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Abstract

There is a historical tension between archaeologically and traditionally informed Māori perspectives in the management of Māori archaeological heritage. A central concern is the extent to which past beliefs that Māori held about particular places can be examined by archaeological methods and therefore factored into archaeological assessments of sites. This research investigated the extent to which such beliefs can be archaeologically recognised in two of New Zealand’s most notable rock art localities. It proposed that the way Māori conceived of places may be archaeologically visible in the positioning of the marks they made. A multi-scalar examination of the archaeological context of the rock art localities involved re-evaluation of imagery and test excavations at rock shelters, and reviews of the surrounding archaeological, historical and land use histories. These provided an understanding of the formational processes that have resulted in the surviving archaeological record. This in turn provided the basis to assess the contexts of rock art and the extent to which spatial patterns of association indicative of past belief can be demonstrated as contributing to that formation. In a few cases where the spatial arrangements of rock art figures and other features did allow ancestral associations to be suggested and a ritual deposit to be recognised, these were considered in relation to insights of a traditional Māori view informed by ethnographic and ethnohistorical accounts. More generally, however, preservation issues at one or more of the different spatial scales confounded the demonstration of such patterns. Comparison between the Taupō and South Canterbury study areas demonstrate how those issues impact on the record, and how the application of current archaeological assessment practices are unlikely to provide the scope to scientifically demonstrate the role of belief in shaping that record. The tension arising from how archaeological method can factor belief into assessments of such Māori heritage places is likely, then, to remain unresolved.

Key words:

Māori, Rock art, Archaeological context, Heritage assessment, Opihi, Taupō.
Acknowledgements

_He mihi tuatahi ki a rātou kua wehe atu._ It is appropriate to first acknowledge those who have passed. The Taupō work was kindly assisted by Ngaire George and the warm hospitality of Florence Fletcher. Work with South Canterbury rock art over a number of years was encouraged, sometimes challenged, but always greeted with a smile by Jacko Reihana and Joe Waaka. _Koutou e ngā rangatira, moe mai rā. Te hunga mate ki a rātou. Ka huri ki te hunga ora._

Ngāti Te Kohera of Mokai Marae at Taupō, and Te Rūnanga o Arowhenua in South Canterbury gave _mana whenua_ approval to investigate their heritage places. Aspects were also approved by Ngāti Te Rangiita at Taupō and Te Rūnanga o Moeraki in North Otago. Landowner permission for Kakaho was generously given by Te Kohera Kakaho Trust and Keith and Kim Lane whose friendly support, interest and insights were invaluable. Similarly, Richard Gould allowed the work on his family farm at Opihi, supported also by the Ngāi Tahu Māori Rock Art Trust. The assistance of my friends and colleagues from the Trust – Brian Allingham, Yann Pierre Montelle, Julie Brown and Amanda Symon was ongoing throughout. The investigations at Kakaho built on the past work of my good friend Perry Fletcher whose generosity with his knowledge and time was overwhelming. He collaborated in the fieldwork on a daily basis, an experience also enriched by the participation of Timu Paerata and her whanau.

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_Ehara taku toa i te toa takitahi, engari he toa takitini_ - my achievement is not that of one person, but of many people. _Tēnā rā koutou katoa._

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<th>Definition</th>
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<tbody>
<tr>
<td>a.s.l.</td>
<td>above sea level</td>
</tr>
<tr>
<td>AMS</td>
<td>accelerator mass spectrometry radiocarbon dating</td>
</tr>
<tr>
<td>ED</td>
<td>Ecological District</td>
</tr>
<tr>
<td>FCR</td>
<td>Fire cracked rock</td>
</tr>
<tr>
<td>HNZPT</td>
<td>Heritage New Zealand Pouhere Taonga (formerly NZHPT)</td>
</tr>
<tr>
<td>IBP</td>
<td>Initial Burning Period</td>
</tr>
<tr>
<td>NLC</td>
<td>Native Land Court (now Māori Land Court)</td>
</tr>
<tr>
<td>NZAA</td>
<td>New Zealand Archaeological Association</td>
</tr>
<tr>
<td>NZAA SRS</td>
<td>NZAA Site Recording Scheme</td>
</tr>
<tr>
<td>NZHPT</td>
<td>New Zealand Historic Places Trust</td>
</tr>
<tr>
<td>pXRF</td>
<td>portable X-ray fluorescence</td>
</tr>
<tr>
<td>SIMRAP</td>
<td>South Island Maori Rock Art Project</td>
</tr>
<tr>
<td>SP21</td>
<td>SIMRAP Block 21</td>
</tr>
</tbody>
</table>
# Frequently Used Māori Words

<table>
<thead>
<tr>
<th>Māori Word</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>atua</td>
<td>gods</td>
</tr>
<tr>
<td>hapū</td>
<td>sub-tribe</td>
</tr>
<tr>
<td>iwi</td>
<td>tribe</td>
</tr>
<tr>
<td>kāinga</td>
<td>village, hamlet</td>
</tr>
<tr>
<td>kākahi</td>
<td>fresh-water mussel, <em>Hyridella menziesi</em></td>
</tr>
<tr>
<td>kākōwai</td>
<td>ochre</td>
</tr>
<tr>
<td>mahinga kai</td>
<td>resource area</td>
</tr>
<tr>
<td>mana</td>
<td>prestige, authority, control, status, spiritual power, a supernatural force in a person, place or object</td>
</tr>
<tr>
<td>mana whenua</td>
<td>Māori with traditional authority over an area</td>
</tr>
<tr>
<td>marae</td>
<td>ceremonial centre in Polynesia, usually a courtyard in front of meeting houses in New Zealand; modern Māori community centres.</td>
</tr>
<tr>
<td>mātauranga Māori</td>
<td>traditional Māori knowledge</td>
</tr>
<tr>
<td>maunga</td>
<td>mountain</td>
</tr>
<tr>
<td>maunga tapu</td>
<td>sacred mountain</td>
</tr>
<tr>
<td>mauri</td>
<td>life principle, vital essence, a material symbol of a life principle, the essential quality and vitality of a being or entity; a physical object, individual, ecosystem or social group in which this essence is located.</td>
</tr>
<tr>
<td>pā</td>
<td>fortified locality</td>
</tr>
<tr>
<td>pāua</td>
<td>abalone, <em>Haliotis iris</em></td>
</tr>
<tr>
<td>pou</td>
<td>post</td>
</tr>
<tr>
<td>rūnanga</td>
<td>local tribal forum, council</td>
</tr>
<tr>
<td>tā-moko</td>
<td>tattooing</td>
</tr>
<tr>
<td>taniwha</td>
<td>water spirit, monster, dangerous water creature</td>
</tr>
<tr>
<td>tapu</td>
<td>sacred, prohibited, restricted, set apart, forbidden, under protection of atua</td>
</tr>
<tr>
<td>Te Reo Māori</td>
<td>the Māori language</td>
</tr>
<tr>
<td>tī kōuka</td>
<td>NZ cabbage tree, <em>Cordyline australis</em></td>
</tr>
<tr>
<td>tikanga</td>
<td>lore; correct cultural practise</td>
</tr>
<tr>
<td>tikanga-ā-wāhi</td>
<td>lore and belief pertaining to a place</td>
</tr>
<tr>
<td>tiki</td>
<td>an image of a human form, anthropomorph</td>
</tr>
<tr>
<td>tohunga</td>
<td>skilled person, chosen expert, priest, healer</td>
</tr>
<tr>
<td>tūāhu</td>
<td>dedicated place of ritual</td>
</tr>
<tr>
<td>tupuna / tūpuna</td>
<td>ancestor/s</td>
</tr>
<tr>
<td>umu</td>
<td>earth oven</td>
</tr>
<tr>
<td>umu tī</td>
<td>oven for cooking tī kōuka</td>
</tr>
<tr>
<td>wāhi</td>
<td>place, location</td>
</tr>
<tr>
<td>wairua</td>
<td>spirit</td>
</tr>
<tr>
<td>waka</td>
<td>canoe; supra-tribal descent groups based on migration canoes</td>
</tr>
<tr>
<td>weka</td>
<td>NZ Woodhen, <em>Gallirallus australis</em></td>
</tr>
<tr>
<td>whakapapa</td>
<td>genealogy</td>
</tr>
<tr>
<td>whare</td>
<td>house</td>
</tr>
</tbody>
</table>
Chapter 1 Introduction

Māori land-based and built heritage is vitally important to the future of Māori communities... The histories and events which took place at sites of significance to our communities are embedded in those places and our relationships to them. They are sources of identity, of culture, of tikanga, of values, and worldview. Māori Heritage Council (New Zealand Historic Places Trust 2009:2)

1.1 Kaupapa - Research Purpose

The importance of Māori heritage to indigenous identity and cultural well-being is well recognised (e.g., NZHPT 2009:2). Different initiatives over recent decades have sought to address the negative impact of the separation of Māori communities from aspects of their cultural heritage (e.g., Harris 2014:468, 485-6). Opportunities created for Māori to engage in cultural heritage programmes are often positively framed as pathways to enriching community experience (e.g., NZHPT 2009:17), iwi (tribes) have become influential participants in modern heritage management (Walton and O’Keefe 2004:277) and archaeological programmes relating to Māori heritage typically engage with the local communities in some way (O’Regan 2010:236). Recent developments in New Zealand heritage legislation address the need to minimise the sense of further loss by restoring to Māori some authority regarding aspects of their cultural heritage. The 2006 amendments to the Protected Objects Act 1975 (previously the Antiquities Act 1975) increased the ability of Māori communities to have direct management of newly found artefacts and provided an avenue for them to pursue outright ownership. With regard to place based heritage, the Heritage New Zealand Pouhere Taonga Act 2014 specifically sought to advance Māori interests by requiring all applications for authority to damage Māori archaeological sites to be referred to the Māori Heritage Council. It also provided for increased opportunity for Māori to record and register places of ancestral significance, in addition to those categorised as tapu or ‘sacred’. Notwithstanding some successes for iwi among these developments, a tension persists in management of Māori heritage places.

The values Māori associate with heritage places encompass a range of attributes, many of them ‘spiritual’ relating to traditions and beliefs (NZHPT 2009:8-9, 14; see Mead 2003:67-70). The legislative provisions allow these to be recorded and advocated for. In contrast, archaeological values have a privileged position and places with those are protected outright from purposeful
disturbance. The utility of the archaeological provisions in protecting the ‘intangible’ attributes – and so the whole - of a heritage place is not, however, straightforward. Attention to Māori ritual in archaeology is mostly concerned with the socio-political aspect of ritual rather than symbolic meaning or beliefs (Crosby 2004:108). This likely results from archaeological consideration of Māori ritual having focused, other than for burials, on built features like whare (houses), kāinga (homes, villages) and pā (‘fortifications’), and things or activities centred about those places (Crosby 2004, Davidson 1984:171-7). However, a great deal of Māori life occurred beyond such abodes. A question arises as to whether past Māori beliefs can be archaeologically investigated at a wider range of places, perhaps where the socio-political aspects of ritual were not so predominant.

Most Māori rock art is located away from pā and villages. Elsewhere in the world “ancient images offer a direct record, made by ancient people themselves, of the world they understood themselves to inhabit” (Chippindale 2010:99-100). Drawing these two observations together, I ask whether investigating Māori rock art sites may advance archaeological recognition of beliefs of places in such a way that it can be used for management evaluations of Māori heritage places. Four main threads are investigated:

- Why is it important to use archaeology to investigate past beliefs associated with Māori heritage sites?
- Why does addressing beliefs improve archaeological interpretations of those places?
- Do Māori rock art sites provide a useful data set for archaeologically examining belief in wider Māori landscapes?
- Are there methodological tools available to pursue such investigations?

This chapter considers the first two questions. The third is addressed in Chapter 2, a review of issues in Māori rock art, and in Chapter 3 which considers examples from studies of other Polynesian islands and studying rock art in its context. The fourth is addressed in Chapter 4 which outlines the method to be employed.

The term tikanga-ā-wāhi is used to describe the knowledge and lore that shapes how places are thought about and how this influences behaviour at them (tikanga, correct procedure and lore; wāhi, place). It encompasses the beliefs past Māori held of a place including those related to its spiritual attributes and ancestral connections to it. This is not a traditional phrase. It is employed here following consultation with Te Reo Māori experts.
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1.2 Community Relevancy: Māori Heritage Aspirations and Archaeology

Why is it important for New Zealand communities to use archaeology to help develop appreciations of tikanga-ā-wāhi? The Māori Heritage Council of the New Zealand Historic Places Trust (NZHPT) considered that the modern recognition Māori have of their heritage places connects with and continues beliefs about the places that are shared with past generations (NZHPT 2009:8, 9). Creation traditions shared across Polynesia suggest that the ancestors of Māori arrived in New Zealand with a perception of a natural world embedded with spiritual forces (Taonui 2006:25). At the time of European arrival Māori conceived of a landscape of natural features and resource values entangled with spiritual, ancestral and genealogical significance (e.g., Best 1995a and b). Throughout the Māori settlement of New Zealand life was managed around ideas of mana (status, authority, spiritual power), tapu (sacred, protected by gods), and a belief framework that governed Māori behaviour. Scholars have long recognised that things and places considered tapu were, and often still are, either avoided or treated with great respect (e.g., Beattie 1990:96, Best 1995a:274, Firth 1972:246, Metge 1976:59). While a significant component of Māori heritage sites are places with physical remains and therefore ‘archaeological sites’, Māori are also concerned with the spiritual attributes of those places which “[t]hrough the actions of the ancestors… embody their mana, mauri and wairua, irrespective of the physical evidence which survives” (NZHPT 2009:15).

The Government has acknowledged this in strengthening the role of Māori input into the recognition and protection of heritage places under the Heritage New Zealand Pouhere Taonga Act 2014. Updated from the Historic Places Act 1993, the legislation is concerned with the protection of ‘historic places’, these being land (including archaeological sites), buildings or structures, or combinations of these that “forms a part of the historical and cultural heritage of New Zealand” (HZNZPT Act 2014 s6). It defines and provides for three categories of site of particular interest to Māori:

- **Archaeological sites** are places associated with human activity before 1900 that can provide through investigation by archaeological methods, evidence relating to the history of New Zealand.

- **Wāhi tapu** are places sacred to Māori in the traditional, spiritual, religious, ritual, or mythological sense.

- **Wāhi tupuna** are places important to Māori for their ancestral significance and associated cultural and traditional values.

(HNZPT Act 2014 s6. Paraphrased, emphasis added).
The new Act has introduced ‘wāhi tupuna’ – a place for which an ancestral connection is emphasised – which can now be registered as well as wāhi tapu. Registration of wāhi tapu continues to provide Māori communities an opportunity to be consulted and advocate their perspectives in local governmental approvals of land developments that impact on those places. What hasn’t changed is the privileged protection afforded to archaeological sites. Only these have outright protection from unauthorised disturbance, and that applies irrespective of whether the sites are recorded or not (HNZPT Act 2014 s42).

Pishief’s (2012) examination of New Zealand’s archaeological and Māori heritage practices attributes the privileged protection given archaeological sites to the emergence of an archaeology dominated ‘authorised heritage discourse’ (after Smith 2006). Governmental action on archaeological sites tracks back to the early 1900’s from when scholastic interests promoted inclusion of historic features in scenic reserves. Advocacy by professional archaeologists, especially from the 1960’s resulted in the introduction of legislated protection for archaeological sites in 1975. The provisions of the legislation were shaped by archaeologists interested in archaeological information and, notwithstanding three governmental reviews, these have remained little changed in definition or scope as a result of continued advocacy by archaeologists (Pishief 2012:64-71, Walton and O’Keefe 2004, Allen 1998:11).

Within the authorised heritage discourse the promotion of technical expertise and a concern for objective professionalism sees archaeologists become the community’s arbitrators of the significance of archaeological heritage (see Pishief 2012:12, see also Allen 1998:36). Pishief (2012:82) considers that since 1975 the implementation of the archaeological provisions have been conducted largely within the frame of processual archaeology with its ‘scientific’ stance. An argument is made that the archaeological provisions do not in themselves protect Māori heritage places from damage, but rather facilitate the protection of potential scientifically valuable archaeological information (Pishief 2012:71, 3, 9; also Allen 1998:11, 36-8). Walton and O’Keefe (2004:276-7) note that despite criticism from Māori, this is what the provisions were designed to do and they also provide opportunities for Māori input into decisions. In effect, though, Māori cultural values and interest in the intangible aspects of the physical heritage places are set as matters for consultation and are subordinate to archaeological values (Allen 1998:41; Pishief 2012:75-6, 78-9). Māori may advocate for the protection of registered wāhi tapu through local government processes, but Māori heritage places without archaeological value are not automatically protected by the legislation.

It is understandable therefore that “Māori communities often look to archaeology to support the conservation and management of Māori heritage values” (NZHPT 2009:15, see also Pishief
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2012:168, 74 for examples). The amended Act reinforces Māori community input into permissions to modify or destroy archaeological sites by requiring both Māori Heritage Council approval for such actions and that relevant archaeologists have an ability to recognise Māori values with access to cultural support. However, these provisions are only relevant where archaeological values are recognised. The Act’s definition of archaeological sites emphasises the potential of archaeological methods. As with earlier interpretations (Allen 1998:36, 38), this is taken to mean that archaeological sites are places with physical evidence of past human activity (HNZPT 2015a:3).

Those places that do have the requisite physical evidence are initially protected from purposeful damage, but only within limits. The legislative review aimed to balance the protection of heritage with the land-use interests of property owners (HNZPT 2015a:4). Heritage New Zealand’s policy states: “Any conditions required by an archaeological authority are proportionate to the effects on the historical and cultural heritage values as well as the potential information of the archaeological site that will be modified or destroyed” (HNZPT 2015a:17, bold formatting in the original removed, emphasis added).

Consultation meetings with Māori on the draft archaeology policy further stated that a philosophy in developing authority conditions is that “[t]hey must relate specifically to the archaeological work and archaeological values of the site” (HNZPT, electronic presentation circulated to meeting attendees 25 February 2015). In responses to submissions on the draft it was further stated that the Act only applies to “physical archaeological evidence” (HNZPT 2015b:25). This suggests ‘intangible’ values that can be directly related to physical remains, such as the tihi (summit) of a pā or burials, should be factored into decisions. However spiritual values attached to the locality or wider setting, but which do not in the opinion of archaeologists pertain to physical remains are unlikely to be included.

The Māori Heritage Council wishes “to ensure that knowledge of the whakapapa, kōrero, and matauranga Māori surrounding such places sits alongside scientific assessments when heritage management decisions are being made” (NZHPT 2009:15). However, the most effective contribution to heritage management occurs when linkages to the archaeological values can be established. If tikanga-ā-wāhi contributed to the formation of archaeological sites, then that should be relevant to the significance attributed - usually by archaeologists - to that tangible evidence. Extending an archaeological appreciation of tikanga-ā-wāhi, it is important to ensure that both:

• evaluations of archaeological significance that inform decisions about protecting or destroying sites are comprehensive; and,
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• the protective potential of the legislation can be better applied to a range of places where archaeology has so far been less successful at looking at Māori beliefs attached to places.

However, to date New Zealand archaeology has had a limited linkage with the ‘intangible’, especially for places beyond pā, kāinga, whare and burials. If there are to be archaeological examinations of tikanga-ā-wāhi of places in general, approaches are required to investigate a wider array of locations other than large settlement structures. At question is whether the character of the New Zealand archaeological record is amenable to the development of such approaches.

1.3 Historical Attitude to ‘Belief’ in New Zealand Archaeology

The spiritual attributes of places are usually discussed by archaeologists under the headings of ritual (e.g., in New Zealand, Crosby 2004; Davidson 1984:171-7), ideology, cult, and religion, although these terms are often used inconsistently (Owoc 2008, Whitley 2008, Insoll 2005:45). Reviews of the archaeology of religion suggest that it is only in the last two decades that archaeology has sought to address religious and spiritual belief (Fogelin 2007:55; Insoll 2004a and b, 2011:1; Owoc 2008:1922; Whitley 2008:547; Whitley and Hays-Gilpin 2008:12). As with Insoll (2005), Whitley (2008:547, 562) attributes this to previous biases and resulting difficulties that limited processual archaeology from exploring religion in prehistoric societies and non-Western societies. This includes ‘epiphenomenalism’ where religion is seen as secondary to or derivative of other forces, for example the control of economic resources or social relations (Insoll 2005:47, Whitley 2008:550). There is also a bias derived from a Western scientific background where religious beliefs are held to be irrational and, so, more intractable analytically (Insoll 2005:47-8; Whitley 2008:550). Also implicated is acceptance of Hawkes’ (1954) ‘ladder of inferential difficulty’. Here diet, technology and economy are placed lower down the ladder and are therefore easier to reconstruct, while further up the ladder, religion and ideology are the most difficult, contributing to a view that prehistoric religion is usually archaeologically invisible (Insoll 2005:46; Whitley 2008:550).

Until the 1980s, these views were also held in New Zealand. For example, an NZHPT volume (Wilson 1987) aimed at advancing public understanding of archaeological heritage saw archaeology and tradition as equipped to illuminate different aspects of life. Archaeology’s role was the revelation of day-to-day life, which includes aspects of social organisation and religious activity but it was unable to reveal much about the spiritual component (Wilson 1987:11). Davidson considered that more would be learned about ritual from ethnography than
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Beyond ethnographic analogy and without the monuments found elsewhere in East Polynesia, pre-European Māori ritual would remain largely unknown (Davidson 1984:171).

There have, however, been shifts in attitude to the archaeological visibility of ritual and religion. Some archaeologists recognise that religion and belief provide the context for action. Whitley (2008:551) considers religion to be a cognitive phenomenon that is expressed in human behaviour that is archaeologically visible in the remains of ritual, religious architecture, art and iconography. Insoll (2004a:13) makes a similar point noting that many elements of life beyond sacred sites and burials can be archaeologically recognised as structured by religion. Further, if the influence of religion on past communities is not examined, the questions asked about past cultures and resulting interpretations will always be incomplete (Insoll 2004a:22). Insoll sees the emergence of a holistic archaeology of religion in which “it can be considered the superstructure into which all other aspects of life can potentially be placed” (Insoll 2005:48). To Aldenderfer, while the material manifestations of ritual may be considered more archaeologically accessible, it must be kept in mind that they show “religion in action” (Aldenderfer 2011:24).

Fogelin (2007:59-60) attributes this idea of religion having an expansive influence across daily life as resulting from the rejection of a sacred and profane dichotomy whilst maintaining a structural understanding of religion. He considers that most archaeologists have approached the subject from either a structural or practice theory perspective (Fogelin 2007). The former gives primacy to religion as underlying religious principles and mythology that is enacted through ritual. This focuses on the symbolic aspects of ritual that are assumed to be conservatively maintained and, so, often informed by ethnohistorical insights. Archaeologists employing practice theory or experiential approaches, on the other hand, give primacy to ritual acts, and they are attentive to how the actions and experiences of participants are manifest in the material remains. The meanings of symbols are recognised as being subject to change in different contexts, so emphasising a dynamic and malleable aspect to ritual and its shaping of social order and ideology. Notwithstanding these core theoretical differences there is, however, a widely recognised dialectic existing between ritual and religion: “aspects of one are necessarily related to aspects of the other. Ritual elements can be used to infer belief systems, just as knowledge of the mythology of a particular society can be used to investigate its rituals” (Fogelin 2007:56). Fogelin considers that archaeological research typically draws insights from both structural and practice orientated approaches rather than a strict adherence to one or the other. “Given the dialectical nature of religion and ritual and the fragmentary evidence of ancient ritual, blended approaches are both necessary and successful” (Fogelin 2007:66). It is because religion is at the juncture of social, cognitive and behavioural domains, single theoretical perspectives cannot be
expected to discern the meaning of religion to the lives of people in the past (Aldenderfer 2011:25).

Rainbird’s (2011) review of the archaeology of ritual and religion in Oceania considers the topic to be in its infancy and largely incidental to other lines of inquiry in Melanesia and Micronesia, but having received more direct attention in Polynesia where stone-built temples in particular have been investigated in relation to social organisation. The main archaeological signatures of ritual and religion are mortuary remains and/or constructed features of standings stones, shrines, temples or monumental earthworks. Rainbird’s discussion of ritual in New Zealand focuses on a local debate about whether pā were principally defensive fortifications or were constructed through ritualised processes and therefore should be considered monumental, perhaps inscribing the landscape with mana. If the latter, pā are the otherwise absent monumental marae features (ceremonial centres) found elsewhere in Polynesia, but such classification may obscure a significant divergence from a general East Polynesian pattern (Rainbird 2011:514-5).

Drawing from rich ethnohistorical observations, ethnography and traditional knowledge is a feature of the research conducted in Oceania. “The use of an ‘ethnographic archaeology’ has integrated the rich archaeological remains with past and living history to provide insights not possible by maintaining disciplinary boundaries” (Rainbird 2011:515; see Anderson 2014a:70 for a similar comment). The potential of rock art for recognising and understanding ritual landscapes on Pacific Islands is acknowledged, but considered to be underdeveloped (Rainbird 2011:515). It is argued here (Chapter 2), that research using rock art and employing such a dual approach is more established than Rainbird credits, particularly in Hawaii and Rapanui. It is, however, certainly less recognised than the mortuary and more monumental signatures of ritual and religion.

In New Zealand the shift in recognising archaeological indications of belief is evident in a comparison of Davidson’s (1984) discussion of ritual in Māori archaeology, and that of Crosby (2004) twenty years later. In the 1980s, Davidson’s discussion was largely limited to burial customs, Shawcross’ (1976) evidence of the ritual disposals of combs and obsidian at Kauri Point Pa, a possible ritual pool on the Coromandel (Law 1966), a few examples of ritual deposits in pā and house construction and some house design elements (Prickett 1979).

By 2004, Crosby was able to discuss a much wider range of studies, many published post-1980, addressing how ritual and belief may have factored in aspects of material culture (especially art related to whare) (e.g., Neich 2001), whare and pā design and settlement layout (e.g., Allen 1996; Barber 1996; Fox 1976; Marshall 1987a; Prickett 1982; Sewell 1984; Sutton 1990, 1991),
the production and procurement of economic resources and use for feasting, exchanges and display (e.g., Anderson 1995; Law 2000; Leach 1984; Leach and Boocock 1994; Marshall 1987b) and mortuary remains (Davidson 1984). Crosby (2004:105) considered the archaeology of ritual and symbolic behaviour in New Zealand as a relatively young endeavour with its birth in Prickett’s (1982) analysis of how the symbolism of house forms was intertwined with social behaviour. Combined with Sutton’s (1990, 1991) papers, Prickett provided a platform for the archaeology of ritual in New Zealand that: recognised it as a key element in everyday social and political life and an integral component of all aspects of the prehistoric record, used ethnographic analogy to construct archaeologically testable models, and discriminated society and social process from belief or meaning (Crosby 2004:107). Arising from these points are some issues of particular relevance to this thesis.

1.3.1 The Use of Ethnographic Analogy in Considering Past Belief

In New Zealand the temporal limits to which ethnographic analogy can be projected is approached cautiously (Crosby 2004:106-7, Davidson 1984:171). This reflects general concerns in archaeology about the inferential strength of different kinds of ethnographic analogy especially where cultural change is known to have occurred (for example, Davidson 1984 on tapu and burial practice), different aspects of culture possibly having changed at different rates, or where there is uncertainty of a direct descent link between the ethnographically observed community and earlier communities responsible for the archaeological deposit studied (Whitley 2008:555-558; 2005:104-107).

