon data required to investigate the time frame for settlement in the research area.

Following the same orientation as the Pouto project of Irwin, was the Pouerua Project directed by Sutton. The additional aspect that the Pouerua Project considered was the prehistory and settlement pattern of *kainga* (Sutton 1990). This provided the essential information making it possible to explore a move from the undefended settlement to fortification in the Pouerua area. *Pa* were mapped and surveyed with four excavations being undertaken. Extensive radiocarbon dating was also utilised totalling 50 dates to provide a refined chronology for the *pa*, in relation to dated *kainga*.

The 1980s therefore saw an emphasis on the regional study of settlement patterns of *pa* in a defined study area. This focus contributed to an increase in *pa* excavation and literature, and, as with the 1960s, the Class II and III *pa* were central to such research. Unfortunately, there was also a decrease in the amount of published literature on *pa* research, with 'grey' literature (ie

unpublished reports) increasing due to *pa* investigations becoming the domain of universities, the Trust, and later, the Department of Conservation.

Marshall (1987:27) neatly defined *pa* studies of the 1980s in New Zealand archaeology noting that "... *pa* as settlements approach is strongly in the ascendancy and "the problem of associated habitation" (Groube 1964:200) is being confronted". In explaining the role of the Pouerua Project she observed that "The close integration of detailed surface spatial data with the stratigraphic record is seen as the methodological key to a broader interpretation of Pouerua *Pa* and ultimately the area around it" (Marshall 1987:29). Indeed it is this approach that became the aim of the archaeology of *pa* in the late 1980s.

The 1990s has so far seen a continuation of the aims of *pa* research from the 1980s with regional studies investigating settlement patterns. The predominant methodology employed has also been similar with large horizontal excavations undertaken and all *pa* in the study area being surveyed and mapped. New techniques of data collection and analysis are now an integral part of *pa* research, such as the EDM (Electronic Distance Measurement) and GIS (Geographic Information Systems) where archaeological sites in a region can be mapped efficiently and quickly along with their surrounding topography, water systems and resources. *Pa* research still remains the domain of the universities, the Historic Places Trust and the Department of Conservation, but this research is now beginning to flow to the private business sector through the recommendations of the Resource Management Act (1991: Section 8) and Historic Places Trust Act (1993: Section 10) which require developers to be aware of archaeological sites. In the near future this may see *pa* research being increasingly fostered by the business community.

Conclusion

The foregoing review on *pa* excavation and its associated literature has illustrated the changing directions in *pa* research since the first excavation by Harris *ca.* 1900. *Pa* investigations before the 1950s saw a concentration on the ethnographic record to explain *pa* in Maori society. This ethnographic orientation was supplemented by a few amateur excavations. It was not until the establishment of academic archaeology in the universities (with the arrival of Golson) and the founding of one scientific body, the New Zealand Archaeological Association in 1954, that *pa* studies began to have both scientific and theoretical direction. This focus on properly conducted investigation saw *pa* excavation during the late 1950s and 1960s dramatically increase. A concentration at this time in defining the Archaic and Classic phases for New Zealand prehistory saw *pa* research become part of this debate, even though topics such as settlement patterns were seen as being important in understanding the role of *pa* in prehistoric Maori society. With these debates, methodologies concerning the excavation and analysis of archaeological evidence during this period, such as a change from vertical to horizontal excavation (Groube 1964:133,155) and the importance of midden analysis, greatly improved and became vital for *pa* research.

The 1970s experienced a marked decline in *pa* excavation for a variety of reasons, the main one being a rethinking of how *pa* should be approached archaeologically. The Wairarapa Archaeological Research project, though not involving the excavation of *pa*, paved the way for a new direction in archaeological field research for the following decade. With a new emphasis on settlement patterns, the 1980s saw an increase in *pa* excavation, as exemplified in the Pouto and Pouerua projects, where the regional approach undertaken at Palliser Bay was continued. The 1990s has continued the trend of *pa* excavation of the 1980s with a focus by archaeologists on a single research area, for example the Hauraki Plains, and a concern with settlement patterns. New techniques have also become important aspects of *pa* research such as the use of the EDM (Electronic Distance Measure), GIS (Geographic Information Systems) and conductivity equipment for detecting hidden occupation areas on sites.

Overall, with the changes in *pa* research in New Zealand archaeology, there has been a move from a 'public archaeology' atmosphere in *pa* excavations, which the early archaeologists up until the late 1960s were a part of, to less public sectors such as the universities, Historic Places Trust, Department of Conservation and now the private business sector. This has seen full access to information on *pa* sites more difficult to obtain today than it was for the early archaeologists, availability of data being mainly within the domain of the universities and Government bodies. There has also been a decrease in published reports on *pa* with much of the literature becoming 'grey literature' resulting in less public exposure on current *pa* research.

Once the various changes in *pa* excavation in New Zealand archaeology are recognised, it can be seen that *pa* research continues to develop as new theoretical and methodological approaches towards *pa* arise. These new approaches will not only refine our knowledge of the role of *pa* in prehistoric Maori society, but also add to our overall understanding of the prehistory of Polynesia in general.

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