While these are all issues relevant to New Zealand ‘prehistory’, there are also local factors that encourage the prudent application of the ethnographic analogy locally. There is sufficient commonality across Polynesian religions for Kirch and Green (2001) to explore ritual and belief in their phylogenetic reconstruction of an Ancestral Polynesia culture. Mana, in which the power of the gods are manifest in the human world, and its ritual transformation through the polar states of tapu and noa, are well recognised as underpinning concepts common across Polynesia (Shore 1989:164). There is a characteristic Polynesian worldview in oral traditions that share key characters and recurring place names. Both customary lore and that defining the natural world emanate from the creation and demigod traditions that draw genealogical connections from atua (the gods), through famous demi-god culture heroes such as Maui the fisher of land and Rata the canoe builder, and onwards through migratory traditions to the tribal present (Taonui 2006). There is little doubt that Polynesian cosmology, mythology and concepts such as mana, tapu, and noa (unrestricted) were brought to New Zealand with the first settlers.
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(Davidson 1984:171). Especially given the short chronology of New Zealand prehistory, ethnographically known Māori spiritual concepts that share commonalities with other East Polynesian ideas give a basis for the concepts held by earlier period Māori, and their influence may therefore be considered to have prevailed throughout the Māori settlement of New Zealand.

1.3.2 Ritual as an Integral Component of all Aspects of the Prehistoric Record

That belief, religion and ritual were intertwined in all aspects of social life in traditional communities is widely acknowledged (e.g., Aldenderfer 2011:24, Owoc 2008:1924, Whitley 2008:552). Bradley (2005) argues that rather than being characterised as mundane or secular, domestic activity is inseparable from ritualistic behaviour with the former having given rise to all levels of the latter. Insoll approaches the subject from the other end of the structure-agency debate (Fogelin 2007). Insoll (2004a:12-13, 22-23, 116) suggests that religion should not be regarded as a separate category of life, but rather as part of the context in which all other activity occurred. Although the extent of personal belief would have varied between individuals, the religion of the community would still have structured behaviour and the material results (Insoll 2004a:13). Both perspectives discard simplistic categorisation within a sacred: mundane dichotomy.

Crosby observes that Māori needed to instil the ancestors (and presumably ancestral atua) into social, political and economic moments of significance, and then remove them to continue with everyday life (2004:122). This was no less significant regardless of whether the rituals were on a grand scale, such as creating monumental works and hosting large feasts, or part of more mundane aspects of life and minor social gatherings. This observation shows that the intensity of the spirituality Māori attached to places differed over time (e.g., Mead 2003:65), further discouraging mundane/sacred categorisation, and suggests that evidence of what might appear to be mundane and ritual activity at the same place and time should be expected. Further, a regard for aspects of religious belief at some level should be expected to have in some way influenced even the most mundane activity that occurred at a place.

1.3.3 Ritual as Society and Social Process versus Belief or Meaning

With the exception of mortuary remains, the archaeological study of Māori ritual has centred on pā and kāinga, and settlement features and activities within those. It has also had a greater analytical emphasis on social order than on symbolic meaning (Crosby 2004:108). Insoll (2004b:3) considers that all rituals sat within a ‘thick’ context, the former existence of which should be acknowledged even if it is not always retrievable. A question therefore arises whether
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tikanga-ā-wāhi can be investigated at a wider range of places than just pā and kāinga, perhaps at places where that belief and symbolic meaning is less likely to be masked by the socio-political and economic functions of ritual. If religion and belief are part of the context for action, and that materially influences the archaeological record at those places, then we should develop the means to investigate that. Looking beyond pā and kāinga takes us to the places where Māori rock art is more commonly found.

Crosby’s review does not discuss Māori rock art, presumably as it had not been shown to be associated with ritual at the time he wrote. In contrast, Rainbird (2011:515) does consider rock art an avenue for understanding ritual landscapes on Pacific islands. If applied to New Zealand, this suggests that investigating some of the 700 or so places marked with rock art could provide an avenue for extending archaeological study of tikanga-ā-wāhi beyond the immediate bounds of settlement features.

1.3.4 Māori Rock Art as a Spatial Referent for Belief

Most rock art of traditional non-Western cultures was associated with some form of ritual and belief (Whitley 2011:23,131-2). Many studies have related the symbolism of rock art to the symbolism and meaning past peoples associated with the places they marked (Whitley 2011:153). This is based on ethnographic information relating to interpretations of the figures, the setting, and/or attributions of significance to the locality given the presence of rock art itself.

It is ethnographically well-known that Māori recognised places as having different spiritual attributes, so the influence of tapu on behaviour would also have been spatially variable. This may be reflected in how rock art features within a landscape, the selective placement of rock art figures and responses to those. If so, the variable positioning of rock art may then act as a spatial referent for the variability of the beliefs about the places. However, caution is required to avoid simply equating the presence of a rock art figure to its location as having been a more significant spot compared to surrounding unmarked places. Rather, as an immovable class of archaeological material (Chippindale and Nash 2004:1), it provides the means to study relationships between cultural and natural features at various scales. It is through recognition of both linkages and contrasts in spatial associations between features, including the rock art that past beliefs are potentially made archaeologically visible. By examining how Māori rock art and its localities are placed in the landscape and associations between features with them, this study investigates the processes by which those places came to be and the extent to which particular aspects of tikanga-ā-wāhi can be demonstrated as contributing to those.
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1.4 Thesis Framework

The research kaupapa (purpose, agenda) is to investigate if archaeological recognition of tikanga-ā-wāhi can be developed in a way that such beliefs are able to be considered in archaeological management evaluations of localities. If so, this may contribute to the potential of the archaeological provisions of heritage legislation to address a more holistic set of heritage values than has been the case to date. The kaupapa is approached by investigating Māori rock art localities.

In focusing on how rock art is situated in relation to a variety of cultural and natural features, and what in those relationships may be indicative of tikanga-ā-wāhi, this study adopts a contextual approach to addressing the research question. Issues in the current knowledge of Māori rock art heritage relevant to this are considered in Chapter 2. These include archaeological uncertainty of its spatial distribution and antiquity, as well as what is known of the traditional spiritual significance it had to Māori. Traditional accounts are few and the major interpretations of rock art in New Zealand occurred before the 1980’s when other archaeological perspectives on the nature of evidence were still prevailing. Counter arguments to those have usually been founded on loose analogy. This has resulted in a dichotomy of essentialist assertions as to the character of Māori rock art that remains unresolved and constrains consideration of how it may or may not relate to the beliefs Māori had of places. Chapter 3 reviews more recent research on how rock art features in the archaeological record of related Polynesian cultures. This shows that examining the wider archaeological context with an appreciation of a Polynesian worldview has proved useful in exploring aspects of past beliefs associated with those places, as has integrating observations made across various spatial scales. These have tended to avoid the more impressionistic interpretations based on essentialist categories that have constrained interpretation of Māori rock art to date and suggest a similar approach may be fruitful locally.

Arsenault’s (2004a:80, 2015) contextual approach that draws on insights from how Indigenous peoples may have thought about and designated their landscape is outlined. It is relevant to the New Zealand case as it encourages the use of ethnographic and ethnohistorical insights to extend the interpretative possibilities when considering how the spiritual concepts may have influenced behaviour and, so, be archaeologically visible. This respects the heritage and traditional knowledge surrounding those places that the Māori Heritage Council wishes to see integrated in archaeological assessments.

The research method adopted for implementing the contextual approach is outlined in Chapter 4. It is based on a ‘millimetre up to kilometre’ multi-scalar framework as discussed by Chippindale.
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(2004) that promotes a seamless treatment of rock art as part of the archaeological record. Consideration of different potential associations and contributing processes encouraged by a multi-scalar approach is particularly relevant in the New Zealand case given current uncertainty of a number of aspects of Māori rock art sites.

The seeds of this study were presented in O’Regan (2007) investigating ‘wāhi tapu and rock art’ at two rock art shelters in North Otago. The ‘intra-site’ distribution of figures within each was analysed against a series of distributional patterns that were considered to indicate that the makers of the rock art had a regard for the concepts of tapu in selecting how they chose to mark the shelters. This thesis builds on the earlier study by also examining the wider context of rock art sites at an ‘inter-site’ level within two study areas, as well as intra-site examinations of selected localities. The results of the investigations are arranged as three different sets of data for each study area. First, an overview of the environmental, tribal and land use histories is compiled which provides the wider context and setting for the archaeological excavations. The archaeological investigations, for clarity of discussion, are presented separately as examinations of firstly the distribution of archaeological features, ground deposits and taphonomy of those; and, secondly, the character, placement and survival of rock art within each study area. The regional and historic context for the Kakaho study area near Lake Taupō in the Central North Island is provided in Chapter 5; the excavations of archaeological sites at Kakaho are detailed in Chapter 6; and the examination of the rock art there, in Chapter 7. The same considerations of the South Island study at Opihi in South Canterbury follow in Chapters 8 to 10.

The results of these investigations include observations enabled by comparison of sites within and between study areas. An important feature of the discussion is the characterisation of the archaeological remains, including the rock art, and recognition of preservation issues. These are considered in Chapter 11 leading to the conclusion that elements of belief are recognisable in some examinations of rock art sites, but not consistently so. Uncertainty of the nature and extent of variability that exists in Māori rock art heritage combines with preservation issues across the spatial scales to constrain recognition of patterns and associations that might otherwise have the potential to indicate aspects of tikanga-ā-wāhi. Observations of tikanga-ā-wāhi across places marked with Māori rock art are generally beyond the standards of ‘scientific’ evidence anticipated in the implementation of New Zealand’s legislated archaeological protections. It is argued that part of the tension between Māori and archaeological perspectives in considering tikanga-ā-wāhi in the management of Māori heritage places relates to expectations of how that scientific evidence is recognised given issues with the preservation of archaeological contexts.
Chapter 2 Issues in Contextualising Māori Rock Art

After Taçon and Chippindale (1998) ‘informed’ approaches to rock art research draw insights from ethnographic, ethnohistorical or other ‘insider’ information, and ‘formal methods’ analyse the material attributes of rock art images and their landscape and archaeological contexts. The emic informed approaches are often orientated towards symbolic meaning or religious significance, whereas the etic formal approaches tend to bring questions of social function into focus (Whitley 2011:101). However, aspects of both approaches are often employed in research initiatives (Whitley 2011:101), and the demarcation between the two is often blurred as researchers have sought to contextualise the rock art (McDonald and Veth 2012:5).

For 120 years Māori rock art has received the attention of scholars from New Zealand’s leading heritage institutions. It has been surveyed, recorded and interpreted. Although there are few traditions surviving about the rock art, there is a substantial wealth of ethnographic and ethnohistorical information of traditional Māori lifeways, including the belief systems. At a glance it might appear that Māori rock art research could draw strength from both informed and formal studies, however compared to other aspects of Māori archaeology and artistic heritage, rock art places are poorly understood. Articulating the context of Māori rock art and tikanga-ā-wāhi within that, is not straightforward.

This chapter introduces current knowledge surrounding Māori rock art heritage with a focus on issues that influence an understanding of it contexts. Among the constraints on formal approaches are uncertainties in the distribution of rock art and its relationship to surroundings, as well as limitations in both the substance and ready access to current documentation (section 2.1). Informed approaches are partly constrained by a paucity of direct traditional knowledge surviving about rock art places (section 2.2). This has given scope for differing attributions of the cultural significance rock art places had to Māori, and so how those places should be archaeologically characterised (section 2.3). An issue clouding the historical discussions is uncertainty of the antiquity of different parts of the rock art record, and whether rock art practices were punctuated or continuous until the post-European period (section 2.4).

2.1 Current Understanding of Māori Rock Art Heritage

Europeans first noted Māori rock art in the North Island in 1838 and in the South Island in 1852. Since then, over 700 sites have been found spread across the length and breadth of New Zealand
(Figure 2.1). The known distribution has changed little since that outlined by Trotter and McCulloch (1981:17, 42), but additional sites found within already known rock art areas has created uncertainty as to the full extent of this heritage.

2.1.1 South Island Distribution

Rock art sites are recorded across the whole South Island. The major concentrations are in the downlands and river valleys of South Canterbury and North Otago. Coastal sites are found in Fiordland and North Otago (e.g., Allingham 1991), however most rock art localities are distant from the archaeological or ethno-historically known major coastal settlements. Most known rock art is located in shelters in limestone outcrops which continue to be the main focus of survey attention. It is thought to have been only rarely applied to the inland Otago schist shelters which thus far exhibit limited evidence of Māori occupation (Hamel 2001:58-59). However, a
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... few previous finds of pictographs on greywacke and schist have been augmented with recent finds on inland schist (Allingham, pers. comm. July 2015). The main areas of schist in the South Island have not been systematically surveyed for rock art, so its extent in those areas is unknown. The predominant association with inland limestone may partly be due to survey bias.

In 1990 the South Island Māori Rock Art Project (SIMRAP) was initiated to resurvey and document known rock art areas. An increase of up to 300% in the number of sites in SIMRAP’s pilot study areas highlighted limitations of previous surveys and the project is ongoing under the management of the Ngāi Tahu Māori Rock Art Trust (Allingham 1991, np; O’Regan 2003:6-7). Current survey resources afford opportunities to find and record further rock art figures in known sites and other localities previously missed. Meanwhile some previously recorded figures and sites have degraded beyond recognition. Consequently variance is usual between the previous records and sites in the South Island known today which currently tally at about 600 (Symon, pers. comm. September 2014).

2.1.2 North Island Distribution

Where 30 rock art sites were recorded in North Island in 1981 (Trotter and McCulloch 1981:41), a recent review of records lists four times as many (n = 127) spread from the Far North to southern Hawkes Bay (Pick 2010:77). The majority are found across the middle of the island from Coromandel and the Bay of Plenty west to Waikato and Taranaki coasts. The uneven distribution across the island may reflect the availability of geological features fit for the purpose, and/or historic survey bias (Pick 2010:86; Trotter and McCulloch 1981:40).

Dispersed finds across the North Island hint that at least some appropriate surfaces can be found throughout. Anderson (1990:6-7) notes that there is an apparent correlation between petroglyphs and the softer siltstones and consolidated volcanic ashes across the central North Island, but that such correlations with appropriate rock surfaces do not explain the apparent absence of figures in the limestone shelters in the east of the island. An alternative explanation may be a relationship with cultural boundaries with North Island rock art found mostly in areas where Western Māori dialects are spoken (Anderson 1990:7). However, limitations in the North Island survey data are well recognised (e.g., Trotter and McCulloch 1981:39-40). For example, Bain (1986:173) considered the few recorded pictographs in the North Island were insufficient for developing stylistic chronologies in lieu of non-destructive techniques, and that the problem will remain unresolved until the North Island has been systematically surveyed.

Areas about Taupō and southern Waikato have been surveyed over the last 30 years by Fletcher resulting in a ‘regional cluster’ in the Taupō Volcanic Zone that now accounts for over half...
(61%) of all North Island sites (Pick 2010:83; Law 2008:57). Another regional cluster in Taranaki was surveyed by Day and accounts for 15% of the listed sites (Pick 2010:83, 100). Other parts of the North Island have had a great deal of archaeological attention, but not necessarily by people experienced in the recognition of rock art (cf. Pick 2010:86).

2.1.3 Technique and Content

Pictographs were produced with charcoal/soot or ochre based pigments. There are examples of both red and black paintings, but dry pigment application – ‘drawings’ - appear more common, especially in the South Island. A ‘white’ colour was produced on limestone by abrading the surface. Petroglyph production ranged from fine incision to bolder pecking or grinding, often used in combination. Shallow relief is not unusual in the North Island, but deep relief is rare and restricted to a few central North Island examples. The different manufacturing techniques were employed in both the main islands but in noticeably different proportions. About half the known North Island sites contain petroglyphs, a third have paintings, but only a few are known to have both (Pick 2010:138). Black figures are rare, with most paintings being in ochre. In the South Island petroglyphs are very rare; bi- and multi-chrome pictographs are not uncommon; monochrome pictographs are the norm; and of those the vast majority were executed in black.

Recognisable subject matter in South Island rock art includes representational figures principally of humans, mythical creatures, dogs, fish, and birds – some now extinct. Abstract designs are common and lines often appear to connect different figures. A variety of stylistic characteristics are evident within the South Island, the variation in which Fomison (2014) attributed to different periods based on superimposition (see 2.1.4 below). Bain (1982, 1985) argued that regional differences in rock art motifs on either side of the Waitaki River demonstrated territoriality between South Canterbury and North Otago with diminishing stylistic differences reflecting late pre-European change in the social organisation. However, Holdaway (1984:209-18) found neither the temporal nor territorial explanations for the variation were substantiated: Bain’s based on treatment of data, including a possibility that the variability noted may be as great within the districts as between them; and Fomison’s given the few demonstrations of actual pigment superimposition, and possible alternative explanations, such as ritual processes or compositional use of superimposition rather than temporal styles. At question were the causes of the ‘stylistic’ variation rather than its existence. Hamel also proposed an alternative explanation whereby innovations of gifted individual artists may have been imitated in place by later contributors giving rise to localised ‘artistic traditions’ rather than reflecting “the mores of local cultures” (Hamel 2001:60). Nonetheless, Bain’s proposition that variation reflects different
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communities and territoriality has continued to be reiterated (e.g., Anderson 2009:37, 2014a:87-89).

Post-European figures include horses, ships and writing in missionary taught block letters and copperplate script that appear in the same shelters and often on the same panels as apparently older rock art. Fomison considered these the final phase in a continuous traditional Māori rock art practice. This was dismissed by Trotter and McCulloch (1981:73) who viewed the post-European figures as a different practice from traditional rock art, and instead recognised a broad general style across the expanse of pre-European South Island drawings suggesting they were produced by artists with a common cultural background.

North Island shelters have fewer examples of animals or full human bodies. Instead the subject matter features facial representations similar to late period wood carving and dugout canoes also typical of the late period. Red ‘daubs’ are common in the central North Island. Given their apparent lack of form, the extent to which these are deemed ‘markers’ rather than ‘rock art’ is questioned by researchers (e.g., Trotter and McCulloch 1981:41; see also Pick 2010:52). This, however, presumes differing functions for elaborate figures and ochre daubs, and neglects the variability among the latter. The daubs exist as individual marks, grouped in concentrated patterns, and spread extensively across shelters. Some have also been placed in conjunction with figurative pictographs and petroglyphs. Petroglyphs of spirals, either individual or forming complex patterns on freestanding boulders are found on the Coromandel and inland at Lake Taupō, but are a particular feature of the west coast of the North Island.

Previous accounts of New Zealand rock art have emphasised differences in subject, style and technique between the North and South Island, however that separation appears to reflect a historically repeated bias developed when there was a very limited understanding of the corpus of North Island sites (Pick 2010:146). Examples common to both islands occur. For example pictographs of a taniwha (water monster), waka (canoes) and abstracts in a limestone shelter in the King Country (Ells 1998:58-60) would not be out of place among South Island shelters, while a carved spiral at Teanarakih, North Otago (O’Regan 2003:3), appears more typical of the central North Island than the surrounding southern pictographs. Examples of probable canoe figures are known from the South Island (e.g., Anderson 2014a:91), animal pictographs common in the south were also found at Waipapa on the Waikato (Davis and Ambrose 1957:19), and red daubs are found in both islands. The stylistic, subject and technical differences between North and South Island rock art are now better considered as proportional rather than absolute.
Compared to the South Island, rock art within the North Island has been considered to exhibit more diverse localised styles (Trotter and McCulloch 1981:45). However, based on an analysis of the manufacture technique and consideration of motif use, Pick (2010:148) argues that the localised differences are an over-generalisation. Although not island wide, regional clusters in coastal Taranaki and Taupō exhibit internal homogeneity comparable to that argued to exist across the South Island (Pick 2010:148). This questions the real extent of the historically asserted inter-island differences, but Pick’s analysis was constrained to broad categories of motif and had little opportunity to consider wider factors such as the nature of the localities and their surrounds. The current records for rock art in the North Island do not consistently provide sufficient detail for such an analysis (Pick 2010:148-9; Williams and Tupara 2000 regarding Taupō area). Information on South Island rock art is better developed in line with SIMRAP’s archival and site management focus. This has not yet progressed to the point of forming a database of: (a) the numbers of individual figures or distinguished marking events within sites; (b) the kinds of techniques and motifs represented; and (c) characterisations of the shelters and their surrounds. Given the above, the conditions for robust analyses based on motif form and style are not yet available within New Zealand rock art research.

2.1.4 State of Documentation

Many previous New Zealand rock art records are dispersed or lack the consistent detail needed for comparative analysis in and between regions. There is minimal demonstration of the formal characteristics of Māori rock art in the NZAA records and other historic literature. Fomison’s rock art tracing programme resulted in much of the detailed recording of the major concentration in South Canterbury. He noted, however, that a total record was not practicable and he had to be selective with a focus on examples that supported the stylistic chronology he was developing (Fomison 1961:19). Bain’s (1985:40) comparison of her own tracing efforts to those of earlier recorders showed the subjectivity inherent in that recording practice. Further, these kinds of flat graphic records of cultural markings do not provide for the subtlety of observations that comes with first-hand survey experience and revisiting of localities (Nash and Chippindale 2002:3-4).

Analytical material has not been readily accessible to researchers, especially those beyond New Zealand. Modern research that has involved new field recording and primary analysis remains unpublished (e.g., Allingham’s and Montelle’s SIMRAP volumes; Fletcher’s central North Island surveys, O’Regan 2007). Most recent published archaeological accounts of Māori rock art are limited to discussions of individual sites, or general descriptions of the heritage and its state of preservation (e.g., Law 2008:56-58, O’Regan 2003, Hamel 2001:58-61, Challis 1995:40-
Against this background, general commentaries on Māori rock art reconsider previous arguments drawing on the same limited data. This results in impressionistic interpretations rather than empirically demonstrated arguments (e.g., Anderson 1990; Challis 1995:46; Davidson 1984:214-6; Dunn 1972; Paama-Pengelly 2010:58-9; 1988; Thompson 1989).

As was the situation 25 years ago (Anderson 1990:10), rock art in New Zealand is still not sufficiently documented, or where documented not yet catalogued so that persisting questions of its distributions, varied character and relationships to other types of cultural and natural features can be broadly addressed. In particular these relate to how exclusively or ubiquitously particular aspects are distributed across various landscapes and, so, whether Māori rock art exhibits cultural commonality or discontinuity. At issue is the extent to which ethnographic analogy or comparative approaches may be employed to investigate the traditional significance that can be attributed to Māori rock art and the places it marks.

2.2 Ethnographic Insights

From the outset of scholastic enquiry there was a paucity of traditional knowledge on rock art in New Zealand. Some researchers took this to indicate that the art had a deep antiquity (Trotter and McCulloch 1981:63). A few Māori accounts that attributed the rock art to earlier generations seemed to support this. For example, Mantell was advised that the original South Island rock art was the work of Ngāti Mamoe - advice later taken to suggest an ‘earlier tribe’ (Anderson 1988). Beattie (1918:148-9, 155) was advised black figures were the work of Waitaha, the first people of the South Island, and red figures were created by later Ngāti Mamoe.

Various historical attributions have related different colours and styles of rock art to all the iwi that occupied the eastern South Island at different times. However, the character of southern Māori history does not reflect a successive replacement of one tribal culture by another (see Chapter 8). The attributions Māori informants made of rock art to different iwi may not be indicative of the era in which the particular rock art was made.

Knowledgeable in southern Māori traditional life ways, Henare Te Maire recollected how the travelling party he was with would not sleep in a cave upon discovering it was extensively marked with rock art (Beattie 1918:156). This supports Beattie’s (1918:156) observation that modern Māori generally avoided rock sites, so implying they were wāhi tapu. In contrast Stack (1877:55) interpreted charcoal drawings added by recent Māori eeling parties to the Noah’s Ark shelter as showing that past superstitions about the older paintings had been overcome. However, the over-marking might have instead sought to ritually protect against perceived
danger from the earlier paintings or greet the ancestors of the place (Anderson 1988). Where Te Maire’s account is one of avoidance of rock art sites, Stack observed engagement. Instead of being contradictory, these two accounts may illustrate a common concern for *tapu* associated with the places, and the different behavioural responses might reflect the social context of the different people present and activities involved.

North Island rock art is thought to be late so discontinuity between the artists and people today is not perceived as an issue. Rather, its evaluation tends to have been coloured by comparison with ornate wood carving and other traditional art works for which there are rich ethnographic insights. Neich (1993) argued that the usually crude rendering of petroglyphs showed they were not within an established and honoured tradition. His assertion that later period North Island Māori “never considered rock art as part of the repertoire of valued arts” (Neich 1993:22) does not cite any traditional testimony to that effect, but nor was there an authoritative Māori voice to counter it.

Positions such as Neich’s do not account for the wider context in which the significance of rock art may relate to place. For example, charcoal figures on a less than permanent surface did not detract from the oral account of Tupaia and his local hosts drawing at Cooks Cove. Arguably adding to figures already present (Bain 1986), at least some of the drawings were reported by Māori as created in a culturally loaded social context - a first encounter in generations between those people and a learned Tahitian, and in the presence of one of the first experiences of Europeans. This is a rare example of a specific local tradition of people involved in marking. Where other such accounts exist, they tend to be treated with scepticism. For example, Ngāti Tahu used the Rua Hoata shelter and knew of the petroglyphs there, but Phillipps (1947:337-8) dismisses a local tradition that the figures counted canoes on the Waikato River during an episode of war since the carvings appeared to be made at various times.

A passage written in Te Reo Māori that outlines the meaning of rock art was published in a newspaper by Simmons (1992). It stated carvings on wood related to ancestral genealogy whereas rock art informed of useful foods resources. His interpretation drew primarily from the work of Ettie Rout and was validated by his own advisors (Simmons, pers. comm. November 2013). Rout’s (2003 [facsimile, original 1926]) work on Māori symbolism and the credibility of her Māori informant was dismissed by the editors of the *Journal of the Polynesian Society* (1926) (see also Law 2008:26). Similarly, the traditional authority of Simmons’ own informants are widely questioned (e.g., O’Regan 2014:20, Kaeppler 1989:229). The passage is not widely accepted as reliably informed traditional knowledge of northern Māori rock art. Nor is what Thompson (1989:9) suggests is surviving traditional knowledge on southern Māori rock art. His
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sources are treated with considerable scepticism among southern Māori scholars investigating traditional histories. In absence of a rich traditional history forthcoming from Māori voices with recognised authority, the interpretation of New Zealand rock art has been the domain of Western scholars and learned amateur researchers.

2.3 Traditional Significance in Māori Rock Art

Haast (1877) related North Canterbury figures to mystic symbolism of tropical Asian derivation. His attempts to see altars and invest mystic meaning into pictographs was critiqued by Augustus Hamilton (1896:170). Rejecting symbolic interpretation that was not specifically informed or logically inferred from independent fact, he instead saw southern rock art as ‘scribbles’ created without special purpose, yet informative of the maker’s art, customs and possibly religious belief (1896:171-2). Comparing the central North Island Kaingaroa canoe petroglyphs to South Island pictographs, Harold Hamilton paraphrased the debate as being between “assigned mystic meanings and signification” and deeming the figures “the idle play of idle people, forgotten as soon as done” (Hamilton 1925:361-2).

When Archey (1927) reported figures of late period waka taua (war canoes) at Arapuni the journal editors reminded readers that there was no evidence that the pictographs were anything more than an idle pastime. Phillipps (1947:338) came to the opposite conclusion of canoe figures at Ruia Hoata further up the Waikato River. He also published notes on the petroglyphs from the North Island west coast, some with traditions as boundary markers (Phillipps 1948). Best (1927) had earlier reported accounts of rites having been conducted at carved rocks in Taranaki, showing the rocks themselves were tapu although whether the petroglyphs had any symbolic meaning was unknown.

Skinner considered similarities between headless anthropomorphs in Moriori dendroglyphs and Māori pictographs, and taniwha images as demonstrating an ancient memory of tropical crocodiles (Trotter and McCulloch 1981:13). Both observations implied the pictures were shaped by aspects of religious belief. Firth viewed petroglyphs in a ‘dwelling-pit’ on Korekore Pā, West Auckland to be the work of a skilled practitioner, probably have had symbolical meaning and were certainly not made to while away the time (Firth 1925:17).

Trotter and McCulloch (1981:6-19) provide a more in-depth account of the various historic investigators, several of whom were local historians and enthusiasts. The brief examples above show that in the first half of the 20th century Māori rock art was within the scope of New Zealand’s leading archaeological and ethnological scholars and heritage institutions, however it
remained on the periphery of their interests in other Māori art, material culture and history. A shift occurred from 1947 when the Government engaged Schoon, an artist, to survey and make painted copies of South Island rock art. From his experience in South Island shelters, Schoon considered the figures to be the work of artist-priests, and the “products of a dream life… [that] arise out of a religious concept which centred around a spirit-bearing world” (Schoon 1947:6). The shelters are New Zealand’s oldest art galleries housing the “frozen music in which the very soul of the mythopoetic Polynesian has been crystallised” (Schoon 1947:7). He was accompanied in part by Duff, who in contrast saw the Māori impulse to create rock art akin to a modern vandal creating graffiti (Duff 1950:10), the result probably being the “time-filling scribbles of storm-stayed travellers” (Duff 1950:7). He considered southern Māori rock art to be casual, comparing its variation from Classic Māori art of the North Island to ‘doodling’ (Duff 1956:273).

Duff’s perspective did not detract from his concern for the protection and investigation of the rock art through his involvement with Canterbury Museum and the NZ Historic Places Trust. In 1958 he joined Auckland art students Davis and Ambrose in recording and salvage excavations of sites about to be inundated by hydro development in the upper Waitaki River. Davis and Ambrose (1957) had done the same for the similar fated Waipapa site on the Waikato River where they considered the locality and shape of the shelter, and the overpainting of pictographs with red daubs probably indicated a magical significance.

From 1959 Fomison, another art student and archaeology enthusiast was engaged to survey sites in Canterbury and make recommendations for public access and protective fencing (Fomison and Fyfe 2014:48). His work extended to tracing many figures in the shelters. Until SIMRAP, Fomison’s field notes have remained the base archaeological record in some areas. He also brought to wider attention Schoon’s practice of retouching figures with modern crayon (Fomison 1987). In a posthumous publication, Fomison outlined a stylistic chronology spanning the whole of Māori occupation. He viewed some figures as representing ancestor veneration (Fomison and Fyfe 2014:66-7, 85) and regarded the numerous difficult-to-access rock art locations offering no shelter as specialised sites visited specifically for the purpose of rock art and associated ritual (Fomison and Fyfe 2014:59). Up until that time Fomison’s work was a rare example of drawing on detailed recording across a large number of sites.

Trotter accompanied Duff in the Upper Waitaki salvage and later conducted excavations and survey in North Otago during the 1960’s. McCulloch conducted similar field work in North Canterbury. They joined in producing *Prehistoric Rock Art of New Zealand* (1971), the first comprehensive coverage of the subject which sought to place Māori rock art in its contexts. The
second edition (1981) had only minor updates and remains the standard archaeologically informed text (Fomison and Fyfe 2014:50). Trotter and McCulloch’s conclusions were diametrically opposed to Fomison’s. They examined whether proposed theories and explanations could be reasonably accepted. This highlighted weakness in various past interpretations, but in rejecting those as insecure, the counterpoints were adopted by default. In other words ‘cannot be demonstrated’ became ‘it must be something else’.

Variability in localised style and subject, along with proximity to pā and kāinga seemed indicative of the North Island rock art belonging to territorially established communities of the late period. It was therefore a separate development from the South Island drawings which they related to logistic mobility associated with early period moa and bush bird hunting (Trotter and McCulloch 1981:83).

Trotter and McCulloch’s major conclusions with regard to southern Māori rock art can be summarised as follows:

- As the drawings look as much like those from other parts of the World as they do other Polynesian rock art, they can’t be shown to be from a common Polynesian origin, so they are a local innovation.

- Some shelters showed evidence of early occupation and moa hunting, but the demise of moa and early forest clearances made the inland localities inhospitable to later generations of Māori, so rock art production must have preceded that.

- Post-European Māori drawings and writing are so different in style and subject matter that they reflect a changed worldview, so they cannot be considered traditional Māori rock art, which negates evidence for continuity in rock art practice after moa hunting, so a hiatus in marking must have occurred.

- Having found evidence of domestic activity resulting from hunting but none recognised as ritual, rock art was incidental to hunting and the product of a pleasurable pastime.

Trotter and McCulloch adhered to this schema restating key conclusions through to the end of the century (1997:46-47, 1989:46-47). Their conclusions were not, however, without contention (e.g., Fomison 1982).

Fomison (1980) argued that as Māori art was traditionally too sacred for casual use the rock art should be regarded as having spiritual attributes similar to other Māori art forms. Similarly Fyfe (1989) argued that Taranaki coastal petroglyphs should be considered within a larger artistic
framework in common with the highly ritualised tā-moko (tattooing) and whakairo (wood carving). A traditional account exists of one rock with petroglyphs personified as an ancestor and treated in the same way as representations of ancestors carved in wood (Day 1980, Fomison 1980). While the pecked stones of Taranaki have been explained as boundary markers, places of divination or battle sites, they need not have been individually or collectively restricted to one function but provided information about the relationships people have with the localities or their neighbours (Prickett 1981).

The widely recognised association of the colour red with tapu in Māori culture has been considered a factor in the use of ochre for rock markings. Holdaway (1984:217-21) argues that superimposition of black figures with red ones in southern Māori rock art can be better explained by ideological motives rather than geographic or temporal styles. Kreuzer and Dunn (1982:210) combine the use of the colour red and lizard imagery often associated with burials to infer links between rock art and rites and superstitions. As with the ritual associations attributed to red daubs at Waipapa (Davis and Ambrose 1957:19), placing ochre superimpositions on a canoe pictograph in Tupaia’s cave possibly sought protection from tapu associated with the image or added mana to it (Bain 1986:171).

Challis (1995:46) posits that rock surfaces appropriate for displaying ideas may have attracted people to the South Canterbury shelters and that a pattern of visitation for the purpose of drawing and associated activities is consistent with the archaeological evidence. A desire to convey important and powerful ideas may be implied in South Island rock art by the choice to follow conventions in subject and style in favour of more representational images (Anderson 1988). A third possibility is that the rock drawings are “expression of deeper structural relationships in the ancient Māori world” (Anderson 1990:10). O’Regan’s (2007) spatial analysis of two elaborately marked North Otago shelters argued that the avoidably close proximity of figures created at different times shows a respectful connection to pre-existing images or marked spaces. This suggests a concern for tapu was a factor in the choice of rock art placement, regardless of the reason figures were created. It is uncertain, though, if the observations can be generalised to other shelters. Recently Paama-Pengelly’s (2010:22-23) review of traditional Māori design related some rock art imagery to symbolic religious meanings, although neither the rationale nor the source for such attributions is made explicit.

Since the Prehistoric Rock Art of New Zealand (Trotter and McCulloch 1981), most observations either support or at least accommodate the prospect that Māori rock art had some aspect of religious belief associated with it. While the rationale underpinning Trotter and McCulloch’s
'pleasurable pastime' conclusions may have been contested, alternative explanations have not yet themselves been substantiated by analysis of rock art site data.

2.4 Antiquity of Māori Rock Art

The context to which rock art is related is influenced by ideas of its antiquity. Worldwide rock art research has historically been restricted by temporal ambiguity but developments in rock art dating have started to overcome this (Steelman and Rowe 2012:566). These are only just beginning to be used in New Zealand (see Chapter 10). Local interpretations of antiquity have tended to track back to either Fomison (Fomison and Fyfe 2014) or Trotter and McCulloch (1981).

Trotter and McCulloch (1981:71-3) saw South Island rock art as a local innovation limited to the early period of Māori occupation, followed by a hiatus of some centuries, and post-European drawing and writing as a separate development by later people. The counter arguments are the practice of rock art arrived in New Zealand with Polynesian land fall (e.g., Fomison and Fyfe 2014:60), and that it was continuous until the Colonial period (e.g., Fomison and Fyfe 2014, Anderson 1990:9; 1988:np).

Fomison’s stylistic chronology of southern rock art is based on the principle of superimposition. The two ‘early’ stages started with an art practice common to other Polynesians and some design aspects are comparable to Māori artefacts attributed to early occupation. The next stages he considered contemporaneous with ‘classic’ style Māori wood carving, tattooing and rafter painting, and continuing through to early contact. The fifth stage was the application of writing in Te Reo Māori. While Fomison trimmed his manuscript expecting that the specific examples of superimposition would be taken as read (Fomison and Fyfe 2014:53), archived drafts show that any writing and illustration important to the superimposition thesis was retained (Fomison and Fyfe 2014:49-50). Given this, the criticism that consistent stylistic superimpositions are not demonstrated appears valid, and with scope to doubt Bain’s supporting analysis, the stylistic chronology remains unproven (Holdaway 1984:213). At least one set of figures included in both Fomison’s (2014:79, illustration 17) and Bain’s (1985:45, fig.8) analysis is now known to have been retouched by Schoon beforehand which obscures evidence of superimposition (see Chapter 10).

Dismissing post–European drawings as too altered to be considered Māori rock art, Trotter and McCulloch (1981:81-82) saw no grounds for a late period termination of the authentic practice. Indeed, they thought the Colonial period figures had misguided others to such a conclusion. This
position coupled with recognising a common style across the South Island rock art aided a culture-history classification as one corpus from one time period. Details from different regions were then taken as informative of the antiquity of the whole. An association of moa and other extinct bird remains in some shelters, radiocarbon dates of archaeological deposits in others bearing rock art, and the timeframes for the ecological change from forest burning – after which the main attraction to the areas was apparently diminished - combined to date that whole corpus of South Island rock art to the early period of occupation.

There are empirical issues with Trotter and McCulloch’s schema. Firstly, the few examples of cultural evidence of moa remains in the shelter floors may not be representative of the hundreds of southern rock art sites (Anderson 1988:np). Secondly, the radiocarbon dating information available was dubious. Thirteen radiocarbon dates were derived from eight shelters in North Canterbury, Upper Waitaki, Fiordland and Awamoko (Trotter and McCulloch 1973). Excepting Awamoko, these areas are peripheral to the major North Otago and South Canterbury rock art concentrations. Ten of the dates fail the reliability criteria in Anderson’s (1991) review of radiocarbon dates. The other three were from marine shells from North Canterbury – an area from which that type of sample had also caused uncertainty (Anderson 1991:777). Polynesian settlement of New Zealand is now understood to be later than previously thought (Anderson 2014b:34-6). Within decades of initial occupation areas where the main concentrations of southern rock art are known was deforested, and moa rapidly became ‘economically’ extinct within 150 years (McWethy et al. 2014, Perry et al. 2014a). These factors squeeze the unfolding of the Island-wide schema into a narrow window of perhaps little more than a century.

There is a question of whether seemingly naturalistic Māori images of moa or eagles can be related to the early extinction dates of those birds. Among the thousands of rock art figures such depictions are few and of those a number are open to alternative interpretation (Anderson 1990:8, 2014:86a). Adding to the ambiguity is whether the images reflect recent social memory or eyewitness accounts – a significant factor when working within a timeframe of a few centuries rather than millennia as elsewhere in the world (e.g., Gunn et al. 2011, Mulvaney 2009).

Trotter and McCulloch dismissed Fomison’s chronology and the underpinnings of their own schema have been shown to be unsubstantiated. However, in both cases the shortcomings of the respective arguments have been highlighted rather than alternative interpretation being demonstrated. Blanshard (2005) proposed chronological styles in which designs most similar to other East Polynesian motifs are earlier and those styles not found elsewhere are later. However, the sample sizes of motifs and range of source sites were insufficient to give confidence to the conclusions. Anderson (1988:np) observed that rock art had design aspects in common with
Māori ornaments of all periods. In the most recent statement on the matter, Anderson (1988:np, 2008:66, 2009:37, 2014a:87) favours recognition of a continuous rock art practice based on Fomison’s observed superimposition of styles supported by traditional accounts attributing the rock art to different depths of southern whakapapa (genealogy).

2.5 Chapter Conclusion

This review outlines what can be understood of the contexts of Māori rock art places based on past studies, and the extent to which that may inform an appreciation of tikanga-ā-wāhi.

Foremost is the uncertainty of what rock art survives in New Zealand. Over 700 sites are known, with the majority found on inland South Island limestone away from known permanent pre-European settlements. The fewer North Island rock art sites are in proximity to areas of late period permanent occupations. Fieldwork results over the last quarter century questions if the distribution in both islands reflects historical bias towards survey of areas where rock art was more readily observed by early recorders, such as the limestone shelters of the eastern South Island and coastal Taranaki. Large tracts of the country have not yet received systematic attention. A quadrupling of listed North Island sites is influenced particularly by survey efforts in Taranaki and the central North Island. More dispersed finds challenge a characterisation of rock art being a mostly inland South Island limestone country phenomenon and encourage survey of other regions such as Northland, the East Coast, areas of schist in Otago and parts of the South Island coast.

New surveys of already known rock art areas, particularly by SIMRAP in the South Island and Fletcher in the central North Island, have increased the number of sites and of figures recognised in already recorded sites over the historic records. This partly reflects the inclusion of North Island localities with red ochre daubs. Some North Island pictographs and petroglyphs are recognisably similar to those found in the South Island, and vice versa. The grounds for considering the two islands rock art corpus as related is strengthened. The differences between them are better recognised as proportional rather than absolute. Fomison and Bain recognised stylistic variability where Trotter and McCulloch saw commonality. Both conclusions drew on extensive field observations of the same South Island material. Pick argues that rock art in Taranaki and Taupō exhibited regional coherences comparable to the South Island corpus, but the comparison is uncertain while the southern case is unresolved.

There is no collated database for Māori rock art site information and the historic records do not provide consistently detailed descriptions of the rock art or its localities. The SIMRAP survey
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reports are not yet processed into analytically useful data units. The now digitised NZAA site records are often scant in detail, as are published reports focused on broader heritage values. Anderson’s (1990:10) observation of 25 years ago remains current: such studies require detailed trait and motif analyses enabled by more comprehensive recording than is currently available. The same is true of information on the settings of sites.

Questions of the antiquity of Māori rock art go hand-in-hand with those on the nature of the distribution, the extent of stylistic variation recognised, and how rock art relates to other archaeological deposits. Recent commentaries on the age of southern Māori rock art track back to either Fomison or Trotter and McCulloch, however both have thus far lacked robust demonstration. Bain’s statistical analysis recognises stylistic variation challenging the single cultural unit Trotter and McCulloch saw in South Island drawings eroding the argument for taking ‘archaic’ dates from peripheral sites as representative across the whole corpus.

Fomison’s stylistic chronology lacks specific demonstration of the superimposition it is based on, and evaluation of alternative explanations for the variation rather than temporal styles. Age estimations for North Island rock art are loosely based on perceived similarity to ‘Classic’ period curvilinear arts, depicted canoe styles and proximity to late period occupations. In either island, it is only figures exhibiting post-European subject matter or script that can be confidently assigned to a timeframe. Despite its crucial role in explanations of other aspects of Māori rock art, a robust chronological framework has not yet been established. This impacts on understanding how rock art sites were situated in changing contexts and on the confidence in applying ethnographic insights.

It is debatable whether the dearth of traditional knowledge directly relating to Māori rock art is a useful measure of its significance to past Māori. While the information is limited compared to that for other art forms this may partly result from rock art having been peripheral to most early inquirers’ interests. What little has survived is open to reinterpretation. Given the dearth of unambiguous accounts informed research approaches that rely heavily on traditional knowledge of rock art are not feasible. Rather, such approaches will need to look to credible insights into wider Māori worldviews and history relating to places, and consider how rock art sits within that.

The major shortcoming of the different arguments is that the veracity of the few traditional accounts, ideas on age of the figures, and the actual difference in the distribution of particular rock art forms and motifs have not been demonstrated. This state of knowledge reduces confidence in correlations to natural features such as ecological resources and geological formations, as well as potential cultural aspects such as inter-regional comparison of techniques.
and motifs or alignment to tribal boundaries. Reviews that are doubtful of interpretations of Māori rock art have mostly used the same information as the studies they critique. As a result alternative proposals have tended to draw on limited observations and have been impressionistic rather than based on empirical evidence.

This perhaps explains why ideas on the traditional significance of the art became dichotomised as ritual versus casual pastime, with the places becoming either kinds of sacred sites or alternatively utilitarian camps with time-passing pictures. Haast’s and Hamilton’s polar perspectives have echoed through time in the contrasting views of Schoon with Duff, Fomison with Trotter and McCulloch, and more recent responses to the latter. Even when not stated in such extreme ways both sides of the dichotomy use essentialist positions and the debate is not yet resolved.

It is evident from the above, that there is no established and empirically demonstrated outline of the contexts of Māori rock art in either island. While different perspectives in the historic debates have been contested, the alternative explanations have not been demonstrated beyond a few very specific cases that are not yet readily recognised as representative of the wider heritage. This results from constraints that are variously theoretical, taphonomic, technical or resourcing factors. Whether or not tikanga-ā-wāhi can be more generally recognised through analyses at Māori rock art places remains unresolved. However the challenges in envisaging an approach that moves beyond imposing essentialist categories on the heritage but rather investigates tikanga-ā-wāhi through rock art data sets are not necessarily insurmountable. Examples of developing an understanding of the wider context and how traditional significance of the places is understood are provided by more recent investigations of rock art places on related Polynesian islands. These are considered in the next chapter along with an approach that is appropriate to the current situation in New Zealand.
Chapter 3 Polynesian Rock Art and Context

Over the past 25 years that New Zealand rock art research has focused on improved recording other studies have considered Polynesian rock art and the cultural significance of the places where it is found. A homology between Māori and other East Polynesians is well established (e.g., Anderson 2014b:36-7). There is a well-recognised commonality among Polynesian cosmologies, including the concepts of *mana* and *tapu* (e.g., Shore 1989, Kirch and Green 2001). Research on Polynesian islands provides examples of situating rock art marking behaviour in wider cultural contexts. This may help inform expectations of similar studies in New Zealand. There is a question, though, of how the broader cultural affinities apply to rock art practices across the archipelagos in relation to New Zealand. This chapter first addresses that issue, and then reviews recent research in East Polynesia that draws on both formal and informed studies that provide insights of how rock art relates to the traditional significance of places. It overviews a contextual approach developed with a focus on rock art localities by Arsenault (2004a, 2015).

3.1 Māori Relationship With Other Polynesian Rock Art Heritage

Rock art is widespread throughout Polynesia although not ubiquitous. Smaller coral atolls lack the surfaces appropriate for rock art but its absence on high islands in the Cooks and Mangareva, and dearth in Samoa are exceptions that seem at odds with the more widespread distribution of the marking practice (Lee and Stasack 2005:161). Although found in Tonga, Tahiti, and on islands as small as Pitcairn, overviews of Polynesian rock art research indicate the greater corpuses are found in the Marquesas, Hawaii, Rapanui and New Zealand (e.g., Lee 2001, 1996; Lee and Stasack 2005). An absence of comparative studies up until the 1990’s is attributable to little standardisation in recording on different islands and scepticism in an ability to determine whether similarities in Polynesia reflect related cultural influence or coincidence (Wilson 1998:163).

As discussed in Chapter 2, Trotter and McCulloch (1981:71-73) viewed Māori rock art as a local innovation and its typical characteristics as peculiar to New Zealand, although these are not specified. In contrast, Lee (2001:594) sees the distinctive stylistic feature of blank centres in many Māori anthropomorphs and dog figures as similar to the double-outlining found in other parts of Polynesia, and she expects that further similarities will be identified as a better inventory of Māori rock art is developed.
Lee and Stasack (2005:161) consider rock art practices were brought to each island group by early settlers, and then took slightly different directions according to how traditions emerged locally. Having derived from the same ancestral society a ‘Polynesian characteristic’ is evident in the rock art across the different islands with more commonalities than differences. Wilson (1998) employed multivariate analysis of Oceanic motifs, including samples from New Zealand, in a formal investigation of unity in Polynesian rock art that could indicate shared ancestry. Integration of archipelago colonisation timings with the broad scale multivariate patterns support consideration of Polynesian cultures as a phylogenetic unit deriving from a common source. Forms distinctive to the Marquesas, New Zealand, Rapanui and Hawaii define the periphery of the entire Oceanic sample distribution “supporting the notion that east Polynesian rock-art elements are the end product of an evolutionary process of divergence from a common ancestor” (Wilson 1998:179). How that relates to western Polynesian rock art though is more problematic.

In New Caledonia pictographs in deep caves have been dated to the local Lapita period (Sand et al. 2006) demonstrating that at least some Lapita communities marked places with rock art. Cruz Berrocal and Millerstrom (2013) argue that Fijian rock art exhibits discontinuity in the region that challenges the ‘conventional’ attribution of rock art to ceremonial or religious expression in colonising groups. Rather it is “the product of particular, independent historical conjunctures, used as part of different cultural and social strategies in each archipelago” (Cruz Berrocal and Millerstrom 2013:164). Fijian sites exhibiting particular types of pecked elements are labelled ‘Polynesian’, although some of the types are not exclusive to Polynesia within Oceanic rock art. As the ‘Polynesian’ figures differ from the pictographs dated to Lapita settlement in New Caledonia, which occurred at about the same time as Fiji, they are not considered the product of Fiji’s first settlers. Sites with figures outside of the range are interpreted as a series of non-Polynesian ‘unique cases’ given the variability between them. They are attributed as being later than the Polynesian category given the state of preservation and traditional knowledge associated with some (Cruz Berrocal and Millerstrom 2013:163).

The ‘breakdown’ of rock art in Fiji, Tonga and Samoa compared to that in the west and the rest of Polynesia in the east, is taken to demonstrate that the origins of the more expansive East Polynesian rock art practices are not in the central Pacific. These broad conclusions may not yet be wholly convincing given the limitations of site numbers and temporal controls so far available, and reliance on the attribution of a large proportion of the sample figures as Polynesian despite the ‘ingrained pan-Oceanic’ (see Cruz Berrocal and Millerstrom 2013:162) motifs concerned. Wilson’s multivariate analysis of Pacific island rock art was also constrained by data limitations (1998:181-2), but the motif frequency analysis similarly supported the idea of
geographic discontinuity with a change centred about Fiji, Tonga and Samoa (Wilson 1998:176-8). At odds with the idea of cultural continuity across the region are attribute correlations that show the anthropomorphic ‘stick figure’ thought to be an early motif in East Polynesia has no apparent prototype in Western Polynesia (Wilson 1998:180-82).

Notwithstanding a possible ‘Fijian rock art gap’ making the development of rock art practice in Remote Oceania independent of that in Near Oceania (Cruz Berrocal and Millerstrom 2013:164), a cladistic relationship is suggested between the Marquesas, Tahiti and Hawai’i, (Wilson 1998:180-1). While the ‘flexed leg’ and ‘buttressed junction’ features are suggested to have existed prior to their ‘efflorescence’ within New Zealand rock art (1998:178-9), Māori anthropomorphs formed both the most isolated and homogenous group within Wilson’s sample (1998:169-170). Perhaps as Wilson (1998:180) suggested for Rapanui rock art, the divergence apparent with some Māori rock art may be explained by its relative isolation if information exchange theory is applied.

As studies in archipelagos proceeded, comparison with Māori rock art was constrained to a review of Trotter and McCulloch 1981 (Millerstrom 2008:214-5; e.g., Lee 2001:594, 1996:163-4). A more definitive discussion on the relationship awaits the development of more comprehensive datasets for New Zealand that allow comparison with those that have been developed for the Marquesas, Hawaii and Rapanui. In the meantime, that the commonalities within East Polynesian rock art are ‘related cultural influences’ remains more convincing than arguments relying on ‘coincidence’ (after Wilson 1998:163).

The same argument has been developed in relation to early period ornaments, one of the few archaeological remnants (other than rock art) to preserve early Māori art practices. Similarities in form and artistic expression are found between these ornaments with examples from other early Polynesian sites, and Polynesian art in general. For example, an early South Island ornament figures a tiki (human form) as found in both South Island rock art and other Polynesian art (Anderson 2014a:92; Prickett 1999:29; Trotter and McCulloch 1981:67). The early Māori ornaments are understood to be part of a cultural tradition brought to New Zealand by Polynesian settlers (Prickett 1999:2, 6, 28, 30). Prickett accepts a common historic origin for ornaments with a like form, with differences such as between the Hawaiian lei niho palaoa and Māori rei puta whale tooth pendants probably reflecting subsequent local developments (Prickett 1999:2). This parallels Lee and Stasack’s (2005:161) consideration that rock art practices were introduced to the different islands by Polynesian settlers, and differences reflect emerging local experiences. This currently provides the most convincing explanation for an early advent of rock art in New
Zealand and argues that at least some of the surviving Māori figures (as examined by Wilson 1998) date to that time. What then may be learned by recognising that common heritage?

### 3.2 Significance of Place in Polynesian Rock Art Research

Lee and Stasack (2005:161) explain the variability in rock art between Polynesian archipelagos as the result of each island’s religious leaders who held and directed *mana* having influenced local rock art practices in different ways. An association to religious practice is indicated by a good proportion of sites on most of the archipelagos being located around places of ritual significance (Lee 2001:597) such as ceremonial platforms and *marae* (e.g., Tahiti, Austral Islands), in association with mortuary structures (e.g., Tonga, Rapa-iti) and other places of recognised spiritual importance (e.g., Rapanui, Marquesas, and Hawaii below). Within Polynesia only the poorly investigated rock art site on Pitcairn and those of New Zealand are noted as exceptions (Lee 2001:597). Informing such discussion is the attention paid to how other Polynesian’s positioned rock art within their landscapes and what significance might be attached to that, particularly in detailed studies of the heritage in Hawaii, the Marquesas and Rapanui.

#### 3.2.1 Rapanui

Rock art figures are found all over Rapanui but particularly about places of ritual importance (Lee 2001:583). The special significance of petroglyphs is indicated by the excellent quality of finish suggesting most are the work of master carvers, and the often impressive scale with many over 3 m long and one measuring 10 m (Lee 2001:583, 585). Petroglyph motifs are variably distributed across Rapanui suggesting that the designs related to ancient clan boundaries or ritual centres. Figures of fish-hooks and stylised canoes are clustered which given an association of canoes to chieftainship suggests status and clan concerns in demarcation of territory. Meanwhile ‘Orongo’s birdman figures cluster at Mata Ngarau, a ceremonial site (Lee 2001:587-8).

Notably at the sites about Rano Kau petroglyphs of faces are interpreted as representing the god Makamake and avian headed humans or ‘birdman’ figures are considered incarnations of him (Van Tilburg 2006:21, 2004:25). Pictographs of birds are interpreted as the sooty tern, the seasonal harbinger of the god (Van Tilburg 2004:51). The interpretations and religious association of these figures are drawn from their placement at locations and position on ceremonial structures associated with the ethnographically known *tangata manu* or ‘birdman’ belief and its associated ritual practices. Analysis of the rock art within that context in turn demonstrates long use and re-use of the rocks indicating the sacredness of the place pre-dated the
other structures associated with the ceremony (Lee 1992:149). It also shows a shift in the religious practice at the locality reflected in the later addition of *komari* (vulva) petroglyphs (Lee 1992:149), ethnographically known to be created during female initiation ceremonies (Van Tilburg 2004:55; Lee 1992:195). Analysis of *tangata manu*, *komari* and *patuki* fish petroglyphs on a house slab and a boulder collected from ‘Orongo encourage recognition of an ecological fertility dimension to that shift (Horley and Lee 2012). The use of the same motifs in different contexts can also be understood to show transitions in space. Archival reconstruction of the positioning of carvings and pictographs in ‘Orongo houses show *makemake* faces fronting a house entrance perhaps to protect the interior or mark it as dedicated space, while *komari* on the inner door jams likely shift the *tapu* state of those passing through (Horley and Lee 2009:115, 123).

Such studies highlight the integration of locational, contextual and iconographic interpretation in Rapanui rock art study. This is exemplified in Lee and Horley’s (2013) recent analysis of pictographs in Ana Kai Tangata, a cave reputed to be associated with ritual as the name and character of human remains among the archaeological deposit indicate. Detailed iconographic analysis shows bird figures to be *manutara*, sooty terns. Positioned with those is a concentration of images of European ships, otherwise mostly found in the sacred site of ‘Orongo. Historic timing of European ship arrivals are related to the seasonal migration of the sacred birds, and possible parallels in symbolic interpretation of these within a Polynesian worldview are posited. The concurrence of images in the two special places “suggests that during a certain period of Easter Island history, there was a connection between ‘Orongo ceremonies, birds, and European ships – at least, on an iconographic level” (Lee and Horley 2013:30).

### 3.2.2 Marquesas

Petroglyphs in the Hatiheu Valley, Marquesas, are also disproportionately positioned on or about communal ceremonial complexes and sacred structures (Millerstrom 1997), as well as associated with features of high status and orientated towards the sea indicating ancestral Polynesian notions of sacred and secular spatial organisation (Millerstrom 2006). The shelters above the Eiaone Valley, Hiva Oa, that contain the only known Marquesan pictographs also appear to relate to the location having once had a sacred purpose. This is suggested by the symbolic significance of the red colour of the paintings and the proximity of banyan trees, combined with difficult access and the ceremonial nature of the nearest cultural structures (Millerstrom 1997:189). The presence of turtle motifs on ceremonial sites from around Polynesia combined with what is ethnographically known of turtles in ritual attitudes to food and sacrifice, show a
symbolic association with *taua*, Marquesan priests, who like turtles were thought to be able to transcend boundaries between worlds (Rolett 1986). Turtle figures on a boulder in a ceremonial ground in the Hatiheu Valley, Nukuhiva, contributes to an appreciation of the mortuary or memorial nature of ceremonies likely to have occurred there.

### 3.2.3 Hawai‘i

Hawaiian petroglyphs are also generally considered to reflect something culturally special about their locality. Lee and Stasack’s (2005, originally 1999) analysis of rock art on Lana‘i, Kaho‘olawe and Hawai‘i Islands suggest different functions lie behind rock art in different settings. Sites that have a high proportion of circles, cupules and geometric designs are related to trails, and in at least one case the *piko* ceremony (ritual deposit of umbilical cords). Sites with higher proportions of figurative art appear to relate to *kapu* (Māori: *tapu*) associated with other aspects of places, such as boundaries at Puako and possibly concurrent use of a cave for burials at Kalaoa. At Ka‘upulehu the graphic content of the petroglyphs features sails considered to be representative of high status canoes, kites, *akua* (Māori: *atua*) figures and, unusual among Hawaiian rock art, scenes possibly representative of important traditions. Coupled with their impressive finish, the petroglyphs mark Ka‘upulehu as a place of significance where “[s]tatus, kingship and ritual are implied” (Lee and Stasack 2005:78).

Given seemingly viable unmarked alternatives nearby, Hawaiian petroglyph sites were often selectively positioned about caves, earth openings or volcanic deposits. This suggests a purposeful connection to the earth’s underground (Lee and Stasack 2005:155). A rationale for such an association is found in the Hawaiian cosmology, particularly the concepts of *pō* (the underworld) and *ao* (light, world of humans), and the powers of creation therein. Emphasised by the thousands of cupules indicative of *piko* ceremonies, Lee and Stasack posit that “the concepts of kumu [source, foundation, heredity] and piko [umbilical stump], kapu [forbidden] and mana [supernatural power, force], are possibly the keys for understanding levels of meaning in Hawaiian rock art” (Lee and Stasack 2005:156, [glossary, 204]). Lee (2002) further relates the context of some petroglyph localities as places for gaining spiritual power, connection to the underworld, and various ritual and social concerns. She argues that it is the place and marking of place that is important rather than the petroglyphs themselves (see also Lee and Stasack 2005:93), and although the exact meaning of motifs may not be determined, some relevance of the place to the creators and users can be identified.

This idea is further demonstrated in Millerstrom and Kirch’s (2004) analysis of the immediate environmental and archaeological contexts of petroglyphs in Kahikinui district, Maui Island.
Rock art localities used between the 16th-18th centuries AD, based on the dating of surrounding archaeological deposit, have a strong relationship with water sources in the arid lower margins of the upland residential and agricultural zone. Residential features and other sites of ritual significance are located at higher altitudes, whereas the distribution of pre-European petroglyphs, the majority of which are anthropomorphs, suggests they are statements of territorial claim or rights to important lower altitude water sources. European contact period petroglyphs in Kahokinui are particularly associated with an 1820’s coastal trail and include a high proportion of lettering. The use of initials is thought likely to reflect a continued symbolic representation of individuals as attributed to earlier anthropomorphic images (Millerstrom and Kirch 2004:124-5).

Significant variation in the distribution and contexts of petroglyphs found in Kahokinui with those in the more fertile Nuu, also on Maui Island (Millerstrom 2008:221), and with rock art on Lana’i, Kaho’olawe, and Hawai’i islands, suggests “the specific functions and role of petroglyphs varied considerably between local communities” (Millerstrom and Kirch 2004:126). The temporal change in Kahokinui and the variation in placement across the southern part of the archipelago shows Hawaiian communities used and engaged with rock art in different ways at different places and times. At Pu’uloa, one of the richest petroglyph localities in Hawai’i, the power and aesthetic impact derives from the many generations represented in the cumulative record of the piko ceremony, rather than the marks as individual signs (Brunt 2012:68). In contrast at Hanamauloa, Maui, in the vicinity of a heiau (temple) and other features that Kirch et al. (2013) interpret as commemorative of the important voyaging activity, rock art occurs but as a lone bird-man petroglyph.

3.2.4 Rēkohu (Chatham Islands)

Mention should also be made of petroglyphs on the Chatham Islands, most of which are thought to be simplified seal and/or bird forms. The currently recorded sites are along the shoreline of Te Whanga lagoon. Kjellgren (2003) posits that this limited distribution and a particular concentration of bird figures at one site may reflect the important economic resource of flocking water fowl on the lagoon, or perhaps less arguably a more distant seabird colony. Interpretation is not, however, straight forward. Whereas the petroglyphs are dense about Te Ana-a-Nunuku, a cave once occupied by and named for an important ancestor in Moriori history, the same motif is also found sparingly engraved on other overhangs along the lagoon front that today at least provide minimal shelter. Those about Te Ana-a-Nunuku also show temporal variation with more curvilinear figures having been made after a rock fall raised the cave floor and overlaying more angular figures, some examples of which were also obscured by the rock fall (Trotter and
McCulloch 1981:19). During a recent field visit, a coastal cave with similar engravings on the opposite side of the island was reported to O'Regan. More concrete observations on Rēkohu’s rock art await further investigation and comprehensive analysis (Kjellgren 2003:148-9).

Over the years similarities have been recognised between some design elements in Māori rock art and Moriori dendroglyphs (e.g., Anderson 2014a:92, Skinner 1923:66-8). As is the rock art, these are placed on natural features in outside contexts rather than in built structures. A recent study argues the positions of dendroglyphs in two groves have discrete associations with shellfish middens, including some of pāua (abalone, Haliotis iris) sourced from some distance away, demarcating ‘social space’ (Barber and Maxwell 2012). While this description is less imposing than that of ‘ritual’ or ‘sacred’ sites, that study and the continued association of a petroglyph site with a venerated ancestor shows that current thinking considers such heritage on Rēkohu was associated with other than purely casual or subsistence causes.

### 3.2.5 Context and Motif in Polynesian Rock Art Heritage

This brief review allows some observations to be drawn from recent research on other Polynesian rock art. In particular, the interplay between the interpretations of context and iconography is useful. The wider cultural context of some markings are addressed by integrating what is ethnographically understood of symbolism in art practices and motif design with interpretations of natural and archaeological features informed by local Polynesian worldviews.

Those wider cultural contexts typically involve associations with places of prestigious or religious significance although individual communities also used rock art in different ways at different places. Some consistency in underlying symbolism may be present while both motif form and context can vary. For example, an appreciation of the relative contexts may be informative despite variance in motifs where anthropomorphs marking rights to water, initials marking trails or cupules being receptacles for piko all have a concern for the mana of individuals. Conversely, consistency in motif symbolism may suggest how mana and tapu are variously managed in different contexts, as suggested by makemake faces found in caves and komari superimposed on boulders in ceremonial grounds also being incorporated as protective features in house entrances.

The way in which the same motif may be employed in various ways can be highlighted by inter-archipelago comparison. Different Polynesian islands “display quite different visual symbolic systems in their combinations of geographic, surface and semiotic contexts of turtle motifs” (Meijer 2012:81). Positioned about ceremonial structures but with differing semiotic and surface contexts on Rapanui and the Marquesas, turtle petroglyphs on Hawaii are mostly located away
from architectural features. Yet common trends across archipelagos can also be suggestive, in some cases with absence having ‘meaning’. Turtle figures were typically excluded from both ‘secular’ zones and burials, perhaps showing only select ceremonial contexts needed to figure an animal Polynesians widely recognised as a traveller between worlds (Meijer 2012:80).

That petroglyphs on Hawaii may be associated with liminal space within a Hawaiian world view is advanced by Loubser and Rechtman’s (2012) consideration of the location of two tiki figures on a lava tumulus that has both inland-seaward orientation and is on the boundary of two ahupua’a (traditional land divisions). The possible symbolic significance of these spatial characteristics is woven together with ideas linking the place name with sorcery, traditions of godly creation of petroglyphs and the potential relevance of such places to religious activity resulting in recognition of the petroglyph marked rock as a likely wāhi pana or remarkable place (Loubser and Rechtman 2012:276). On one hand this provides an example of an ‘informed’ approach drawing on a wider worldview to interpret a specific case of Polynesian rock art, while on the other it shows that it is prior development of an appreciation of the wider contexts of that rock art that allows such an approach to be entertained in the first place.

The often unusual geographical settings of many figures about specific natural features, sacred structures and elite households emphasises the utility of examining spatial relationships within and between Polynesian rock art sites. That has often involved developing an appreciation of the archaeological context of the rock art, a cause that can be advanced by the further integration of archaeological excavation in research projects (Millerstrom 2012:242, 2008:223).

The relationships between rock art and its surroundings, particularly in Hawaii and Rapanui, are in a large part made possible by the extensive inventories developed that include information on motif manufacture and subject categories, the shape of shelters and rock surfaces, proximity of other cultural or natural features and distribution in wider landscapes. As noted in Chapter 2, the potential data in New Zealand has not yet achieved that state of documentation. An approach that emphasises the kind of information sources achievable in New Zealand is required.

3.3 Approach to Contextual Study

A contextual approach to rock art is discussed by Sundstrom (2012). By combining lines of evidence derived through various analytical methods the environmental and cultural context of a body of rock art can be inferred from patterning evident within empirical observations of its form, structure and distribution. Associations and contrasts recognisable within that patterning are then considered indicative of the rock art’s significance within a wider cultural context
having selected the best among alternative explanations chosen for each identified rock art ‘style’ (Sundstrom 2012:328-9).

Sundstrom’s contextual approach begins with classifying ‘styles’ of rock art (Sundstrom 2012:336). Each style is considered to have emerged as unique in a particular time and place with its temporal and spatial distribution reflecting the specific cultural group or subgroup that produced it (Sundstrom 2012:326-7). Fomison’s stylistic chronology of southern Māori rock art (Fomison and Fyfe 2014) has incipient elements useful for such an approach. However, as already outlined, it lacks clear demonstration. As will also be seen (Chapters 7 and 8), there are significant issues with the attribution of styles of Māori rock art to particular groups and time periods. Although it risks conflating the rock art and ideas of different people and sub-groups within a community, the current circumstance in New Zealand requires an emphasis more focused on ideas and a worldview held in common across Māori communities.

The judicial use of ethnographic information has an established history and is widely employed in rock art research (Whitley 2011:108-17) (e.g., Blundell et al. 2010; Keyser et al. 2006). A programme that specifically advocates for the meaningful inclusion of indigenous insights as gained through ethnography, ethnohistory and oral traditions is promoted by Arsenault (2004a). Arsenault has an interest in how indigenous communities think about their natural landscape in line with a group of archaeological approaches concerned with past landscapes as understood through ‘ritual engines’, ‘spiritscapes’, ‘sacred geographies’, the spirit world, ‘cosmovisions’, ‘shamanism’ and ceremonial landscapes (David and Thomas 2008:36-38). Being focused on rock art localities, Arsenault’s position provides a useful reference point that: (i) has a particular emphasis on extending observations at rock art localities beyond the graphic content; (ii) makes explicit the need to integrate insights from traditional knowledge into archaeological assessments consistent with the Māori Heritage Council’s expressed interest; and, (iii) discusses the kinds of information sources that are available to New Zealand research. He advocates that archaeological research on rock art should consider how aboriginal groups think about their natural landscape, revisit already surveyed areas of rock art with that lens, and develop tools that both better use information from indigenous religious traditions and standardise the field methods appropriate for scientific discussion (2004a:80).

This ‘contextual approach’ is applied by Arsenault and colleagues to rock art localities of Algonquian-speaking people of the Canadian Shield (Arsenault 2004b, 2015; Arsenault and Zawadzka 2014; Lemaitre 2008; Zawadzka 2013). This involves investigating at various scales the placement of figures within sites and the location of sites within wider cultural and natural surroundings. These factors are considered in relation to a spiritually imbued landscape
informed by place names, oral traditions, ethnographic and ethnohistorical accounts. Insights are drawn from the worldview of the Indigenous peoples rather than only those of specific reference to the rock art or locality. The same approach is used in this study when applying Māori ethnohistorical and ethnographic information.

The influence of spiritual attributes within broader traditional Māori landscapes may be investigated by drawing on ethnographic and ethnohistorical records of how Māori considered different kinds of places. The kinds of questions that can be asked include whether purposeful avoidance or associations are apparent between rock art and natural features considered to have ancestral spirit such as mountains (e.g., Oppenheim 1973:70-1) or specific rocks (e.g., Day 1980:116), or with particular places, perhaps where an important event occurred or the scene of a deed by someone of consequence (Mead 2003:68). Are there apparent differences in activity between adjacent spaces, suggestive of different spiritual realms such as the shift between the marae-ātea, the courtyard in front of a house and the realm of Tumatauenga (god of war), and the ancestor personified in whare tupuna? Do features or spaces of particular ritual engagement have markings purposefully put in place that visually highlight to others the tapu nature of places such as burials, places of rāhui (restriction), or the abode of protective kaitiaki (guardians)? Are there indications of repeated activity such as concentrations of rock art or association between elements, suggesting that tikanga (appropriate cultural practice) has been used to reinforce the tapu of places (Mead 2003:90)? If so, perhaps this drew power from the place to enhance the current activity, or conversely did it extinguish the mauri of the earlier element or assert contemporary mana over what was there before? Does archaeological evidence suggest that activities differed between places with and without particular motifs such as lizards that are associated with connotations of danger, ill health and death? Or are some inaccessible shelters marked in a particular way suggesting the figures are perhaps hidden to protect the mana and tapu of the subject from desecration, as intended by cremation, water burials and hiding of human remains in inaccessible localities (Beattie 1990:150). Alternatively, might rock art figures be for restricted viewing, perhaps with a concern for the secrecy of the knowledge attached.

Far from exhaustive, these examples show the kinds of questions that can be asked in evaluating whether tikanga-ā-wāhi contributed to patterning seen at various spatial scales in the rock art and related archaeological record. Considering such questions, O’Regan (2007) articulated several patterns that if present may allow such tikanga-ā-wāhi to be recognised as having contributed to the formation of rock art localities. These patterns sought spatial recognition of associations between rock art elements and site features, concentrations of elements, ‘hidden’ or restricted
images, and associations between rock art elements and avoidance of such associations. These provided a basis for the interpretation of the behavioural activity that occurred against which inference for the motives based on ‘informed’ insights are evaluated.

Extending beyond the intra-site limitations of the 2007 research this study also develops an understanding of the wider contexts of selected rock art localities. Within that it examines the relationships between rock art, its localities and surrounding cultural and natural features to identify what if any of the patterns can be demonstrated. If so, the extent to which the associations can be explained by reference to a traditional Māori world view is explored.

Exact analogies for the placement of rock art are neither sought nor expected. Instead, insights from a Māori worldview extends the interpretative possibilities in considering how tikanga-ā-wāhi may have influenced behaviour and, so, be archaeologically visible. Interpretation is not limited to a single expression of a particular aspect of tapu, mana or mauri. Rather contextually variable relationships are expected between the spiritual attributes of people with that of others and of spiritual forces likely to be perceived as embedded in the places (O’Regan 2007:23). The behaviours identified and resulting interpretations may not be consistent. Rock art was likely used for various purposes at different times, as is the case elsewhere in Polynesia. In line with the research question the foundation of any interpretations is first empirical demonstration of an association.

3.4 Chapter Conclusion

Rather than being an independent local innovation, based on analysis of motifs by Wilson (1998) and parallels with early period ornaments, Māori rock art is arguably part of a Polynesian culture brought to New Zealand. As with other East Polynesian rock art, it too is likely to have reflected what people associated with the places they marked and the activities that occurred there. As elsewhere, how that was manifested in the landscape can be expected to have shifted as the worldviews of Māori communities modified to New Zealand experiences.

A general association to places of significance or ritual activity has been identified by observing commonality across the various contexts of other East Polynesian rock art which suggests that Māori rock art also having related to the significance of places should not be unexpected. However, the variability of those relationships elsewhere in East Polynesia discourages a simplistic ritualistic characterisation being imposed on Māori rock art based on a common cultural ancestry. Equally, it also cautions against applying the alternative essentialist
interpretation of rock art as the product of casual activity. If that were the case Māori rock art would be an anomaly within East Polynesia, which would itself require explanation.

Most usefully the comparison highlights that looking at the context of the rock art heritage and integrating ideas from traditional Polynesian worldviews has proven productive in recognising how rock art features within and contributes to understandings of the past beliefs associated with those places. This has involved investigating associations between designs, other material culture, the character of places surrounding rock art and ethnographic insights into those. This avoids the tendency to assert essentialist categories on the heritage. Insights from the Polynesian comparison suggest that an investigation of the context of Māori rock art including tikanga-ā-wāhi can be expected to be productive.

A contextual approach to rock art, as outlined by Sundstrom (2012), is founded on the recognition of associations and contrasts evident in patterning between rock art, other parts of the archaeological record and its settings. However Sundstrom’s approach starts by identifying different styles within the rock art. That is problematic in New Zealand. More applicable to an archaeological evaluation of tikanga-ā-wāhi in New Zealand is Arsenault’s focus on the placement of figures within places and those locations within wider cultural and natural surroundings considered in relation to a spiritually imbued landscape informed by toponymy, oral traditions, ethnographic and ethnohistorical accounts of the wider places. This offers an opportunity to recognise and draw on the strength of knowledge that does survive about traditional Māori culture and tikanga-ā-wāhi in the absence of direct site specific ethnohistorical accounts of Māori rock art places. It respects the mātauranga Māori (traditional knowledge) surrounding those places that the Māori Heritage Council wishes to see meaningfully accompanying archaeological assessments.

As can be seen from the other East Polynesian studies, the pathway towards that is developing an understanding of the wider natural and cultural settings of rock art localities and within those identifying patterns of associations of which rock art is a part. When viewed as a collective, a strength that can be recognised in those studies is the interplay of observations across various spatial scales from a variety of information sources including empirical observation and what is known of the traditional Polynesian worldviews. A pragmatic method for undertaking similar investigations in New Zealand is outlined in the next chapter.
Chapter 4 Methodology

This chapter outlines a multi-scalar spatial method used to develop an understanding of the archaeological context of places with Māori rock art and within those identify patterning in the archaeological record and knowledge of places that allows associations and contrasts to be examined. These provide the basis for an evaluation of the influence of tikanga-ā-wāhi at those places. An outline is provided of how this study has addressed the issue of temporally situating the occupation of places with rock art within the wider natural and cultural environments which are known to have changed during the course of human settlement in New Zealand. Following this, the rationale for and the selection of study areas are discussed.

4.1 Multi-scalar Spatial Framework

This study uses a multi-scalar spatial method based on the “from millimetre up to kilometre” framework for reporting and studying rock art articulated by Chippindale (2004). A multi-scalar approach helps avoid acceptance of interpretations at one spatial scale because supporting patterns are easily recognised while insights from other analytical scales are ignored (Hyder 2004:99). It encourages consideration of the extent to which a particular data set is substantiated by its constituent components on one hand, and on the other whether the data is consistent across wider areas. This helps avoid impressionistic interpretations, particularly in relation to rock art imagery. It also boosts recognition of what is not apparent and encourages consideration of the various preservation issues that may be in play across an area. The spatial focus encourages empirical observations of patterning, and so the demonstration of the associations against which tikanga-ā-wāhi is considered. The multi-scalar spatial approach has the potential to provide the kinds of empirical evidence sought in the current interpretation of the archaeological legislation.

Chippindale (2004) outlined the “from millimetre up to kilometre” framework for reporting and studying rock art with regard to the rock art of Mont Bego, France. In general rather than literal terms, a ‘millimetre’ scale considers the image production technique. A ‘centimetre’ scale examines how individual figures on each surface are isolated and defined. A ‘metre’ scale investigates the relationship between different figures, so exploring the systematics of a panel or shelter. At the ‘kilometre’ scale the place of a panel is considered within a broader landscape, including its relationship to other rock art sites and orientation to other cultural or environmental features.
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A multi-scalar framework is also promoted by Troncoso Mélendez (2008). This systematises analysis with a ‘spatial syntax’ for rock art. It employs three spatial scales with ‘micro’, the rock surface panel, as the first level of engagement. The ‘semi-micro’ corresponds to the archaeological site which is treated architecturally, and the macro-spatial scale examines the distribution of sites in relation to other natural and archaeological features in its wider setting. Within each scale, Troncoso Mélendez develops a series of formulaic syntaxes from which “translating variables and attributes is possible, as well as approaching the social and symbolic logic of rock art” (Troncoso Mélendez 2008:10). While there are parallels with Chippindale’s framework, a starting point of the design (the rock art figure) and panel emphasises the larger visual concept and its application might impose structure on the record.

Chippindale’s framework is more appealing here since it allows flexibility in how things should be treated as different units by recognising the interplay and merging between scales (Chippindale 2004:108-9, 114-5). The interdependence of observations at different analytical scales are recognised and kept to the fore. Given this, the method employed in this study for making observations across the spatial scales is based on Chippindale’s framework. A strength of the framework is the scope to move up and down between the different spatial scales. In reporting the investigations, this thesis first presents observations made at the larger ‘kilometre’ scale. These provide an understanding of the wider archaeological contexts and settings for the more detailed examinations discussed.

4.1.1 Developing the Wider Archaeological Context

The ‘archaeological context’ of rock art refers to the understanding of the nature and history of occupations of a study area over the relevant timeframe as informed by local archaeology (e.g., Gilreath and Hildebrandt 2008; Fairén-Jiménez 2007; McClure et al. 2008; McDonald 2008:34-42; Morwood 2002:208-10). These provide an archaeologically informed setting in which the rock art is situated and in which its social role is inferred. The development of such an understanding can be recognised in much of the Polynesian research discussed in Chapter 2. Trotter and McCulloch (1981) was the last attempt to articulate archaeological contexts for Māori rock art in each island. However, over and above critiques of those, the resulting characterisations were generic across the islands and are now dated by advances in New Zealand archaeology, particularly regarding the timing of vegetation and faunal change. Accordingly this study has developed up-to-date understandings of the archaeological context at a more localised level for each of the study areas.
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An outline of the geological and ecological history of the study areas is drawn from current literature, geological maps (Leonard et al. 2010, Cox and Barrell 2007) and a national inventory of ecological zones (McEwen 1987a & b). Particular attention is given to changes in vegetation which are significant to the human occupation of the two study areas. In the North Island study area, historic maps that show past vegetation boundaries in relation to Māori occupation are referenced. Comparisons between historical aerial photographs and recent satellite images of both study areas also show changes in vegetation and land use since c.1940. Local land use patterns in post-European times are informed by landowner commentaries.

An outline of the regional Māori occupations relevant to each study area is developed with reference to written sources. There are contesting perspectives of the tribal histories among local iwi in each region. The tribal histories referenced are in line with those accepted by the Waitangi Tribunal’s investigations of the Māori histories of each region, including the Tribunal’s own reports.

At the local level, insights into Māori knowledge of the study areas are drawn from published and archival ethnohistorical information. The publicly accessible historic records of the Native Land Court (NLC) are useful for the North Island study area. Information from Ngāi Tahu’s tribal ‘cultural mapping’ programme was accessed for the South Island study area. An important resource for the North Island study area was an unpublished report developed by local archaeologist and historian Fletcher (1996) that drew on oral histories provided to him by a previous generation of local iwi. Information drawn was not of a sensitive nature.

Syntheses of the archaeology of the respective regions are available. The Māori occupation of the Taupō area was a focus of Williams and Walton’s (2003) review of land use patterns in that region. Fletcher’s report details the known archaeological sites in and surrounding the study area. Challis (1995) reviews the archaeology of Canterbury drawing on data from NZAA sites records and archaeological reports for that region. Anderson’s (2008) more recent overview of the earlier period of the region’s prehistory is informed by archaeology, while the later period is largely informed by ethnohistorical insights.

The characterisations drawn from the respective literature on the natural and cultural environments provide an overview of each study area including changes over the course of human occupation. Over that timeframe there is no clear distinction between natural and cultural transformations, but rather dynamic landscapes are shaped by ongoing human occupation. These descriptions of the settings provide an understanding of the formational processes at the
‘kilometre’ scale and the wider archaeological contexts in which the rock art localities investigated are situated.

4.1.2 Millimetre Scale

The focus of examination at the millimetre scale is how a rock art image was produced. This provides the physically grounded basis on which figures (or motifs) are distinguished for examination at larger scales. A key aspect for the contextual approach in this research is identifying different marking events. Based on visual examination at the ‘millimetre scale’, distinctive characteristics are considered that suggest continuity or separation in a rock art element. Differences between pigments or petroglyphic modes are used to indicate a synchronic composition or different marking episodes.

Merging with the centimetre scale, consideration is given to the identification of superimposition. Some petroglyphs investigated were produced by both engraving and incising, or were outlined or in-filled with red ochre. Their treatment as separate marking events depends on how closely the different techniques were applied in proportion to the size of the motif. The immediate use of natural rock features in compositions is also partly evaluated at this scale.

Evaluation of the rock art at the millimetre scale, and as recorded at the centimetre scale, was undertaken by visual inspection by O’Regan. That fieldwork was preceded by site examinations with Yann Pierre-Montelle and then Brian Allingham in the southern study area, and with Perry Fletcher in the northern. These three people are currently New Zealand’s most experienced rock art recorders. The pigment samples considered appropriate for radiocarbon dating were visually evaluated by Allingham and O’Regan.

4.1.3 Centimetre Scale

At the centimetre scale individual figures and motifs are isolated and defined (Chippindale 2004:108, 111). A sample of three sites at Kakaho (T17/23, 53, 66) and two at Opihi (J38/76, 88) were identified as having the potential for spatial analysis of figures as developed by O’Regan (2007). This included a site in each area in which a preliminary evaluation suggested the lineal distribution of rock art was concentrated in differently formed spaces comparable to the shelters in North Otago.

Having inspected the corpus of rock art in each shelter, the figures were mapped with a total station. In the course of mapping, detailed observations in different light conditions revealed issues in the demarcation of units as individual marking events. Historic survey records not
immediately available at the time of field recording were identified and reviewed. These further clarified issues in distinguishing marking events. In particular, separation or continuity of marking was obscured by weathering and, in the South Island, by modern retouching.

Rock art often presents as a cumulative palimpsest, the limits of the resolution of which only become apparent when attempts are made to disentangle it (Bailey 2007:205, 209). At this scale, consideration was given to whether combinations of different techniques could be considered compositional. The issue here is that the possibility of a synchronic composition confounds recognition of the accumulation as separate marking events. Unless there was a clear rationale that supported considering figures as separate, such as differently shaped figures in different pigments or the figures being separated to the extent that it would have required an artist to relocate, figures were treated as compositional units.

In addition to categories of figures suggested by different production techniques, other categories of figures were conceived at the centimetre scale. This included recognition of post-European Māori writing in the South Canterbury sites as distinct from figurative elements. Similarly, figures considered to be modern graffiti were identified. Categorisation of graffiti is unavoidably subjective and based on researcher’s understanding of the technique and aesthetic being out of step with surrounding figures that are recognised within the scope of traditional Māori rock art and colonial period writing.

4.1.4 Metre Scale - Rock Art

Chippindale (2004:112) considers the metre scale is appropriate for examining the panel or rock surface. In this study it is considered appropriate for the shelter or site given the form and shape of most of the shelters investigated, as well as the relationship to non-rock art archaeological features.

The approach to rock art follows the intra-site methodology developed by O’Regan (2007). It is concerned with identifying patterns of association evident within the locality. For example, concentrated grouping of elements (the units of identified marking events) may suggest a particular part of the locality has an inherent or cumulative significance (that is, later figures being responses to earlier ones). Alternatively, consistent separation of a particular category of figures may suggest avoidance of some sort had occurred.

So, at the metre scale the variable ‘intra-site’ placement of rock art elements in relation to each other can be evaluated. In O’Regan (2007), the analysis of data and demonstration of the results applied quantitative techniques to figures in two North Otago rock shelters. The blank spaces
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about the elements were evaluated to determine whether any apparent degree of proximity was avoidable, and therefore placement was selective. In defined spatial zones the area covered by elements, the separation between them and the proportion of overlap were measured in 3D digital models for each site. The density of marking and degree of proximity between individual elements in each spatial area was analysed statistically confirming the distribution patterns were unlikely to result from random applications within the space. Following that, descriptive statistics were used to demonstrate the distribution patterns on which basis patterns of associations were considered. The result of figures being concentrated in the sites, and accumulated in ways where otherwise avoidable connections were made between figures, showed a purposeful intent to connect with what was pre-existing in a typically respectful fashion. It should be noted here that this type of spatial analysis was confounded in current study by challenges in distinguishing different marking events and categories of rock art. The relevant data is therefore discussed descriptively, a fact which in itself is pertinent to the overall research question.

At this scale the position of rock art elements relative to the natural forms of the shelters is evaluated. The distribution of elements in relation to natural features such as drip lines, or recognisable differences between the markings of central or peripheral spaces are considered. The relationship of rock art elements to sub-site features is also considered, such as alcoves within shelters, protrusions in the rock walls, and the potential use of freestanding or ‘open air’ rocks about shelters. It is also at the metre scale that rock art figures are evaluated as being visible from only nearby or from outside of the shelter spaces. This involves consideration of the shape of the space, the accessibility to it and the scale of the rock art figures.

4.1.5 Metre Scale - Shelters and Archaeological Deposits

At the metre scale the extent and nature of past cultural activity that may be represented in archaeological deposits is also considered. The relative proximity of rock art elements to other cultural deposits may indicate associations. For example, if areas close to rock art are void of otherwise dispersed cultural deposits it may suggest aspects of activity that avoided the marked spaces. Alternatively, particular cultural deposits, perhaps material introduced to a site and exclusively in proximity to figures, may reflect votive deposits.

A selection of shelters evaluated as having potential for archaeological investigations were mapped and small excavations conducted in and outside the shelters. These sought to identify what archaeological deposit may have survived, and what if any spatial patterning was observable between such features and rock art. Particular attention was given to the presence of
fire features as these are places where residues of Māori occupation often survive. The selection of excavation areas was guided by geophysical surveys using a magnetometer which is sensitive to fire events and soil disturbances, the range of potential sub-surface cultural features expected, and metallic items that likely indicate areas of modern farming activity. Attention was also given to indications of ochre use and distribution in the shelters. In positions near ochre markings and otherwise where ochre was visible in the deposit, parts of the test pits were excavated in horizontal spits with soil samples processed by fine sieving in the laboratory and inspected for ochre flecks.

Material culture recovered from excavations in the northern study area was almost entirely limited to a small number of obsidian flakes found dispersed across several sites. Sourcing the obsidian with x-ray fluorescence analysis contributes to interpreting tikanga-ā-wāhi in relation to a deliberate cultural deposition of two of the artefacts in direct association with rock art. The few other items of material culture found are described, together with a historic collection from Kakaho. A survey of South Canterbury artefacts in museum collections by Martin (2003) was reviewed. No extant collections were identified that should be incorporated into the current analysis.

It is at the metre scale that the taphonomic or formational processes evident in each site are observable. These were studied by comparing the results of excavations with visual inspections of shelter areas, particularly noting sections exposed by modern erosion and earthworks. Some unmarked shelters were inspected and photographed, and some test pitted to support comparison at the kilometre scale.

4.1.6 Kilometre Scale

The ‘kilometre scale’ examines how the surface or panel (or here, the shelter or site) is situated within the broader geographical setting (Chippindale 2004:113). In addition to the observations made in establishing the wider geographical and cultural settings, the accumulated observations made at the smaller scales were compared, particularly to identify if distributional patterns recur across the study areas that may support recognition of particular associations. These are, though, contingent on the evidence accumulating from observations at the metre scale, and having evaluated that against factors that may confound such observations.

Drawing on the surveys of SIMRAP (Allingham et al. 2013) and Fletcher (1996), as well as observations during fieldwork, comparisons of features were made across the study area. The natural form of the rock shelters - such as the relative overhang and sheltered floor space, and overall sizes – were compared to see if they correlate to the distribution of rock art in general, or
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a particular class of figures or other cultural remains. The consistency of the orientation of marked shelters is evaluated for southern shelters, and in the northern study area the location and visibility of *maunga tapu* (sacred mountains) was observed. The different intensity of marking in particular shelters considered in relation to possible space was related to centres of particular activity or zones of significance. For example, the influence of marked space on the selection of nearby localities for rock art was evaluated, as was the particular categories of rock art that appear to attract later additions. The topographic settings of the different sites were considered, including whether concentrations of rock art related to the available space afforded by rock formations.

The archaeological character of marked and unmarked shelters was compared. Of particular interest were observations of formational processes in action across each study area, and how these impact on what is visible and recoverable. These were further informed by observations developed within the broader archaeological context.

It is within the conceptually broad ‘kilometre’ scale that the observations from ‘millimetre up’ intersect with those drawn from the development of the wider ‘archaeological context’. At this scale recognition of spatial patterns are able to be related to results obtained from the dating program. Macro-taphonomic factors, particularly changing land use and vegetation, are also related to what survives, where and why.

Chippindale developed this spatial framework with particular regard to the formal characteristics of rock art - those based on physical evidence. He notes, however, that the same framework may also be of use in informed approaches – those drawing on ethnohistorical insights to develop an insider view (Chippindale 2004:115). At the kilometre scale, this includes evaluating the extent to which localised traditional knowledge is able to be related to specific rock art localities given the physical options within the study areas. Expanding beyond this are observations regarding tribal boundaries and traditional uses of areas. Conceptually at a scale of hundreds of kilometres, observations are drawn from evidence of cultural practice beyond the study areas that inform interpretations made within them. A particular example concerns observations drawn from historic photographs and rock art sites elsewhere in New Zealand of the use of colonial period writing by Māori.

4.1.7 Advancing the Multi-scalar Approach

Chippindale’s multi-scalar framework is used to identify variability in the positioning of individual rock art elements, categories of elements, and rock art sites relative to other natural and cultural features and spaces, including places where rock art is not present. Where the
distribution pattern of variables differs from that expected as a result of either the simple availability of appropriate rock surfaces or random processes, purposeful selectivity by the artists is implied (Morwood 2002: 178, 203).

Challenges were encountered at several of Chippindale’s scales, particularly distinguishing marking events at the sub-metre scales, and recognising patterns across study areas given the considerable variability among a limited numbers of sites. As a consequence, data is therefore largely treated descriptively and considered qualitatively.

4.2 Excavations and Dating

Excavations were undertaken at some of New Zealand’s most significant rock art sites that had not previously been excavated. Steps were taken to limit the impact on sites. Magnetometer surveys were commissioned by a local archaeologist expert. This allowed excavations to be targeted at anomalies considered likely to be fireplaces or pits. Fire features found were sectioned, leaving at least half of the feature intact. The area of excavations was kept to a minimum, mostly less than 3 m² and test pits in small shelter spaces. Where excavations were immediately in front of a rock art feature, they were offset so as to extend no more than half way across that area. By adopting these approaches a broad understanding of the archaeological character and formation processes was achieved, while minimising impacts on sites and preserving options for future investigations.

As noted in Chapter 2, the time at which different areas with Māori rock art were occupied is poorly understood. This research attempts to archaeologically understand that in relation to the study areas. This was approached with radiocarbon dates on material recovered from excavations at some of the sites investigated. Considered collectively across the respective study areas the dates indicate how occupational evidence is temporally situated within what is understood of the changing patterns of land use and the wider archaeological contexts. The tribal histories referenced also indicate when some places were used and the wider areas were settled. These tend to record a wider array of times than the radiocarbon dates.

Direct dating of the rock art may also contribute to understanding how the uses of the sites are temporally related to occupations of the wider area. However, this had not been tested in New Zealand and isolated radiocarbon dates would provide little insight, especially in the context of a diverse range of figures. Overcoming that would require a programme of dating multiple figures from various sites that allow comparison through which trends are identifiable and which confounding factors can be addressed. That has been beyond the resources currently available.
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Nonetheless, an exploratory effort was made to evaluate the extent to which such analysis may be feasible and potentially relatable to insights derived from excavations. This involved the direct sampling of pictographs for radiocarbon dating analysis and of material found deposited near ochre markings.

Within the resources available it was considered viable to date black pigment from South Island pictographs. While the local iwi were supportive in principle of dating, there was concern as to adverse impacts on any rock art image. Practical considerations included attaining an appropriate sample of sufficient size from figures for which the results would be informative for future work. Following on-site consultations with iwi participants in the southern study area, the only samples collected were small pigment bearing limestone pieces that a conservator on site ascertained had detached or were about to detach from the rock wall. The pigments samples were removed, pre-treated, and submitted for AMS dating by the University of Waikato Radiocarbon Dating Laboratory.

There have not yet been sufficient studies on Māori ochre paints that would make dating ochre marks a viable prospect. A small ochre soaked ball of flax fibre found previously in a shelter at the edge of Lake Taupō was radiocarbon dated with permission of the local marae and Fletcher, the finder. Having been found in a rock cleft immediately below ochre marks it provided datable evidence from the district of ochre use and the placement of artefacts in spatial association with rock art, and so is useful for comparison to material found in the Kakaho study area.

The resources available for 16 radiocarbon dates were spread across the study areas. Having few dates from a feature and sometimes single dates from sites may leave the chronological interpretations open to critique. The counterbalance, however, is that comparisons of how a variety of sites are situated within the wider archaeological context are possible. The resulting chronological overviews combined with the summaries of the natural environment, tribal occupations, and changing land use provide the wider archaeological context and settings for each region, and much of the ‘kilometre scale’ observations of the contextual approach employed.

4.3 Study Areas

There are a number of factors that influence the selection of study areas. First, the patchy state of knowledge of Māori rock art directed the study to areas where records provided a comprehensive geographical coverage of the sites and features present, or where this was achievable within the available resources. The areas needed to include a number of rock art sites
among a wider array of locations of variable size and character that could have potentially been marked. This provided the opportunity to recognise choice in the selection of places marked. Selecting a study area in each island allowed comparison of different settings and archaeological contexts. The study areas were selected from within the main range and geographical concentrations of rock art localities on the respective islands. A selection criterion for the study areas was also the availability of archaeological deposit for which excavations were likely to yield material appropriate for dating. This was informed by visible surface indications of faunal remains, artefacts and fire feature residues about the shelters. An argument based on archaeological interpretation requires developing an understanding of the formational processes of rock art sites and the wider locality in which they are situated. Accordingly, the study areas had to be of a scale in which the effects of geomorphology, land use and other formation processes on the archaeological remains were observable.

4.3.1 Study Areas Selected

Two study areas were selected that fulfil the selection criteria: one at Opihi in South Canterbury, and the other at Kakaho Stream, 13 km north-west of Lake Taupō. The Kakaho study area focuses on ignimbrite outcrops on farmland east of the stream and also included Te Weri Pā in forest to the west. The area was previously surveyed (Fletcher 1996), with 19 known Māori cultural sites including seven with petroglyphs and/or ochre marks and further unmarked shelters with surface evidence of cultural deposits. Oral history links a rock art marked shelter to the pā on the other side of the stream where other petroglyphs are found. Tribal history indicates the specific area was occupied soon after the settlement of New Zealand, and throughout the late pre-European and early post-European periods.

In South Canterbury the Opihi study area runs along a limestone edged gully and riverside bluff. Contained almost entirely on a single landholding, the area covers most of a survey ‘block’ of SIMRAP for which a preliminary resurvey had recently been completed at the outset of this research. Surveying by SIMRAP continued and access tracks and roads were modified by the Ngāi Tahu Māori Rock Art Trust and landowner. Twenty rock art sites are currently recorded, and one of the larger sites in particular exhibited surface material indicative of significant archaeological deposit possibly having survived. The rock art includes the famous Opihi taniwha and Māori writing dating to the European colonial period.

These two study areas are of comparable size extending along 1.5 to 2 km strips each, and have a comparable number of recorded cultural sites (19 and 20 respectively). Although Kakaho includes known sites without rock art, a preliminary evaluation of each suggested that they are
sufficiently rich in rock art and other features to support the investigation at differing spatial scales. Further, at the time these were the two areas of known rock art in New Zealand that best met with the various study area selection criteria outlined above.

The Kakaho rock art sites have only been publicly known for the last 30 years, but the character and quantum of figures, and surrounding histories make it standout as one of the most significant rock art localities in the North Island. The Opihi Taniwha Shelter has been a feature point of southern Māori rock art for over a century. In accordance with New Zealand regulations, permission was gained from the local mana whenua (traditional Māori authorities) and landowners, and the work was conducted under authorities from the NZ Historic Places Trust to modify archaeological sites for research purposes at Opihi (authority no. 2013-189) and Kakaho (authority no. 2013-337). The tikanga (culturally appropriate practice) applied during all fieldwork and subsequent handling of recovered material was in accordance with the instruction from iwi and in line with my two decades of experience in Māori heritage management, including caring for artefacts in museums and as tribal heritage manager. Iwi participation was encouraged in the fieldwork and facilitated whenever local participants were available.

4.4 Chapter Conclusion

Towards an evaluation of how aspects of tikanga-ā-wāhi may be archaeologically recognisable at places with Māori rock art, a multi-scalar spatial method is considered appropriate for bringing together and comparing different types of ethnohistorical, environmental and archaeological information, each with components recorded or observed at different spatial scales. The method adopted is based on the ‘from millimetre up to kilometre’ framework Chippindale (2004) has articulated for rock art studies. This draws on the strength of rock art in archaeology as having certainty in place. It also encourages broad considerations of the different aspects of rock art and its localities, particularly giving consideration to the extent to which observations made at one scale are substantiated by evidence at other scales. This helps avoid potentially impressionistic interpretations and uni-lineal correlations that may tend towards essentialist views of what rock art and the places ‘are’.

By examining a range of variables, as outlined in this chapter, the method encourages consideration of how different environmental and cultural processes influence the current patterning in the rock art and wider archaeological record. Within such a contextual understanding, where associations evident through similarities and differences in the patterned relationships between rock art and other cultural and natural features are identified the potential archaeological recognition of tikanga-ā-wāhi can be evaluated. This includes recognising
Methodology

taphonomic factors as well as artistic and other cultural practices that affect the extent to which past behaviour influenced by tikanga-ā-wāhi provides plausible explanations for what survives archaeologically. The data supporting those examinations are obtained by inspecting the rock art record, undertaking selected excavations and dating of material recovered, reviewing historical land use and drawing on insights informed by place names, oral histories, traditions and ethnography – what Arsenault (2015:10) describes as the ‘intangible aspects’.

In reporting the observations, this thesis outlines the ‘kilometre’ scale in the first instance bringing to the fore the wider archaeological contexts - that is the understandings of the natural and cultural environments that existed over the time period of interest. As noted in Chapter 2, since the research efforts of the 1960’s-70’s there have been refinements in such understanding regarding southern Māori occupation, while the wider archaeological context of North Island rock art places has remained undeveloped. The present investigation addresses this by bringing together literature and historic resources relevant to the ecological, tribal and land use histories of the respective study areas. This provides the settings in which other observations are considered.

Having used Chippindale’s framework generally to make a series of observations of the archaeological and rock art record, the different types of observations are discussed according to the spatial scale at which patterning has the potential to be recognised. This is typically across sites at the ‘metre’ scale or the inter-site ‘kilometre’ scale. It is at these levels that associations potentially indicative of tikanga-ā-wāhi can be observed and the consistency of individual observations made within the smaller spatial units of Chippindale’s framework compared and checked.
In the central North Island 13 km north-west of Lake Taupō, the Kakaho Stream bends south from the present verge of the Pureora Forest Park into a valley edged on one side by hills covered with mixed exotic and rejuvenating native forest, and on the other by farmland with exposed ignimbrite bluffs and outcrops. Archaeological remnants of Māori occupations found across the area include a pā, gardening features, rock shelter occupations and some of the North Island’s most significant surviving Māori rock art. An area of the valley about 1.5 km along the road was selected for the study (Figure 5.1). It allowed examination of a variety of archaeological features including different types and groupings of rock art, identifying patterns in the formational processes, and drawing on Māori historical accounts of the place.

Figure 5.1: Kakaho Study Area. KiwImage Satellite Imagery, GeoDataHub Geospatial Data Repository.
This chapter situates the Kakaho study area within a regional landscape and develops the wider archaeological context. The geology, ecology and Māori history are discussed first at regional levels to give a context for the more locally focused considerations of the land formations and characterisation of occupations within the specific study area. Particular attention is given to changes in ecology and land use that have influenced the Māori occupation of the area as well as the survival of the archaeological deposits within it. Considering the Māori history allows an assessment of whether archaeology - including the rock art - can be related to particular tribal affiliations, boundaries or travel routes. It also allows evaluation of the 19th century knowledge of the places which determines the confidence given to oral histories. Reviewed at a ‘kilometre’ and ‘kilometre-plus’ scale, the following provides a background for the subsequent consideration of the archaeological investigations (Chapter 5) and the rock art study (Chapter 6) at specific sites.

5.1 Geographical Setting

5.1.1 Geology

The prominent geological features of the central North Island are the active volcanoes of Tongariro National Park and the massive caldera filled by Lake Taupō. Over the last two million years explosive eruptions from at least eight caldera within the Taupō Volcanic Zone have spread ignimbrite across much of the central and eastern North Island (Leonard et al. 2010:vi). In the final phase of the latest ‘Taupō Eruption’ of about AD 230, the eruption plume collapsed into an extensive pyroclastic density current that devastated over 20,000 square kilometres of the central North Island. That current extended over mountains more than 1500 m high destroying almost all vegetation, burying the overrun areas with hot ash and pumice, ponding in valleys and forming the ‘Taupō ignimbrite’ that reaches up to 90 km from the vent (Leonard and Houghton 2012:30, 32). The new land surface was susceptible to erosion resulting in a rilled and gullied landscape (Molloy and Smith 2002:42). A characteristic of the Western Taupō landscape is broad, washed filled flats and high terraces, resulting from loose pumice washing into valleys and depressions, clogging streams and forcing them to build high terraces into which the streams have re-trenched (Baumgart 1952:88). This describes the section of the Kakaho Stream valley investigated.

The geological map (Leonard et al. 2010) shows the area around Kakaho as mostly variably welded ignimbrite of the Whakamaru Group associated to a series of Pleistocene eruptions (Leonard et al. 2010:38-9). The bluffs and outcrops of this rock are the locales for the shelters and rock art investigated. The Kakaho valley floor from upstream of the study area down to its
juncture with Huruhurumaku Stream is characterised as a pocket of Taupō Pumice Formation - a non-welded, loose to poorly consolidated to sintered rhyolite ignimbrite with pumice clasts (Leonard et al. 2010:map). A typical undisturbed deposit of the mantle of Taupō pumice that covers Western Taupō is described by Baumgart (1952:88) as being vertically size sorted with fine sands and silts over sand dunes over underlying gravels. Within the study area the soils of the sites investigated are largely comprised of such volcanic sands. Upstream to the west of the study area the tributary branches of the Kakaho Stream have sources in the north end of Hauhungaroa Ranges and about Mt. Pureora, the likely sources of the water-rolled basalt cobbles found in the Kakaho Stream bed.

5.1.2 Ecology

McEwen (1987) considers New Zealand in 85 ecological regions subdivided into 268 ecological districts (ED). The Kakaho study area is near the north-western edge of the Taupō ED where a number of characteristics are common to the adjacent part of the neighbouring Pureora ED. The latter encompasses Pureora and Titiraupenga, two mountains that are important Māori landmarks in the area, as well as the Pureora forest that features in accounts of the Māori occupation of that landscape. An ecological characterisation of the study area and its surrounds can be provided by drawing together relevant aspects from the two ED’s.

Climate: Nearer the Lake has relatively warm summers, cool winters, and heavy rains at times with annual rainfall of 1200-2400mm. To the west the rainfall is 1600-2400mm p.a. with severe winter climates at higher altitudes and occasional snow on Mt Pureora.

Topography: A rolling to locally broken landscape is formed from dissected lower Pleistocene Whakamaru ignimbrite W and NW of the Lake. Pleistocene ignimbrites (mostly 300-600m a.s.l.) abut against and have flowed around the higher Hauhungaroa Range - an uplifted, tilted and dissected block of Jurassic greywacke and argillite, and two early Pleistocene andesite volcanoes (Pureora, 1165m a.s.l. and Titiraupenga, 1041.7m a.s.l.).

Soils: Coarse textured volcanic ash soils have formed from a moderately to very thick cover of young, coarse textured rhyolitic ash (Taupō) over older brown silty and sandy ashes. Leaching ranges from moderate in lower rainfall areas to very strong as rainfall increases with podzolised soils and podzols where podocarps are extensive. On steep slopes with a thin ash mantle, soils are shallow over ignimbrite and greywacke. In river valleys and on terraces coarse-textured droughty pumice soils are from thick deposits of pumice sands and gravels. Small areas of peaty and alluvial soils occur.
Vegetation: Following Polynesian clearance of the original forest, the area north and immediately west of the Lake was formerly scrub and grassland with pockets of relic forest. The rise of the plateau to the Hauhungarioa Range and most of the Pureora ED was originally dense podocarp forest on the older ignimbrite surfaces. Montane podocarp/hardwood forest covers the slopes of the andesitic cones, and with montane scrub above the tree line on Mt. Pureora. Some unmodified peat bogs and virgin podocarp forest reserves are found in the area.

Avifauna: Forest birds include the North Island kokako, robin and brown kiwi, kaka, yellow-crowned and red-crowned parakeets, fernbird and NZ falcon. Extensive waterfowl about the Lake and its tributaries include the blue duck, NZ scaup and Australasian shoveler.

(Compilation paraphrasing McEwen 1987a:21, 24).

5.1.3 Forest History

Below the treeline, the central North Island was forested in pre-human times, and without extensive tussock grasslands (Rogers 1994:271). The Taupō eruption destroyed most forest within 50 km of the Lake, but some pockets of bush appear to have survived the pyroclastic ground flow and ash falls. Forest recovery occurred within 400 years of the eruption and there was no long period of treeless vegetation (Rogers 1994:271; McGlone 1989:120). Almost all the Taupō area was reforested when Māori arrived there (Williams and Walton 2003:15; Rodgers 1994:271).

The different types of forest within the vicinity of Kakaho Stream each offered differing populations of forest birds and bush resources upon Māori arrival. New Zealand’s ‘Potential Vegetation Pattern’ (Landcare Research n.d.) provides a characterisation of the different ground cover prior to human arrival. The area of Kakaho Stream had ‘rimu-matai-miro-tōtara/kamahi forest’ to the east and towards the Lake. To the north was mostly ‘rimu/tawa-kamahi forest’. Both forest types include the conifers rimu, miro, tōtara, matai and kahikatea which are dominant in the latter, and tawa and kamahi that are widespread in the understory but dominate the canopy of the ‘rimu/tawa-kamahi forest’ (Leathwick et al. n.d.). To the west was a mixture also including a third forest type, ‘Hall’s tōtara/broadleaf forest’, only 6 km away on Mt. Pureora.

There is not a specific signature for anthropogenic forest fires in New Zealand (McGlone 1989:120), however the bush clearance and conversion to tussock grassland of large parts of the Taupō region from about 650 years ago is attributable to recurring Māori landscape burning. Rogers (1994:275) shows that by 1840 the tussock grassland extended about the north and western side of the Lake up to the Hauhungarioa Ranges. Historic survey maps (e.g., ML-6076-
Kakaho Study Area, Western Taupō

5-I-1; ML-6076-3-I-1) dating to the late 19th century show the bush edging the western side of the Huruhurumaku Stream with its tributary, the Kakaho Stream, reaching up into the forest (Figures 5.2 and 5.3). Historic accounts describe a pattern of bush edge settlements about Taupō in the 19th century (Williams and Walton 2003:13-5). The scene of at least the late 19th century Māori occupation of Kakaho had open tussock land towards the Lake to the east, and the rich Pureora forest resources to the west.

Figure 5.2: The late 19th century bush-line was at the juncture of the Kakaho and Hurumaku Streams. Part of ‘Plan of Tihoi’ c.1892, ML-6076-5-I-1. Plans sourced from Land Information New Zealand, supplied by Quickmap NZ.

5.2 Māori History

5.2.1 Initial Settlement

Archaeological evidence from Whakamoenga Cave at the edge of Lake Taupō shows that Māori were certainly in the area by the 14th and 15th centuries (Williams and Walton 2003:11). The specific arrival times of the various migration waka to New Zealand are not known, however, within these traditions the Taupō area was explored during the period of oceanic voyaging, purposefully imbued with places of religious significance from the outset and settled within a few generations of Māori arrival in New Zealand.

Traditions tell of the exploration and settlement of the Taupō area by individuals from Hawaiki, the ancestral homeland of Māori, who came to New Zealand on the Te Arawa migration waka (Grace 1970:58-68; Stafford 2002:20-22; New Zealand Geographic Board 1990:30-37). Having
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landed in the Bay of Plenty, Tia and Ngatoroirangi (Ngātoro I Rangi) both set off to explore and claim land in the interior. Their intertwined exploits established tūāhu (dedicated places of ritual) about the land, engaged atua resulting in tikanga attaching to places, gave name to many of the geographical features (including Te-Taupō-nui-a-Tia, the lake basin) and created others. For example, as the first person to climb Tongariro, Ngatoroirangi was aided by sisters in Hawaiki sending fire gods that travelled beneath the sea and ground to warm him. The surfacing places of those atua are the geothermal features of the Taupō Volcanic Zone, knowledge of which is the focus of the story (New Zealand Geographic Board 1990). Tradition tells the area was also traversed but not claimed by another group from Hawaiki led by Tamatea-arikinui, and while Ngatoroirangi returned to the Bay of Plenty to live, Tia settled with his people by Titiraupenga (Grace 1970:65-7), his burial there being the principal reason it is considered a sacred mountain (Waitangi Tribunal 1993:17).

Te Hata (1916:105) suggests that the area was unoccupied prior to the arrival of Tia and Ngatoroirangi, however the Waitangi Tribunal review supports interpretations that the original tangata whenua of Taupō and the upper Waikato were tribes named Ngāti Kahupungapunga, Ngāti Ruakopiri and Ngāti Hotu, none which have retained a separate identity into the present (Waitangi Tribunal 1993:13). The latter two appear to be of Te Tini o Toi, the original inhabitants of the Bay of Plenty (Waitangi Tribunal 1993:18).

At the time of Tia and Ngatoroirangi, the people of the Tainui voyaging waka had settled at Kawhia on the west coast of the North Island. From there Rakataura and Kahukeke, his wife, explored inland naming the landmarks. When Kahukeke became ill, Rakataura conducted the appropriate ceremonies facilitating her recovery giving name to the place as Pureora-o-Kahu (Waitangi Tribunal 1993:18), [pure ritual removal of tapu; ora living]. That journey, abandoned soon after when Kahukeke died, established the early extent of Tainui in the upper Waipa and Waikato valleys, with Ngāti Raukawa initially occupying the latter as far south as Whakamaru (Waitangi Tribunal 1993:19).

5.2.2 Tribal Occupation, Boundaries and Trails in North-Western Taupō

While the area straddles a border zone between the people of Tainui waka to the west, and Te Arawa waka to the east, the ‘boundaries’ of these canoe groups are expressed in very general landscape terms (Waitangi Tribunal 1993:13). The tribal boundaries often drew connections between significant geographical landmarks rather than being precise lines on maps (Waitangi Tribunal 1993:21, Map 2.2), and people living about them tended to draw connections with groups on either side (Waitangi Tribunal 1993:27; Appendices to the Journal of the House of
Kakaho Study Area, Western Taupō

Representatives 1889:1-2). Blurred boundaries, the temporal uncertainty of changing tribal occupations, and that of the archaeological features cautions against attributing the archaeological sites and rock art figures to particular iwi based on location.

The tribal histories of shifting Māori occupation of the upper Waikato and north-western Taupō have been examined and reported on by the Waitangi Tribunal in regards to the Pouakani Claim. This concerns the substantial land block immediately to the north of the Kakaho study area which is near the neighbouring boundary of the Tihoi Block. The Tribunal (Waitangi Tribunal 1993:13-14) describes interlocking and overlapping traditional rights of use derived from ancestral connections to discovery (take whenua kite hou), continuous occupation (take tupuna), conquest (take raupatu) or gift and exchange such as award in marriage or dispute settlement (take tuku). These draw from accounts of tribal movements across the area (Waitangi Tribunal 1993:18). Ngāti Hotu and Ngāti Ruakopiri who originally occupied the northern and eastern sides of the Lake were displaced by Ngāti Kurapoto, a Te Arawa hapū (sub-tribe). Tia’s descendants, Ngāti Ha, occupied the northwest around Tihoi and Titiraupenga. Some Ngāti Hotu settled in west Taupō, but they were forced from the area by Ngāti Ha and Ngāti Kurapoto after killing Tia’s descendant, the chief Hakuhanui. Ngāti Tama, another group from Te Arawa, also settled in west Taupō, and later Ngāti Tuwharetoa who descended from Ngatoroirangi among others took control of lands about the eastern and southern parts of the Lake. Ngāti Raukawa of Tainui extended their claim in the Waikato Valley south to Lake Taupō by the conquest of Ngāti Kahupungapunga (Waitangi Tribunal 1993:20).

A pencilled boundary line partly along Kakaho marked on one plan (ML-5995-E) reflects discussions in the Native Land Court minutes on land block divisions. Part of the colonial process was to assign Māori land into surveyed areas of designated ownership, working towards individualisation of land title. Specific land boundaries and ownership were often contested in the NLC and in part was an artefact of the modern establishment of title. However a number of court witnesses emphasised that traditionally there were no internal boundaries in the expansive Taupouiatia West Block, which includes the Tihoi Block (Young and Forbes 1994:22). Rather the “hapu who had a right lived in common over the whole block” (Young and Forbes 1994:24, citing Hauraki Tonganui). Waraki Kapu (NLC 1897:165-6) describes Kakaho Stream as partly forming boundaries of two subdivisions made by Ngāti Ha, one assigning lands to different parts of the hapū following a marriage, but notes that in ancient times the now Pouakani and Tihoi blocks were one.

The archaeological features are not related to historically known travel routes. Several 19th and early 20th century maps developed and annotated for the NLC depict a number of trails criss-
crossing the Taupō region. Almost all traverse the open tussock and edge the forests rather than penetrating into them. The trails are recognisable as lines sometimes labelled ‘track’ or more often dotted lines sometimes annotated with a destination. Some of the plans show trails on the other side of Mt. Pureora (e.g., ML-6036-I-1) or extending into the Hauhungaroa Range (e.g., ML-6036-I-3). One dated 1903 shows merging trails along the western and the southern edge of ‘Tihoi Bush’ both annotated as ‘track to Kakahou’ [sic] (ML-6939-1-I-1). Several show trails along the then eastern edge of the Pureora Forest and Huruhurumaku Stream into which the Kakaho Stream flows. None of those examined depict trials westwards up the Kakaho valley, even though the stream is figured and sometimes labelled as such. Waraki Kapu (NLC 1897:169) describes a trail into the bush from Te Umukuri (see below), in part associated with birding localities, and going to another of the occupying hapū’s kāinga. However, on the maps examined it is not until 1943 (ML-16304-I-1) that the first path west is marked - a proposed road to ‘Te Kakaho Pa’, the location of the 1890’s Te Kohera meeting house.

The contrast is telling between the numerous marked trails that traverse open land and the dearth of trails through the forests. Kakaho is part of a network of trails that link to places on the western side of the Pureora Forest, but by following open ground around the northern edge of the forest rather than going directly through it. This may reflect the relative ease of travel or social opportunities afforded by such a route that passes other forest edge kāinga. It cautions, however against developing an arbitrary model of travel routes based on cost-surfaces alone. Accepting the historically known trails as the most informative indication of past travel routes, there is nothing from the above discussion to suggest that rock art sites at Kakaho are linked to major travel routes or boundary marking rather than relating to peoples’ occupation centred within the valley.

5.2.3 Māori Occupation about Kakaho

The lower reaches of the Kakaho Stream separates the land blocks of Pokomutu Ohae to the north and Te Kohatu to the south, both subdivisions of the larger Tihoi land block. Fletcher (1996) provides an overview of the Māori occupation of the immediate area. Hakuhanui, a close descendant of Tia, and his people settled at Kakaho and built a house named Otangarue (Grace 1970:118) establishing Te Weri Pā in response to rising tensions with Ngāti Hotu (Fletcher 1996:17, np.). Ngāti Tarakaiahi had a lakeside settlement at Waihaha. Tarakaiahi’s inland pā was Te Weri, and it was used for several generations until Te Momo sought to establish himself there in the 1820’s (Fletcher 1996:22-3). Relations living across the Kakaho Stream at Ohae and within sight of the pā burnt its fences in objection to Te Momo’s occupation. Te Momo

Fletcher (1996:13-14) gives a summary chronology for Tihoi in the 19th century. Ngāti Parekawa moved from Kawakawa Bay at the north of Lake Taupō to live in the bush edges of Waipapa and Kakaho from 1846 until the Land Wars. In 1856 some nearby forests were considered cursed having been depleted of birds to supply a massive gathering at Taupō to establish the Māori King. From 1860 to 1864 Ngāti Te Kohera went from Tihoi to Waikato where a great many were killed in the battle at Orakau and from which many refugees returned to the district. In 1869 the prophetic leader Te Kooti came to western Taupō and sacked the village of Te Papa near Kakaho. Colonial forces pursuing Te Kooti in 1870 surprised a small group of Ngāti Raukawa at Te Weri, identified in the accounts as ‘Tewe’ (see also Fletcher 1996:31). Another account, however, suggests the pā in question was on the Whakamaru Block some distance away (Waitangi Tribunal 1993:56) and Belich (1986:284) places what appears to be the same episode around the Waikato settlement of Tapapa over 60 km to the north. Fletcher’s (1996:13-14) summary continues with Hitiri Te Paerata having lived at Pokomutu on the northern side Kakaho Stream from 1870-73, joined there in 1871 by other Ngāti Te Kohera who refused to live at Te Papa given its recent dark history. A large group of Ngāti Raukawa and other Waikato Māori arrived at Te Kohera settlement in 1877. After a succession of tohunga (spiritual experts) attempted to lift the curse, the return of the birds to Tuaropaki bush in 1880 was credited to Te Piwa ‘The Prophet’ (see also Fletcher 1996:41-42). In 1894 the whare Te Kohera was constructed near the junction of the Kakaho and Huruhurumaku Streams, and Te Piwa resided at Pokomutu. From 1896 old clearings and occupations were renewed by people from Waihaha nearer the Lake.

This historical overview shows iwi and hapū based about Kakaho waxing and waning over time, and shifting location according to circumstance. The details and complexities of these histories are beyond the scope of this research, but four factors should be noted. Firstly, people of differing tribal ascriptions have occupied the area at different times. Secondly, there are strong and continuous links from the outset to both the Bay of Plenty and Waikato. Thirdly, from the late pre-European period at least, which is the earliest of the radiocarbon dating range on material recovered from the rock art sites investigated, the interconnections are as significant as the differences between the iwi. Ngāti Te Kohera, the mana whenua of the Kakaho area today descends from both Ngāti Raukawa and Ngāti Tuwharetoa (Waitangi Tribunal 1993:26). Lastly, the spiritual attributes of places related to memories of local events was a factor in people’s relationship to and use of places.
5.2.4 Knowledge of Specific Places

The Waitangi Tribunal considers sites with rock art in the area to be among those places in the landscape whose significance is less obvious to visitors and for which the knowledge remains guarded and only known to local residents. Such locations included where the mauri (life force) of a place “is imbued in a stone, rock or other feature which remains tapu because of the presence of the mauri” (Waitangi Tribunal 1993:43).

A location just south of Kakaho for which such traditional knowledge has survived is notable for two wooden posts each topped with a pronged spiral similar to the renowned ‘Uenuku’ carved post (see Mead 1984:2, 183). Simmons (1983) describes the locality as an ancient ritual centre and the posts as marking the burial of an important tupuna, however the authority of his advisers is questioned (for example O’Regan 2014:20). Nor was that account accepted by local Māori from whom, along with historical records, more convincing traditional knowledge is drawn (Fletcher 1996:34-40). This describes the pouhara (pou, posts; hara, violation of tapu) as used for sacrificial ritual to purge ‘sins’ and ensure the productivity of the bush. Two similar posts formed a tūāhu at another locality about 3 km north of Kakaho (Fletcher, pers. comm. May 2014). In contrast to memory of the posts, the historical records do not describe the presence of rock art at localities about Kakaho, although there are specific accounts of places at which it is found.

Traditional Māori are often recognised as maintaining a detailed knowledge of their landscapes including specific resources spread over wide areas, landmarks and places of cultural significance, and peoples’ association to these over generations (e.g., Waitangi Tribunal 1993:32). Such local knowledge of the Tihoi district is demonstrated in evidence recorded by the Native Land Court (1897, Taupō Minute Book No.11). For example, the significance of the Pureora Forest for fowling is emphasised by numerous references to individually named trees within the forest used for catching particular bird species (see also Waitangi Tribunal 1993:272-3).

Various rock shelters or ‘caves’ were also known and named. Waraki Kapu names Putakoura as a cave used by Ngāti Ha when birding, and another named Takapau-horahia at Te Umukuri as being a ‘dwelling place’ (NLC 1897:167). Areta Kapu states that “Ha [Hakuhanui]… lived at Taumaihiorangi at the [sic] Kakaho on this block, it is a cave. He lived there…” (NLC 1897:136). Her list of take (claims, causes) includes a cave named Te Mihi but without a mentioned use, another at Pukerimu in which Tia was interred, one at Aomarama that was a repository for the ritual placement of pito or ‘naval strings’, and another named Te Reinga (sp?)
used for sleeping by four generations including herself (NLC 1897:136-40). Further afield in north-eastern Taupō, the petroglyph and ochre covered Ruahoata Cave on the upper Waikato River is also recorded as a sleeping cave (Stokes 2000:120). It provides another example of an account of the places and their use, but without description of the graphic contents.

Numerous occupations of past pā and kāinga (villages or hamlets) are also described. Te Umukuri, more fully Te Umukuri-a-Ha, is described as a kāinga by Papanui Tamahiki and Waraki Kapu (NLC 1897:16, 167). Areta Kapu notes Te Umukuri as a hāngi in which Hakuhanui cooked a dog, but where in 1897 Te Moetu grew potatoes (NLC 1897:139). Individually named ovens associated with important events are known elsewhere (for example, Grace 1970:125, 129, 171, 201). Papanui Tamahiki locates Te Weri above Waiata and considers it a Ngāti Tarakaiahia pā vacated by the people of Pokomutu prior to Te Momo’s interest in it (NLC 1897:16). Waiata is marked on a historic map (ML-5995E) as at the forest edge on the south bank of Kakaho Stream, with Te Weri in the bush to the west (Figure 5.4).

In a visit to Kakaho and prior to being informed of the presence of rock art, the late kaumātua Rangi Ha pointed out to Fletcher the location of Te Weri, the shelter Taumaihi-o-Rangi and identified Umukuri as being the area about the large bluff (Fletcher, pers. comm. January 2013). Pencilled writing on an 1886 plan of the Tihoi Block presented before the Appellate Court in 1898 places both Te Weri and Umukuri on either side of the Kakaho Stream (Kakahu [sic]) (ML-6076-3-I-1) (Figure 5.3). By today’s standards, the shape and position of streams are depicted loosely on the early survey maps, but compared with the topographical options in the locality they combine to substantiate the oral history.

Tribal histories are therefore tied to specific localities investigated archaeologically in this research: Umukuri being the area about the bluff on which the largest corpus of rock art is located (T17/23); Taumaihi-o-Rangi being the most comprehensively marked ‘shelter’ in the study area (T17/53); and Te Weri being the pā immediately above three rock art sites including T17/66. The histories of these sites presented to the NLC do not mention rock art. This probably reflects the focus of the testimonies which is to associate places with people but are seldom descriptive of the detailed features. However, given the level of occupation and otherwise detailed knowledge of places, and the prominence within Kakaho of some of the marked localities, it would seem most unlikely that once made the rock art was unknown to people living there.
5.3 Archaeological Setting

5.3.1 Archaeology in Taupō

Williams and Walton’s (2003) review of the archaeology of the Taupō Conservancy extends to north-western Taupō and includes the area around Tihoi as it is within the Taupō basin although beyond the Conservancy’s administrative boundaries (Williams and Walton 2003:10). There is limited archaeological research of the region (2003:6), with patchy survey coverage reflecting
the bush and scrub over much of the area hindering more systematic efforts (Williams and Walton 2003:7). Almost half of the known North Island rock art sites \((n127: \text{Pick 2010:13})\) are in the area, but research on the roles of these in settlement patterns is lacking. Just over half of those sites have ochre markings, the rest have petroglyphs, but only a few sites appear to have both (Williams and Walton 2003:11). Of the twenty archaeological excavations listed most were small scale or salvage and a large proportion were in the south of the Conservancy with sites dated to mid to late 19th century (Williams and Walton 2003:10). Archaeological excavations of rock shelters include Waihora and Whakamoenga at the lake edge, and Waipapa and Rua Hoata on the upper Waikato River.

Williams and Walton consider that pre-European Māori occupation would “have been restricted to favoured areas and to have utilised large areas extensively rather than intensively” (2003:7). Recorded Māori archaeological sites are concentrated about the edge of Lake Taupō and only those at Tihoi are noted inland in north-western Taupō (Williams and Walton 2003:8, fig.2). Even accounting for the comparative visibility of more recent sites, those from earlier periods appear to have a limited geographical distribution while much of the more widespread evidence of occupation away from the lake is attributable to the 19th century (Williams and Walton 2003:9).

Analysing historic estimates of population and descriptions of settlements, Williams and Walton (2003:13, 24) conclude that prior to the European contact period a mobile and dispersed population of around 2,000 people lived in the Taupō region. Those communities exploited a variety of foods from the bush, streams and lake. *Koura* (freshwater crayfish, *Paranephrops planifrons*) and fish, particularly *Galaxias*, were present in the lake and streams throughout the region. Archaeological evidence for the consumption of these is slight and restricted to Whakamoenga Cave however ethnographic evidence documents their use (Williams and Walton 2003:20-22). Physical barriers in the Waikato River are likely to have negated Lake Taupō having a viable pre-European population of *tuna* (eels, *Anguilla spp*.), an important food resource in many parts of New Zealand (Williams and Walton 2003:22). Kakaho Stream is part of a tributary system that enters the Waikato River below one of the two mentioned natural barriers but it is not known if it had eels prior to modern hydro barriers. The same applies to *kākahi* or fresh water mussels (*Hyridella menziesi*) but the bivalve, found in archaeological sites at Kakaho, was otherwise widely available from the Lake and its direct tributaries. Archaeological evidence from Whakamoenga Cave supports ethnographic accounts of it being a food resource (Williams and Walton 2003:21).
The region has natural deposits of moa bone. It was used industrially at Whakamoenga Cave but there is no evidence moa were hunted in the area (Williams and Walton 2003:20). Waraki Kapu lists Kakaho Stream as a birding place for *whio* (blue duck, *Hymenolaimus malacorhynchos*) and *pārera* (grey duck, *Anas superciliosa superciliosa*) (NLC 1897:171). Abundant waterfowl were caught on Lake Taupō and surrounding streams, although they are poorly represented archaeologically in comparison to bush and scrub birds (Williams and Walton 2003:23) showing that forest fowling was a primary subsistence activity. This remained so through until the late 19th century, shown by the significance of birding trees and locations listed in evidence before the NLC (Waitangi Tribunal 1993:272-6; NLC 1897).

Williams (1988:109-18) considers the viability of pre-European Māori horticulture in the Taupō area. With a nuanced consideration of local conditions, ethnographic accounts of gardening practice, and the observations of early European travellers to the region, Williams argues that horticulture was possible in particular circumstances. Strategies for growing the frost-sensitive kumara probably included gardening in geothermally warmed ground, or at the forest verge and in bush clearings that take advantage of both stronger soils and where the risk of frost damage can be mitigated. Microclimates in sheltered river terraces with alluvial soils or on sheltered slopes with a sunny aspect were feasible locations for kumara cultivations, however the amount grown and corresponding land area cleared for that purpose was probably limited (Williams and Walton 2003:19). There are ethnographic accounts of gourd (*Laenaria siceraria*) and taro (*Colocasia esculenta*) being cultivated around Taupō, and while the latter may be a post-European development, gourd remains were recovered throughout the occupation sequences at both Waihora and Whakamoenga (Williams and Walton 2003:19).

As noted, the bush clearance and conversion to tussock grassland of large parts of the Taupō region from about 650 years ago is attributable to recurring Māori landscape burning. Intentional fires promoted bracken growth of which the rhizome was an important food resource, or cleared land for cultivations and habitations. Other fires could have been accidental or facilitated travel in montane areas of low economic value (Williams and Walton’s 2003:16-17; Rogers 1994:274-5, 280).

The avian remains and coprolites recovered from archaeological deposits at Whakamoenga Cave show a decline in forest birds and an increase of fern-root consumption over time. If that change in subsistence behaviour is indicative of immediately available resources, this may indicate an increase in the bracken fern cover and corresponding retreat of forest from about the cave (Williams and Walton 2003:16).
Williams and Walton (2003:24) accept Ward’s (1956) model of settlements over the centuries following a retreating bush edge. They see a continuity of forest clearance during pre-European times that extends into the historic era (Williams and Walton 2003:16), and bush-edge settlements becoming more important as geographical spread was enabled by more productive potatoes, extended travel by horse and a reduction in warfare (Williams and Walton 2003:25). While a reduction in warfare in the mid-late 19th century is a factor in changing land use, Williams and Walton’s (2003) regional discussion does not extend to the role of pā or if access to them may have influenced land use. Nor does it consider the same for wāhi tapu or matters of belief.

5.3.2 Te Kohatu Block Survey

The Kakaho study area is among the hills and valleys in the vicinity of Tihoi examined by Fletcher (1996). The survey area extended 3.5 km west from the Huruhurumaku Stream, and from the area surrounding Tutakamoana Pā near Tihoi north 8 km to Puketapu Pā (Figure 5.5). Rather than complete survey coverage, the site distribution reflects surface evidence usually found between old forest margins and streams that are usually less than 200 m away, a pattern typical in the region (Fletcher 1996:4-6). A total of 86 cultural sites are reported including 10 pā, 28 rock shelters with cultural evidence, 11 of which had rock art, and one of the sites with carved posts historically associated with sacrificial ritual.

Figure 5.5: Recorded Māori archaeological sites about northern Taupō. NZAA data generated by Iain Gover, 2013. The uneven site distribution does not reflect historically known Māori settlements in the district. Sites in Te Kohatu Block area discussed by Fletcher 1996 are circled. Lake Taupō max width 30 km.
The area selected for the current research has 19 recorded Māori archaeological sites including a pā, small pit and fire features, and 15 rock shelters or overhangs with cultural evidence. Eight shelters are recorded as unmarked but having cultural deposit on the floors. Ochre daubs mark seven shelters, four of which also have petroglyphs that are mostly of a facial motif. Other than Fletcher’s report, the only archaeological evaluation of Māori sites within the study area is Lawlor’s 1983 recording of the largest rock art complex, T17/23, for the NZAA Site Recording Scheme.

5.3.3 Description of the Study Area

The modern Kakaho Road runs along the eastern edge of the valley floor with the stream cutting into the western edge of the valley flats. On the eastern side of Kakaho Stream, the study area focuses on a strip of Lane’s privately owned farmland stretching 1.5 km SE alongside the road from the public campground. The prominent features there are the high outcrops of ignimbrite rock with steep talus slopes beneath them. Most of the shelters investigated are in the outcrops at the top of the talus slopes. Some sites are located in gullies between the outcrops that rise from the valley floor northwards to high ground topping the rock. Part of the largest outcrop is without substantial talus slope, presenting instead a prominent cliff at the base of which is the most extensive group of rock art. The study area extends to the surrounds of Te Weri Pā west of the stream on Māori land owned by Te Kohera Kakaho Trust. That area was previously cleared but is now in forestry and scrub. Beneath the pā are two sites with ochre markings and a shelter with both ochre marks and facial petroglyphs. Both the Trust’s land and Lane farm boarder a public campsite and the Pureora Forest Park.

5.3.4 Modern Land Use

The 20th century occupation of Kakaho was outlined by Fletcher (pers. comm. May 2014). The community living around Kakaho Pā continued into the first decade of the century, but then shifted closer to work opportunities in the logging camps and mills emerging about the district. By 1930 their meeting house, Te Kohera, appeared aged and had been deserted for some time before the koruru (gable carving) was removed and given to the Dominion Museum (Phillipps 1955:188-92). Maps presented to the NLC show the bush edge retreating up the Kakaho Stream from the late 19th century and the wider area is labelled as ‘fern, tutu and tussock’ in 1943 (ML-16304-I-1) (Figure 5.6). Similarly, a 1945 aerial photograph shows low vegetation in the gully floors, scrub on the slopes and cliff tops, and denser bush surrounding Te Weri Pā (NZ Aerial 26362-1) (Figure 5.7). Tracks along the eastern side of the valley are faintly visible and may relate to bush work. In the 1950’s the general area was used by an army camp located near State
Kakaho Study Area, Western Taupō

Highway 32. From the mid-20th century aerial topdressing allowed the cobalt deficiency in many lands about Taupō to be addressed and farming was made viable. The Government took up substantial areas of Māori owned land, cleared it of bush and prepared it for modern farming. The Government allowed Māori to retain ownership of some areas, such as the Te Kohatu Block (part of Tihoi No.5), while to recoup costs surrounding lands such as that north-east of the Kakaho Stream were balloted in the late 1960’s as 600 acre farm blocks.

![Figure 5.6: Kakaho, 1943. The bushline has retreated over the lower Kakaho Stream with the area described as hilly to steep hills with a cover of fern, tutu and tussock. Part of ML-16304-I-1. Plans sourced from Land Information New Zealand, supplied by Quickmap NZ.](image)

Notwithstanding scrub clearance about the study area by McNae, the initial farmer, aerial photographs of 1993 shows pasture over the low land and hilltops, but scrub or heather growing up the talus slopes and along the top edges of the outcrops (Aerial Survey Ltd. 1993). That heather was subsequently burned by Lane with most of the area now being in pasture. It is evident that the locations of the rock shelters were cleared of bush at least twice, most probably by burning early in the 20th century by Māori, and then certainly by burning towards the end of the century with modern farming. The bush having remained in scrub and tussock over the intervening period may indicate further burning episodes in between.
A substantial part of the Te Kohatu Block is now leasehold farm. That nearer the study area is in commercial pine forest. The land closer to the current Forest Park was initially cleared, including that around Te Weri Pā. When Fletcher (pers. comm. May 2014) first visited the sites the lower ground was relatively open up to secondary growth native bush on the slopes below Te Weri and light bush on the pā itself. The current dense scrub and large wilding pines are modern and the native bush on the higher slopes has matured.

5.4 Chapter Conclusion

In introducing the ecology and history of the Kakaho study area, the above discussion has considered how the archaeology relates to the environment on the broader ‘kilometre’ scale. It also develops an appreciation of the geology, changing vegetation and land use which underpins consideration of formation processes evident at particular sites (see Chapter 6).
Consideration of tribal histories demonstrates flux in the degree to which the immediate area was occupied at different times, and also changes in the make-up of groups who occupied the area ranging from initial settlement in New Zealand through to the present. Threads of continuity are noted in some aspects of the whakapapa of groups occupying the land about Kakaho, such as that of Tia, through Hakuhanui and onwards to Ngāti Ha (Grace 1970:118). However, it is also evident that people of diverse iwi and hapū affiliations also occupied the area at different times. Based on the information accessed the rock art cannot be readily attributed to one iwi or hapū, or for that matter, one waka group at any given point in time.

By reference to historical maps, there is nothing to suggest that Kakaho and the archaeological features within the valley were associated with particular trails. There are, however, examples demonstrating that knowledge of the area and specific localities persisted into modern times. The emerging picture, at least based on traditional accounts, is that the archaeological features in the Kakaho valley relate to people living in and about the valley for a time rather than travelling through it. The accounts also indicate that different rock shelters were used variably, and emphasises that localities were remembered in relation to people associated with those places. To a lesser degree the activity associated with people at the localities was remembered and little description of the things, such as rock art, was noted. This may reflect how the Native Land Court minutes, a key historical record, emphasises peoples’ connection – and therefore interest – in a place, but it is also true of the more general histories presented by Grace (1970).

It may be of interest that the places where petroglyphs are found within the study area are the places specifically remembered in the records. There are, however, many other places noted as significant that do not have petroglyphs. A clear association between ‘significance of place’ and rock art is not demonstrable from the historical accounts, especially given the lack of mention of it in descriptions of those localities.

Landscape modification is part and parcel of these unfolding histories. To the east of Kakaho Stream was converted to tussock and/or scrub. This established the stream-side and forest edge character of the locality that appears was significant in terms of the settlement pattern understood for the area. The position on the edge of open land that extends to the nearby lake allowed connection with passing trails and immediate access to forest-edge gardening and the bush resources of the Pureora Forest.

The traditional accounts have occupation of the Kakaho valley occurring early in Polynesian settlement of New Zealand and also in the later pre-European and contact periods. The forest clearance of the valley itself was not associated with those earlier occupations, or if so it was not
Kakaho Study Area, Western Taupō

permanent. Rather, based on the Native Land Court maps, the present cleared state did not occur until later post-European times. It is evident from the historical records that some of the areas were cleared for gardening from the late 19th to the early 20th century. Burning can be expected with that land use. At least two episodes of more recent burning associated with modern farming scrub and heather clearance are evident from the post war historical photographs – one clearance changing the scrub from that evident in 1945 to the state seen in 1993, and another clearing the talus slopes since then. It is also clear that the intensive stocking of the land is limited to the last fifty or so years.

The underlying geology is of ignimbrite outcrops that provides shelters and bluffs on the one hand, and shifting volcanic sands prone to erosion on the other. In conjunction with this, the histories discussed above provide a broader context in which more specific archaeological investigation of the localities and the examination of the rock art at Kakaho were carried out. These are discussed in the following two chapters respectively.
Chapter 6 Kakaho Archaeology

The historic information shows the occupation of Kakaho by Māori in the late pre- and early post-European period in small settlements about the valley, gardening at the edge of the bush-line, using the rich avifauna of the Pureora forest, with episodic fighting and recurring occupation of Te Weri Pā. At a ‘kilometre’ scale, this chapter questions if the archaeological record reflects such occupation, finding evidence in support of some but not all of these aspects of life at Kakaho. Within this landscape the locational and archaeological characteristics of shelter spaces with and without rock art are compared to see if particular patterns of associations between features are recognisable. Variability among obsidian artefacts and radiocarbon dates from across the study area are also considered. These investigations did not identify different patterns based on the presence or absence of rock art. Rather, the character and formation of the shelter floors are found to be consistent with each other. An appreciation is developed of the impacts of erosion and animal disturbance on the archaeological evidence, against which an anomaly can be recognised – a surviving deposition of two obsidian artefacts that were purposefully buried next to petroglyphs, a contextual association with rock art at the metre scale.

6.1 Aligning the Archaeological Context and Surviving Evidence

Archaeological indicators of occupation like that described above might include evidence of gardening, house features, and occupational features or terracing on the pā. Fletcher’s 1996 survey (Figure 6.1) relocated Te Weri Pā, now significantly overgrown by large wilding pines and scrub. Whether natural or anthropogenic formations, terraces at one end were used as shown by two pits - one with a raised rim and wooden stake protruding, and scatters of fire cracked river stones (FCR, ‘fire-cracked rock’). No other archaeological features indicative of houses, such as occupational terraces or hearths, are known in the study area although the historic meeting house, Te Kohera, was located just beyond it about 2 km from the pā.

The typical archaeological signatures of Māori gardening include modified soils, borrow pits, surface stones rearranged into rows, mounds or stone faced terraces, dug ditches and channels (Furey 2006:23), and pits (Davidson 1984:121). Of these Fletcher’s (1996) survey records only pits in the study area. Although most were not able to be relocated during fieldwork, along with an ‘oven feature’ their previous visibility does indicate that the valley flats were utilised.
Visible after recent furrowing of a paddock adjacent to Kakaho Road, T17/49 was recorded as a 3-4 m dia. surface concentration of charcoal, flaked and broken river stone, and obsidian flakes. Hummocks of earth from modern scrub clearing of the adjacent hill slope (Lane, pers. comm. January 2013) cover the north of the paddock, and a magnetometer survey of the rest found no anomalies suggestive of a fire feature. Three historically recorded depressions nearby were not able to be relocated in the roadside thicket. Nor were ten depressions in two rows of five (T17/51) recorded on pasture land in the gully rising to north-west of the bluffs that Fletcher recalled were the size expected of collapsed *rua*, storage pits.

Close to the road verge, T17/58 was recorded as a pit (4 m x 2.5 m x 0.5 m) with two rimmed sides, dug out of old river bench sand and gravel, and moss and heather covered. This was not able to be readily relocated, but the description may compare to a rectangular pit of similar
dimensions recently found in the forest near the study area. Probing showed the firm base of the pit had a deep soft spot in the centre typical of a pitch roofed storage pit with a central posthole (see Davidson 1984:121-3).

On flat ground below Te Weri Pā and directly down slope from the T17/66 rock shelter is a 115 m x 25 m area of bush with open undergrowth and seven roughly circular depressions of 2 m to 3 m diameter and about half a metre deep. Fletcher (pers. comm. January 2013) recalls noting 22 such depressions along the narrow flat area when the surrounding bush was more open and accessible. The depressions are not typical natural features found in the forest, such as pig rooting or tree throws, but are similar to what are probable pits at a historic potato gardening area named Te Riwai a Te Haeta (T17/37) just over a kilometre away (Fletcher 1996:np). If the hollows below Te Weri Pā are collapsed storage or borrow pits, the separation from the rock shelter by the high steep bank negates drawing an immediate association between the rock art and gardening activity. Further investigation was beyond the archaeological authority issued, and an iron bar and piece of modern iron sheeting among the leaf litter around the pits may hint at modern forestry having been a factor.

Most of the rock art sites in the valley are shelters at the top of talus slopes. Sloping ground was preferred for kumara gardening (Furey 2006:17), but the foregrounds of the shelters have no indication of anthropogenic terracing or steep slope trenches that might indicate past gardening (Furey 2006: 34-37). The histories tell that Te Moetu grew potatoes in the vicinity of the Umukuri bluff. Archaeological evidence of that is unlikely as the undulating foreground of that area has been modified by bulldozing in Lane’s tenure (Lane, pers. comm. January 2013). The topsoil was stripped into piles, the steep sided guts rounded and in-filled with pumice sands, and then the topsoil re-spread over a more rolling topography. The bulldozing extended to within metres of the cliff face with rocks mapped by Lawlor in 1983 now exhibiting bulldozer blade scrapes and repositioned close to the southern end of the T17/23 petroglyphs. A 40 m wide geophysical survey extending 100 m from the bluff showed two anomalies possibly indicative of ovens near the rock face, but no other anomalies suggestive of Māori archaeological features. Were the valley flats used for gardening by Māori, changes in land use likely preclude archaeological identification. The east of the study area is farmed and the river terrace is modified for the road and camp, but is otherwise covered in thicket and trees. The land west of the stream is covered with dense scrub, wilding pine and rejuvenating native forest.

At a kilometre scale there are historically recorded and currently observed features (the newly found pit and the pits on Te Weri Pā) that indicate traditional Māori gardening in the area. Given the shape of the localities, it is difficult to conceive of gardening occurring about Umukuri or the
flats below Te Weri Pā without an awareness of the rock art had it existed at the time. Conceivably the facial images in the petroglyphs were similar to anthropomorphic carved stone kumara gods in which the *mauri* of gardens resided (Best 1995b:50, 132; Leech 1984:54, 71-2), and a particularly notable pumice example of which was found on the western shores of Lake Taupō (see Leech 1984:72). Or they may reflect a relationship to food resources as suggested by Simmons for cave paintings (1992). However, there was no evidence of gardening in spatial proximity to rock art that would indicate such an association. Along with the historic *urupā* (burial ground) and house site south of the study area, the surviving archaeological features known to be associated with past Māori occupation of the valley are the *pā*, and rock shelters below that and those in the ignimbrite outcrops fringing the north-east side of the valley.

### 6.2 Shelter Localities

A question at the ‘kilometre scale’ is whether or not there are observable commonalities among the shelters with rock art and, if so, do these differ from the unmarked or unused shelters. Useful comparisons can be made of the shelters’ location, shape and size, visibility of *maunga tapu*, and archaeological character. The key features of the different sites are listed in Table 6.1.

Thick blackberry barred access to two shelters known to have cultural material, T17/47 and 48, the former also known to have an ochre mark. Observations were made at the outcrops of 13 recorded sites and three other localities of interest. With two exceptions these can be described as small ‘shelters’ or narrow rock overhangs at the bases of ignimbrite outcrops with steep talus slope foregrounds. One exception is T17/23 with extensive rock art at the base of a high cliff. The other is a very low recess (T17/57) and adjacent rock face (T17/56) in a small gully at the south-east of the study area. The deepest and only recess in the vicinity of Umukuri (Figure 6.2) that agrees with the description of a habitable ‘cave’, such as that named Taumaihi-o-Rangi by Areta Kapu (NLC 1897:136, see Chapter 4), is T17/53 which was pointed out as a known shelter by Rangi Haa (Fletcher, pers. comm. January 2013).
<table>
<thead>
<tr>
<th>Site</th>
<th>Form</th>
<th>Location</th>
<th>Size (m)</th>
<th>Description</th>
<th>Cultural Material</th>
<th>Rock art</th>
<th>Pureora Visible</th>
<th>Titiraupenga Visible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>length</td>
<td>depth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>shelter</td>
<td>foot of outcrop</td>
<td>12</td>
<td>4</td>
<td>currently inaccessible due to vegetation</td>
<td>•</td>
<td>•</td>
<td>?</td>
</tr>
<tr>
<td>48</td>
<td>shelter</td>
<td>foot of scarp</td>
<td>4</td>
<td>2</td>
<td>currently inaccessible due to vegetation</td>
<td>•</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>52</td>
<td>shelter</td>
<td>top of slope</td>
<td>3</td>
<td>3</td>
<td>semi-circular recess at foot of outcrop</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>bluff</td>
<td>bottom of cliff</td>
<td>21</td>
<td>2</td>
<td>narrow ledge at foot of bluff</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>50a</td>
<td>recess</td>
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<td>3.5</td>
<td>1.2</td>
<td>high recess at base of outcrop</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
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<td>shelter</td>
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<td>3.4</td>
<td>3.1</td>
<td>high semi-circular recess at base of outcrop</td>
<td>•</td>
<td>•</td>
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</tr>
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<td>shelter</td>
<td>top of slope</td>
<td>7</td>
<td>3</td>
<td>recess at base of outcrop</td>
<td>?</td>
<td>•</td>
<td></td>
</tr>
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<td>53</td>
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<td>top of slope</td>
<td>4.8</td>
<td>2.7</td>
<td>sound-shell shaped hollow at base of outcrop</td>
<td>•</td>
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<td>•</td>
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<td>4.7</td>
<td>2.7</td>
<td>recess at base of outcrop</td>
<td>•</td>
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<td>•</td>
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<td>gully slope</td>
<td>5.8</td>
<td>2</td>
<td>recess in outcrop on side gully slope</td>
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<td>?</td>
<td>?</td>
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<td>shelter</td>
<td>gully slope</td>
<td>4</td>
<td>1.2</td>
<td>small recess near a stone flake find spot</td>
<td>?</td>
<td>?</td>
<td>?</td>
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<td>top of slope</td>
<td>6.3</td>
<td>2</td>
<td>sloping shelter under hillside outcrop</td>
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<td>•</td>
<td>?</td>
</tr>
<tr>
<td>55</td>
<td>shelter</td>
<td>top of slope</td>
<td>6.3</td>
<td>2</td>
<td>shelter under isolated hillside outcrop</td>
<td>•</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>56</td>
<td>bluff</td>
<td>bottom of hill</td>
<td>10</td>
<td>1</td>
<td>low outcropping rock face in gully flat</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>shelter</td>
<td>bottom of hill</td>
<td>4.3</td>
<td>2.3</td>
<td>low shelter in gully flat</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>shelter</td>
<td>top of slope, bottom of cliff</td>
<td>11</td>
<td>2.5</td>
<td>broad shelter under high overhanging bluff, with pā above, high bank below</td>
<td>•</td>
<td>•</td>
<td>?</td>
</tr>
<tr>
<td>67</td>
<td>recess</td>
<td>top of slope</td>
<td>4.7</td>
<td>&lt;1</td>
<td>shallow recess on ridge up to pā</td>
<td>•</td>
<td>•</td>
<td>?</td>
</tr>
<tr>
<td>##</td>
<td>bluff</td>
<td>top of slope, under cliff</td>
<td>3.5, 3</td>
<td>1, 0.5</td>
<td>2 high crevices in 14m stretch of bluff beneath pā</td>
<td>•</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Table 6.1: Summary of Kakaho Shelter Characteristics
Figure 6.2: ‘Umukuri’ outcrops, looking S-E. From left: T17/54 shelter; T17/23 bluff face; T17/50a, b and c, ‘shelters’; T17/53 ‘Taumaihi-o-Rangi’ shelter; T17/54 shelter; T17/65 ‘Te Weri Pā’ (across Kakaho Stream). Panorama prepared by Tim Mackrell.

Figure 6.3: Maunga tapu, looking approx. W from near State Highway 32. On the skyline Pureora (L) is 7km at 230° from Titirauranga (R). From Kakaho camp ground Pureora is 8km at 285° (approx. WNW) and Titirauranga is 7km at 340° (approx. NNW).
The other shelters along the Umukuri bluff have similarly sized spaces. Unmarked T17/52 has recorded surface material of FCR. T17/54 has surface FCR as well as ochre marks and petroglyphs. Between them and up the slope to the south of T17/23 there are three ‘shelters’ (T17/50 a-c). Fletcher recorded T17/50 (here T17/50c) as having an artificial floor retained by purposefully placed ignimbrite rocks, however O’Regan is not convinced this is a cultural construction. No other cultural material is recorded from that or neighbouring shelters (here T17/50 a & b for reference, although not registered nor technically archaeological sites). There is little in the size and form of these shelters to distinguish them as offering less useful or habitable space than T17/52 and T17/54. In particular, T17/50b is recognisable from afar as having sheltering potential, more so than the used T17/52 and 54. Recessed into the bluff its dry floor is protected from side winds, and although the high overhang is probably subject to some wash down the wall, it has extensive rock surfaces amenable to the production of rock art on which petroglyphs at least may have been expected to survive. There is no cultural material evident in the stock trampled foreground, whereas FCR is found in the similarly trodden foregrounds of T17/53, T17/54 and other shelters in the study area.

In high ground between T17/52 and T17/23 there is shallow shelter with a steeply sloping floor, large parts of which are eroded exposing the soil section. No cultural deposit is evident. In contrast, T17/64 includes a shelter with a similar form and floor profile, but with river stone fragments on the ground surface about the alcoves and ochre markings in one. Other than that, the most notable point of difference between the two localities is that T17/64 has a more northerly aspect.

A heavy downpour experienced during fieldwork showed T17/23 to offer a dry strip of approximately 1 m, effectively only standing room, so as a shelter from rain it is comparable to T17/56 and T17/66. Comparing ‘bluff’ sites, T17/66 is a small bluff forming a high walled shelter beneath Te Weri Pā. It has cultural material and rock art concentrated in a 1.5 m wide area along the rock face. T17/56 is a small bluff without recorded rock art and offering only minimal overhead shelter, but FCR on the surface demonstrates past occupation somewhere in the vicinity. Although the pocked rock surface was not amenable for petroglyphs, some of the numerous natural hollows are akin to those marked with ochre at T17/23 where both rock art and other cultural material has been found.

It is apparent from these comparisons that across the study area shelters of all forms, sizes and sheltering opportunities were marked, used but not marked and apparently left unused. Based on the shelter size and form there is not an observable pattern that is unique to rock art sites, or indeed unique to those with evidence of Māori cultural use.
Looking towards the recorded shelters, without bush cover none are what might be described as obscure, secretive or hidden locations. The shelters are not inter-visible from each other, but in the vicinity of Umukuri several shelters or their immediate locality are visible from the valley flats and the sites in the eastern side gullies are visible from the higher slopes above the outcrops. Trees obscure the vistas from Te Weri Pā but from one vantage point at least the shelters T17/53, 54 and 64 across the stream are clearly visible, and the bluff above T17/23 can be seen although not the specific site. Were it not for vegetation, the location of the three sites about the edge of the pā would also be open to view from below.

Looking out from the shelters, other than the pā now obscured by forest, the most recognisable landmarks are the mountains, Pureora and Titiraupenga (Figure 6.3). That the visibility of sacred mountains could be a factor influencing past Māori behaviour is exemplified in the Ngāti Tuwharetoa tradition of people crossing the Rangipo Desert shielding their eyes so as not to look upon Tongariro (the mountain group south of Lake Taupō) and risk invoking the ire of the mountain’s atua (Grace 1970:63, 496).

From the petroglyph marked bluff at T17/23, Pureora is the dominant landmark on the skyline. The same vista, however, is also found in shelters without rock art up slope from T17/23 and is framed by the rock walls when viewed from the central space in T17/50b that has no cultural evidence. Pureora is visible from the gully site, T17/57, but is obscured by hills in the foreground when viewed from T17/53 and T17/54, two shelters with rock art. Instead, from the foreground of those shelters the peak of Titiraupenga can be seen in the distance although not as a dominant skyline feature. It is likely that both maunga (mountains) would be visible from the pā site, however, the obstructed view from the shelters beneath it also highlights the impact of the forest vegetation on this phenomenon, and the bush lines depicted in historic maps strongly caution against interpretations based on observations made from currently cleared land.

Echo is another notable phenomenon in the valley. The association between acoustics, rock art and ritual significance has gained recent international attention (e.g., Diaz-Andreu and García Benito 2015, Whitley 2011:156-7, Devereux 2008). In a traditional Māori world view, echo could be attributed to spirits embedded in the rock or the voices of wairua tangata (spirits of people), presumably the dead (Best 1995b:281, 622). Echo from traditionally chanted karakia (incantation, prayer) during recent group visits to T17/23, the Umukuri bluff, is particularly notable. On a still day words shouted from over 120 m away can be distinguished in the echo and have the impression of emanating from the petroglyph location. Fletcher’s (pers. comm. January 2013) account of a raid on Te Weri Pā has the occupants responding to Hakuhanui’s
calls from Taumaihi-o-Rangi (T17/53). The sound-shell shape of the shelter amplifies voices such that in calm conditions little effort is required to maintain audible conversations with people 110m away on the road below.

Systematically differentiating between the acoustic properties of shelters was beyond the scope of this thesis, and an attempt to meaningfully correlate this with rock art may be challenging. The general sound effects are not restricted to rock art sites, but rather notable acoustics can be found throughout the valley. For example, impressive echoes can also be noted both inside and on the open ground outside and above T17/55, a shelter with occupational evidence but no rock art. Given this, the pertinent observation that can be made is that any audible component of activity at the shelters, be it ritual chanting or the pecking of petroglyphs, would be heard from afar. As Rainbird (2008:266) notes of petroglyph marked Micronesian rocks ringing when struck, the sounds of activity at the Kakaho rock art localities were open to wider audiences.

6.3 What Has Survived at the Shelters?

While the locational attributes and forms of the rock shelters vary across the study area, the archaeological character of the shelter floors is more consistent. Five shelters (T17/52-54, 57, 66) were tested by excavation and the soil profiles of another two (T17/55, 64) exposed by stock trampling were observed. All the inner shelter floors had the similar profile of a thin top layer of brown-grey pumice sand, firm beneath a dusty loose surface mixed with organic matter, mostly sheep droppings in farmland and forest litter in the bush. The base of deposits were firm pale grey fine pumice sand in T17/52, 53, 54, 57 and 66, and pale yellow layers in the eroded floors of T17/55 and 64. Surface collections included occasional obsidian artefacts, fragments of kākahi shell, modern animal bones (almost all sheep, pig or rabbit), sparse fragments of FCR, and in T17/66 and 57, the odd larger river stone. On farmland the shelter foregrounds beyond the drip-lines were comprised of turf in a grey-brown topsoil, in some cases overlying blackened sandy soils, but otherwise overlying brown sandy soils with compacted yellow sand bases beneath. Cultural material was almost all either on or in the top layer, blackened soils or on deflated surfaces of the yellow sand. With the exception of a purposefully buried deposit (see T17/66 below) no intact cultural features were found at any of the shelters.

Nor was there a notable difference in the archaeological character between the shelters with and without rock art, for example in the similarly sized and shaped T17/52 and T17/54 either side of the Umukuri bluff (Figure 6.4). Small fragments of FCR were noted in the eroded foreground of T17/52 and are embedded in the surface outside T17/54. A few small fragments of obsidian \( n = 4 \), maximum length < 15 mm) and FCR were dispersed in the thicker topsoil of the floor of
T17/54 which along with the grey pumice base sand was subject to greater modern root disturbance than that of the more deflated floor of T17/52. Although obsidian was not found at the latter, it was observed at T17/55 and so its presence is not a defining point of difference between shelters with and without rock art. The general profile observed across the shelters and the factors giving rise to it are best illustrated by the results of more extensive excavations at T17/53 (Figures 6.5-7).

Figure 6.4: T17/54 with rock art (above) and T17/52 without (below). There is little difference in the archaeological character of the similarly sized and located shelters.

6.3.1 Taumaihi-o-Rangi, T17/53

A mixture of cultural material recorded from T17/53 demonstrates a thin palimpsest shelter floor characteristic of the study area. Any evidence of a reported cloak was gone before Fletcher’s initial inspection (Fletcher, pers. comm. January 2013), however he did recover broken glass, parts of what appear to be an iron lock, brass studs (probably from a carrycase), molten lead, shot gun cartridges, obsidian flakes and FCR all from the brown-grey surface dust that overlies
an otherwise sterile pale grey base sand (Figures 6.5 and 6.6). It is thought unlikely that these items would all have been in use at the same time.

Across the front of the shelter the 1 m to 1.5 m wide foreground has uneven turf with stock trampling having exposed the topsoil, occasional FCR and in places the underlying base sand. Further FCR and an obsidian flake (#32) were found immediately below the topsoil. A trench excavated down the steeply dropping bank showed a thick layer of soft charcoal stained sandy soil with angular FCR \((n = 39, \text{maximum dimensions range } 4\times3\times1 \text{ cm to } 11\times7\times3 \text{ cm})\) dispersed throughout (Figure 6.7). The layer lensed out downslope at a level 80 cm below the shelter floor. Material recovered for radiocarbon analysis was limited to podocarp charcoal fragments (see dating section below) in the blackened sand beneath which was a culturally sterile brown volcanic soil from the hillside. On the lower talus slope about 40 m below the shelter, a large (16x10 cm) river stone was observed on the grass surface. Similar stones were noted down slope from T17/52 and T17/54, and were recorded on the foreground of T17/23 (Fletcher 1996, Lawlor 1983) before that area was bulldozed.

![Figure 6.5: T17/53, Taumaihi-o-Rangi Site Plan.](image)

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Figure 6.6: T17/53, Shelter floor test pit. The light grey pumice sand is culturally sterile, dark patches are modern root. Scale 0.5 m

Figure 6.7: T17/23 foreground excavation. In trench detail (below) the arrow shows position of charcoal collected for radiocarbon dating (WK37515)
Although the foreground soils are more intact about T17/53, the overall profile compares with that observed of other shelters at the top of talus slopes (T17/52, 54, 55, and 64) and a general pattern for the archaeological deposits can be suggested. Within the shelters there was limited deposition of cultural material and/or it has dispersed leaving only sparse remains in a thin surface dust. The limited internal dimensions would make sizeable internal fires impracticable in most of the shelters, even in the largest T17/53 at 9.5m². No intact features were identified but FCR indicate the construction of umu (earth oven) outside in the now slipping foregrounds of the shelters. Charcoal stained sands (potentially related to scrub clearance rather than immediate occupation) and FCR from nearby fire features are dispersing down the slopes. Small and angular fragments of FCR are descending more slowly, perhaps more embedded by trampling, whereas larger rounded oven stones are sliding downhill faster when dislodged and remain on the surface subject to more frequent disturbance. It is possible that umu dug into shelter foregrounds initially destabilised the soft volcanic sands making them more prone to slippage, which has been exacerbated in modern times by stock favouring the shelters for both rain cover and shade.

There was some consistency in the pattern of the archaeological deposits at shelters at the top of the talus slopes. Both similarities and differences were noted at three other sites with differing locational attributes: T17/57, a low lying shelter in a side gully; T17/66 a broad shelter with rock art under the bluff beneath Te Weri Pā; and, T17/23, the extensive rock art site at the base of prominent Umukuri cliff face.

6.3.2 Side Gully, T17/57

Located in a side valley and about 250 m from Kakaho Road, T17/57 is a low roofed rock shelter and about 20 m away T17/56 is a vertical ignimbrite rock face about 10 m long and up to 5 m high (Figure 6.8). Colluvium eroding from the low hill above forms a grassed slope between the two sites, and extends to a 6 m wide x 3 m deep gut in the valley floor. Fletcher recorded FCR at the sites, obsidian flakes at T17/57 and a 1.8 m line of four exposed stones extending from the corner of the shelter that he considered were purposefully placed (Figure 6.9).

Excavations showed the soil profile within the shelter to be similar to the others examined. Two small obsidian flakes (#09 and #10) were found in the 4 cm deep firm brown-grey sand that overlies a base of sterile pale grey pumice sand. Rabbit burrows by the inner wall contribute to a very loose dusty covering of sand and pumice pebble mixed with stock droppings, wind-blown leaves and fragments of FCR.
Figure 6.8: T17/57 is a low shelter at centre (A), T17/56 is the bluff face to the right (B).

Figure 6.9: T17/57 Shelter, 1.5 m high at entrance. Reported stone alignment (A).
The stratigraphy outside the shelter (Figure 6.10) shows a foreground that previously dropped away from the entrance and is in-filled by the toe of the slip. A base of yellow pumice sand with older topsoil is overlain by colluvium forming inconsistent layers of brown and charcoal blackened sand, similar to that noted about the bulldozed rocks at T17/23 (see below). Isolated fragments of FCR were found throughout the colluvium, with a small concentration of FCR and charcoal in blackened sand just below the turfed surface of the slip toe. Charcoal recovered from this deposit was dated to 281±20 BP (WK37524, 313 – 286 calBP, SHCal04). A thin layer of pale grey sand (L3) between the older topsoil (L4) and colluvium fill (L2) appears to be base sand from the shelter floor, possibly dispersed from a rabbit burrowing. If so, it suggests the infilling of the shelter foreground is relatively modern. A burrow also extended through the NE corner of the excavated unit (Sq.2).

The stone alignment was not culturally constructed. Rather, a large reddish river stone, the first in the alignment, had lodged between an ignimbrite boulder and the rock face. It was embedded in the modern topsoil that was mixed with the pale grey sand dispersed from the shelter floor, and likely attributable to rabbit burrowing. The continued movement of FCR is evident in several fragments collected from the grassed surface between the shelter and the gut, and a large river stone at the bottom of the gut in line with the slip. The toe of the slip extends around to the front of the T17/56 rock face and may be the source for the occasional FCR found there.

Outside the shelter four obsidian flakes with retouch and/or use-wear and a multiple face core were recovered from the topsoil mixed with grey pumice sand or immediately below the turfed surface at the entrance. Small fragments of FCR and a single piece of kākahi shell were on the
surface overlying the fill of the rabbit burrow. No cultural features were identified. Rather all
cultural material in the site, including the obsidian, probably eroded into the shelter foreground
and was dispersed and/or impressed by stock trampling. In this case, it is not clear that T17/57
was actually occupied. The shelter has limited useable space given the ceiling is 1.5 m high at
the dripline, but below 1 m across most of the 4.3 x 2.5 m floor. The archaeological remains
make it clear that Māori were utilising the general locality so use of the shelter would not be
unexpected, but this is not demonstrated by the evidence. If not in the unexcavated part of the
shelter foreground, an umu was made within tens of metres of the shelter, at most atop the small
hillside above. No indication of an eroding feature was observed in the stock tracks across the
slope, however the distribution of the FCR and larger intact river stones suggests T17/57 is a
recipient of cultural material eroding in a similar pattern to that moving away from Taumaihi-o-
Rangi.

6.3.3 Below Te Weri Pā, T17/66

A shelter with rock art below Te Weri Pā also appears to have cultural material eroding into the
site. A high, slightly overhanging bluff forms the 13 m wide and 4-5 m deep shelter (T17/66),
the only one of such a size observed beneath the pā (Figure 6.11). Pigment marks and five
petroglyph facial masks are concentrated near the centre of the rock wall. Sandy soil slumping
from the pā above has raised the southern part of the floor and accumulated about the trees north
of the shelter. The mostly flat floor, dry and dusty near the rock face, rises slightly at the
dripline before the leaf-littered foreground slopes away to a very steep bank with native bush that
shades the shelter. Four obsidian flakes (#04 - #07), isolated river stones and pig bone were
recovered from the greyish-brown sandy surface soil again indicating a palimpsest top layer
which overlies a base of very pale soft pumice sand. Three river stones, each about 20 cm long
and one with flake scars suggestive of quality testing, were found on the dropping foreground
surface. These may derive from the pā above where a surface accumulation of FCR was
observed at a highpoint above the shelter, although safety concerns prevented a close inspection
of the extremely steep and soft sandy surface at the pā edge.

It is likely that material eroding from the pā has contributed to the cultural material accumulated
in the raised shelter floor about the dripline. Shown in the stratigraphy of a small excavation
(Sq.1, see Figure 6.12), the base sand and original surface layer that previously dropped away
from the east have been overlain by episodic deposition of two pale sand layers each with a re-
surfacing of darker topsoil building up the outer edge of the shelter floor up to its current level.
The three topsoil formations are individually recognisable towards the bank, but are merged into

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an indistinguishable continuum of the floor topsoil (L1) within the shelter. Potentially some cultural material eroded from the pā above may have been dispersed by trampling into the shelter floor and, if so, it would be indistinguishable from material discarded within the shelter itself. This includes fragments of kākahi and marine mussel (*Perna sp.*) shell, a small obsidian flake (#05), isolated animal bones, FCR, charcoal fragments and ochre flecks.

Figure 6.11: T17/66, Shelter under overhanging bluff below Te Weri Pā. Excavation units are numbered.

Figure 6.12: T17/66, Sq.1, south face. The lower historic surface layers drop towards the bank (right) and merge into the current shelter floor surface (left). Scale, 10 cm units.
Small beads and sparse flecks of ochre were present in the topsoil (L1) throughout the shelter, but only in the top layer of Sq.1 by the dripline was it particularly notable during excavation. In comparison both the modern surface and topsoil fill of a collapsed burrow beneath the petroglyphs contained only sparse ochre (Table 6.2). Twig charcoal (kamahi, *Weinanania racemosa*, sample #13) recovered from an ochre flecked sample of the Sq.1 sub-layer L1b sand dated as 182±20 BP (WK37514, 277 - -2 calBP, SHCal04) indicating the recent deposition of the soil, although not necessarily the timing of the ochre use. Of note, the greater ochre residues in the site are not adjacent to the rock art.

<table>
<thead>
<tr>
<th>T17/66 Square</th>
<th>Spit Range (below surface)</th>
<th>Wet sieved 0.5mm</th>
<th>Ochre Fleck Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 NW</td>
<td>0-1cm</td>
<td></td>
<td>sparse small</td>
</tr>
<tr>
<td>1 NW</td>
<td>1-3cm</td>
<td></td>
<td>numerous large &amp; small, (1x) 8m bead</td>
</tr>
<tr>
<td>1 SW</td>
<td>4-6cm</td>
<td></td>
<td>numerous large &amp; small</td>
</tr>
<tr>
<td>1 SW</td>
<td>5-10cm</td>
<td></td>
<td>numerous large</td>
</tr>
<tr>
<td>3c</td>
<td>0-1cm</td>
<td></td>
<td>none</td>
</tr>
<tr>
<td>3c</td>
<td>1-2cm</td>
<td>•</td>
<td>very sparse small, (1x) large</td>
</tr>
<tr>
<td>3c</td>
<td>2-3cm</td>
<td>•</td>
<td>sparse large, (1x) 7mm bead</td>
</tr>
<tr>
<td>3c</td>
<td>3-4.5cm</td>
<td>•</td>
<td>sparse small, (1x) large</td>
</tr>
<tr>
<td>3c</td>
<td>4.5-6cm</td>
<td>•</td>
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</tr>
<tr>
<td>3c</td>
<td>6-7cm</td>
<td>•</td>
<td>very sparse small</td>
</tr>
<tr>
<td>3c</td>
<td>7-8cm</td>
<td>•</td>
<td>very sparse small</td>
</tr>
<tr>
<td>3c</td>
<td>8-10cm</td>
<td>•</td>
<td>very sparse small</td>
</tr>
<tr>
<td>3c</td>
<td>10-13cm</td>
<td>•</td>
<td>very sparse small, (1x) large</td>
</tr>
</tbody>
</table>

Table 6.2: Relative Distribution of Ochre Fleck in T17/66. Visual evaluation of Laboratory Sieved Soil Samples. Sq1 is nearer the dripline. Sq3 is beneath the petroglyphs.

Two tubular vertical intrusions in-filled with dark organic rich soil may result from the local vines or branches having been impressed into the pale pumice sand, but are not convincingly attributable to cultural activity without a broader pattern evident, and that was not discernible within the scale of excavations conducted.

Rather, the only affirmed cultural feature was a buried deposit adjacent to the bluff and immediately beneath the petroglyphs. A series of flash photographs of excavated spit surfaces of Sq.3 (Figure 6.13) shows a 15 cm wide ovate patch of greyish sand indicative of a small pit dug vertically into the pale yellow hued (under flash) pumice base sand. Between 7 cm to 10 cm below the surface, two obsidian artefacts (#02 and #03) were placed in the pit with ochre stained surfaces facing up. These were covered over with the excavated sand in which some topsoil was mixed altering the colour slightly from the surrounding matrix, along with a kākahi valve (without ochre colouring) and a bead of ochre - other examples of which were found in the surface layer elsewhere in the shelter.
Figure 6.13: T17/66 excavation of Sq.3 beneath petroglyphs. Depths are below ground surface. Grey fill of the circular pit (outlined in (c)) contrasts with surrounding matrix under photographic flash. The patchy dark brown band across the unit is fill of a collapsed rabbit tunnel. Note a kākahi shell in pit fill in (f). The position of the obsidian artefacts in (g) and (h) are marked by sticks in (i) with the intact burrow exposed to the right.
Charcoal fragments were recovered from immediately beneath the cores. These were probably surface material crumbling into the hole prior to placement of the artefacts and are therefore potentially ‘old charcoal’ from the shelter floor. The short-lived Pseudopanax (probably \textit{P. arboreas}) was appropriate for dating with the result providing a terminus post quem sometime between 280-152 calBP (WK37513, 213±20 BP, 280-152 calBP, SHCal04) for when the artefacts were placed. Given this result, a date of 598±22 BP (WK37512, 559-532 calBP, SHCal04) on the \textit{kākahi} shell above the artefacts is considered unreliable either as possibly an older shell mixed from surface deposits and/or reflecting geothermal distortion (Beavan-Athfield \textit{et al.}, 2001) (see dating below).

A collapsed tunnel of a rabbit burrow ran parallel to the bluff wall just out from the cultural pit and did not disturb it (see Figure 6.13, f – i). However, the still hollow burrow is in the remaining unexcavated area beneath the petroglyphs and fill discolouration shows five episodes of digging at the burrow entrance, the most recent of which cuts through topsoil containing a pig tooth. Such disturbance would negate recognition of other similar cultural features beneath the rock art had they existed. An obsidian flake (#08) found in sieving of the excavated matrix is thought to derive from soft fill, perhaps originally from surface scatter, about the burrow entrance that collapsed into the unit when excavating. Notwithstanding these matters, excavation of an area (Sq.2) with an animal disturbed surface but intact base sand showed that artefact deposition was not ubiquitous along the rock wall, and the obsidian buried beneath the petroglyphs was exceptional.

\textbf{6.3.4 Umukuri Bluff, T17/23}

Between the feet of two talus slopes, the extensive rock art of T17/23 is spread 21 m along a 1-2 m wide shelf at the base of the high Umukuri bluff. Lawlor (1983) and Fletcher (1996) recorded obsidian flakes, \textit{kākahi} shell and small FCR on the shelf and dispersed river stones on the foreground. Scraping back the shelf surface Lawlor (1983) described 5-10cm of sheep droppings mantling a very compact greasy black sandy loam with charcoal lumps, carbonised twigs and ochre specks throughout. An excavation in front of prominent rock art figures (see ‘pou’ below), showed this layer to be 10-17cm deep and varying to a dark brown where thistles and grass clumps grow hard against the rock face (Figure 6.14, Sq’s 1-3; Figure 6.15). Obsidian flakes (#27 and #29) were found near the top and bottom of the black sand, and small FCR fragments (3 - 13 cm maximum dimension) were mostly dispersed across the bottom. Beneath that the base of firm yellow-brown sand was culturally sterile.
Today that profile is topped by a grey sand intervened by two thin (mostly $\leq 1$ cm, up to 3cm) layers of blackened sand. These are likely to result from modern heather clearance, one episode of which is observable in a comparison of aerial imagery (1:5000 aerial photograph, Environment Waikato Regional Council 1993; satellite image, KiwImage 2012). The build-up of the shelf is evident in the height above ground of the petroglyphs in a 1980’s photograph compared to that observed today (Figure 6.16). The current surface is a well trampled light brown dust mixed with pumice pebble and stock droppings and, as observed during a heavy down pour, the length of the shelf is subject to wash even though 1 m out from the bluff it is sheltered from overhead rain (Figure 6.17).

![Figure 6.14: T17/23 Site Plan. The background is Lawlor’s 1983 sketch plan (NZAA site record). Note the areas of water flow, the different position of the rocks and contoured foreground.](image)

That water wash likely accounts for the sand layering and the dispersed nature of the cultural material which at most can derive from the talus slopes or limited high ground above the cliff. However, cultural material among colluvium eroded from those places would probably be more diffuse than that recovered from the small excavation (area 1.075m²; 13x FCR, 7x obsidian artefacts, 2x ochre covered pumice beads). Nonetheless, both the vertical and planar distribution of cultural finds indicate some re-deposition. The insecurity of its current provenance and the
wide distribution of the rock art across the bluff confound drawing associations between cultural
evidence in the ground and any particular rock art above.

![Figure 6.15: T17/23, Squares 1-3.](image)

The consistency of the lower layer of blackened sand, especially compared to the striated upper
layers, may suggest that it was deposited in a relatively short timeframe. If so a charred seedcase
dated to 186±20 BP (WK37517, 278 - 2 calBP, SHCal04) indicates the maximum age of the
deposit. This and the dominance of forest species in the limited charcoal recovered (Wallace,
pers. comm. 2013) could indicate an association with the initial forest clearance and would be in keeping with the timing of bush clearance depicted in the historic maps (see Chapter 5).

Figure 6.17: T17/23 rain water wash of surface sediment at the bluff edge.

Lawlor (1983) documented an undulating foreground surface with patches of scrub. That has since been mechanically contoured to a uniform slope. Test pits showed dark grey topsoil overlying variable layers of alternating charcoal blackened and brown sands, with a firm yellow base sand beneath. Sparse FCR and obsidian flakes (#22, 23) were recovered from the topsoil. This patterning in the soil profiles is consistent with the banding in the sections of colluvium exposed about the bulldozer shifted rocks. A similar pattern is evident in bisecting trenches through a 0.5 m deep dish shaped hollow that was episodically in-filled (Figure 6.18, t2.3; Figure 19). Its appearance in the magnetometer data compared with an anomaly at Opihi that earlier proved to be a large *umu* (see Chapter 9). Perhaps the anomaly is accounted for by a disproportionate amount of fill or in-place scrub burning in contrast to the surrounding slope surface. Fletcher’s and Lawlor’s historic photos show scrub growth in the general foreground of the site, but do not detail the particular spot of the excavation. Whatever the case there was no evidence of a cut pit or *umu* - it was not Hakuhanui’s dog roasting oven.
Figure 6.18: T17/23 Site Plan and Magnetometer Survey.

Figure 6.19: T17/23 cross trench. North-east corner showing variable charcoal stained layering at the locality of the noted geophysical anomaly. Scale 0.5 m
6.4 Discussion on Archaeological Deposits

6.4.1 Umu

It is evident from the description of the shelters that other than rock art and the T17/66 buried obsidian cores (see below), there is very little on an individual site basis to indicate what activity occurred immediately around the rock art. Charcoal blackened soils contrast with layers of lighter coloured volcanic sands in eroded banks and blowouts across the farmland. Against a background of known Māori bush clearance and periodic modern scrub burn-offs, attributing such blackened sands to umu and fireplaces is problematic. Rather, relating such deposits to Māori occupation is based on the unnatural presence of river stones about the shelters. Some intact, others heat fractured, these stones are typical of heat retainers used for fires and umu. However, no indications of intact hearths or ovens were found. To the extent observable within the small scale of the excavations, and exemplified at T17/53, it appears that such features were outside the shelter drip-lines and subject to erosion. Safety concerns constrained checking that the FCR and charcoal stained sands do not derive from ground above the shelters but if it does the FCR would be expected to be more widely distributed across the top of talus slopes rather than found only in the shelter foregrounds. This was not observed.

Identifying whether the fires were made for warmth, cooking and/or ritual is beyond the scope of the archaeological evidence. A fire could have been made in T17/66 without cramping the occupants and a small charcoal flecked deposit near the rock art and buried cores may indicate a fire event occurred nearby, albeit the surrounding area is subject to rabbit digging. Nonetheless, within most of the shelter driplines the spaces were cramped for making sizable fires and there was no charcoal staining in the shelter floors. This may suggest warmth was not the driving factor. The stones are consistent with umu, and traditional practice of separating cooking fires from sleeping spaces (e.g., Makereti 1986:273, 283) might explain their position outside the shelters. However, no oven structure or food remains were found that would affirm such use.

6.4.2 Faunal Remains

Cooking in nearby umu may be inferred from the presence of FCR and horticulture is implied by the presence of pits (as discussed above). However, faunal remains were sparse and no evidence demonstrating food processing or consumption was found about the shelters. Notably, archaeological evidence for forest fowling is absent despite ethnohistorical testimony of its significance to Māori life in the area. The only identifiable avian element, a Hodgens’ waterhen
(Gallinula hodgenorum) thought extinct by the 18th century (Tennyson 2006:82), was recovered from deposit building up about the outer edge of T17/66.

All other identifiable bone is of European introduced mammals (pig, rabbit, sheep, and cow), and was found as isolated elements dispersed on or within the upper layers of the shelter floors (Table 6.3). Although settlements in Taupō district had livestock by the late 19th century (Williams & Walton 2003:14-15), there is no midden context, or selective element preservation or breakage pattern that would suggest the recovered bones were culturally deposited. Rather, the few bones are attributed as modern given their distribution mirrors current animal habitats. Pig bones were only found in bush where modern feral pig sign is abundant, and the sheep and cow bones on farmland where carcass deposition continues (noted at T17/23 and T17/54). Rabbit burrowing is evident in both areas.

<table>
<thead>
<tr>
<th>Site T17/-</th>
<th>Hyridella</th>
<th>Perna</th>
<th>Sheep</th>
<th>Cow</th>
<th>Pig</th>
<th>Rabbit</th>
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<td>•</td>
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</tr>
</tbody>
</table>

Table 6.3: Kakaho Faunal Remains (Presence)

Shell remains were similarly sparse. Fletcher (1996:np) recorded kākahi (Hyridella menziesii) shell on the surfaces of T17/23, 47 and 66, however, other than a tiny fragment from T17/57, it was only recovered from T17/66. The fragments of kākahi from this site, some discoloured by fire, and of marine mussel (Perna sp.) were found down to the third layer of soil build-up near the dripline. Along with isolated fragments found in the topsoil across the shelter, and the valve in the fill above the buried artefacts, it is doubtful that any were in primary deposition, and the purpose the shells served is uncertain.

Conservation staff have no records of kākahi in the Kakaho Stream (Dave Smith, Department of Conservation, pers. comm. August 2013), but it was previously abundant in the Waikato River catchment (National Institute of Water and Atmospheric Research 2010:75). Its parasitic larvae are transported upstream by native fish, so it was probably available locally, but if not it could be sourced from Lake Taupō and its tributaries. Although neither the most favoured food (Grace 1970:514) nor shell for tools (Leahy 1976:52), it was used about Taupō for both.

At Taupō it was dredged, preserved by sun-drying and eaten raw (Grace 1970:514). Increased consumption of kākahi at Whakamoenga Cave (U18/4) is inferred by a change in MNI between the earliest (n6) and latest (n120) layers (Leahy 1976:45,51), however the remains are neither
Kakaho Archaeology

numerous nor described as midden (Campbell 2005:102). On the other hand, both kākahi and marine shell recovered from Whakamoenga Cave (U18/4) and the Waikora Bay shelter (T18/22) show use with ochre and as tools (Hoskins and Leahy 1982:87, Leahy 1976:52-3). Marine shells (Paphies spp., Perna) may have been specifically imported as tools with some exhibiting use as scrapers (Davidson 1984:108, Harsant 1978:104-111, Leahy 1976:52).

Kākahi does not have a durable shell structure and nationally there is scant archaeological evidence in New Zealand that demonstrates its ethnographically known consumption by Māori (Campbell 2005). The distribution of the shell remains in T17/66 is similar to that of obsidian flakes. Some kākahi shell was burnt, possibly the result of cooking. However, the dispersed and minimal amount of shell found constrains evaluating if one or both of these potential uses explains the presence of either the kākahi or marine shells.

### 6.4.3 Dating

The faunal material excavated had neither a character nor stratigraphic context appropriate for radiometric dating. Introduced mammals are too recent for meaningful radiocarbon assays, and while the pig remains could relate to 19th century Māori occupation, these are indistinguishable from feral pigs that have occupied the bush since. The presence of kākahi shell at the sites is cultural, but given its dispersed distribution the age of shell cannot be taken to reflect the timing of its last deposition. Uncertainty of its source also makes it a very poor candidate for radiometric dating as geothermal activity has significantly amplified the radiocarbon dates of fauna, including kākahi flesh collected from in and about Lake Taupō (Beavan-Athfield et al. 2001). Given potential for inbuilt age, a date on kākahi shell (WK37512) is considered unreliable compared to a minimum 250 year younger result on charcoal of a short lived plant found beneath it (Table 6.4).

<table>
<thead>
<tr>
<th>Site</th>
<th>Description</th>
<th>Sample Material</th>
<th>WK ID</th>
<th>Date (BP)</th>
<th>calBP (1σ)</th>
<th>calBP (2σ)</th>
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</thead>
<tbody>
<tr>
<td>T17/66</td>
<td>Dug hole feature fill</td>
<td>Kākahi shell</td>
<td>37512</td>
<td>598 ± 22</td>
<td>559 - 532</td>
<td>628 - 525</td>
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<tr>
<td>T17/66</td>
<td>Dug hole feature fill</td>
<td>Charcoal (short lived)</td>
<td>37513</td>
<td>213 ± 20</td>
<td>280 - 152</td>
<td>298 - 143</td>
</tr>
<tr>
<td>T17/66</td>
<td>Ochre flecked soil sample</td>
<td>Charcoal (Kamahi)</td>
<td>37514</td>
<td>182 ± 20</td>
<td>277 - (2)</td>
<td>281 - (4)</td>
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<td>Charcoal stained layer</td>
<td>Charred seed case</td>
<td>37517</td>
<td>186 ± 20</td>
<td>278 - (2)</td>
<td>282 - (4)</td>
</tr>
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<td>Charcoal under FCR</td>
<td>Charcoal (short lived)</td>
<td>37516</td>
<td>194 ± 20</td>
<td>280 - 143</td>
<td>285 - (4)</td>
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<td>Charcoal stained layer</td>
<td>Charcoal (short lived)</td>
<td>37524</td>
<td>281 ± 20</td>
<td>313 - 286</td>
<td>430 - 153</td>
</tr>
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<td>T17/53</td>
<td>Charcoal among FCR</td>
<td>Charcoal (Matai)</td>
<td>37515</td>
<td>347 ± 20</td>
<td>440 - 320</td>
<td>450 - 309</td>
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<td>T18/25</td>
<td>Fibre artefact, Whakaipo Bay</td>
<td>Flax or similar (short lived)</td>
<td>37519</td>
<td>183 ± 21</td>
<td>277 - (2)</td>
<td>281 - (4)</td>
</tr>
</tbody>
</table>

Table 6.4: Kakaho Samples Submitted for AMS dating. Note: T18/26 fibre artefact is discussed in Chapter 6, presented here for comparison to Kakaho results. Dates calibrated with: OxCal v4.2.2, SHCal04 southern hemisphere atmospheric curve.
No intact fires features were found and much of the charcoal collected in soil samples was of long-lived forest trees not viable for dating. The few appropriate samples from five sites were isolated from blackened sands about or bearing FCR. Ambiguity in the radiocarbon dating results (Table 6.4, Figure 6.20) partly reflects the effect of the calibration curve on relatively recent dates, and partly the provenance of the charcoal samples. The sands in the sites are known to have moved and umu were potentially dug through layers associated with earlier burn-offs, both factors raising the prospect of charcoal from different fire events having been mixed. Rather than the antiquity of umu, the resulting radiocarbon dates are better considered as showing the maximum age range for the deposition of sand bearing the FCR. Calibrated radiocarbon dates on charcoal from four sites are consistent in range from about 300 BP and overlapping up until about 150 BP. The shelters were used when obsidian artefacts were still in regular use, and some fragments of glass among the historic material from T17/53 appear to have use wear akin to Māori obsidian scrapers. Insofar as can be interpreted from the combined archaeological insights, then, the Māori occupations of the shelter localities occurred after the late 1600’s and in the early post European period.

A relatively early date of 347±20 BP (WK37515, 440–320 calBP, SHCal04) from Taumaihi-o-Rangi (T17/53) was obtained for a small piece of mataī charcoal with twisted wood fibres, possibly a twig or potentially just knotted wood. In-built age in the sample of the long-lived tree may have skewed the result that might otherwise be more consistent with the others. Even if not, the date range is not close to what would be expected from Hakuhanui’s association with the
shelter within four generations of arrival in NZ (Grace 1970:118). Evidence was not found that dated to the early occupations reported in the traditions.

### 6.4.4 Artefacts

A few wooden remains from the Māori occupations in the area are known. Stake remnants protrude from a terrace feature and a pit on Te Weri Pā, and just beyond the study area the ‘Uenuku’-like carved posts and the meeting house, Te Kohera, survived into modern times. Wooden finds are reported from T17/47 and 48 (Fletcher 1996np) and a small ‘late style’ adze was found on the surface at T17/23 bluff (Fletcher, pers. comm. January 2013). No textiles were recovered, although fibre remnants are known from a number of New Zealand rock shelters. The European character artefacts found at T17/53 may relate to early Māori reuse of such material. The significance of a colonial period bayonet found in machinery tines after raking the ground about Umukuri is unknown. Manufactured in 1880-1881, the Snider Saw-back NZ 2nd type bayonet (M.S. Evans, Army Museum, letter to Keith Lane, August 2003) post-dates the reported colonial raid on Te Weri Pā (Fletcher 1996:13, 31) by a decade. Designed as a bush tool, it may have been in use many years later. Two small beads of pumice coated in ochre found at T17/23 are of unknown purpose, and a single chert flake was recovered from T17/54. In these circumstances, insights into the material culture are limited to a small collection of obsidian artefacts recovered from across the sites.

Obsidian was employed by Māori for slicing flesh, finer wood working, burnishing and barking, and as scrapers for skin and flax (Davidson 1984:107). It was also the tool of choice for the ritual cutting of hair (Best 1995a:333). Traded extensively, stone from Tuhua (Mayor Island, Bay of Plenty) and central North Island sources about Taupō are found throughout New Zealand (Davidson 1984:198, Williams and Walton 2003:23-4).

Obsidian artefacts were recovered from all the localities excavated except the diminutive T17/52. A collection of 36 artefacts was analysed (Appendix 3). It comprises four cores, nine tools and various sized flakes, some very small. With two exceptions, artefacts with a dimension >20mm are cores, or show retouch and/or use wear. The two ochre stained artefacts at T17/66 were purposefully placed but the remainder were all isolated finds consistent with accidental loss, discard and/or subsequent re-deposition in disturbed or shifting sands.

Following the University of Auckland’s established method for sourcing New Zealand obsidian, a geochemical analysis using a portable x-ray fluorescence analyser (pXRF) was undertaken by Dr Andrew McAlister on 34 finds. Each artefact was analysed twice, its results averaged and 13 elements quantified (K, Ca, Ti, Mn, Fe, Zn, Pb, Th, Rb, Sr, Y, Zr, Nb). Ten small specimens
were either very thin or only partially covered the instrument’s detector resulting in inflated values.

The graphical analysis plot of Ln(Sr/Rb) against Ln(Sr/Zr) separates the reference specimens into five previously characterised geochemical source groups to which the archaeological specimen (#14) is associated with Group 1, being Tuhua-Mayor Island, and all the others plot with or near Group 5 (Figure 6.21). Using a different ratio plot sources in Group 5 can be discriminated (Figure 6.22). Excluding the ten small flakes, specimen #30 and the flake sourced to Tuhua, the archaeological finds are associated with only the Taupō sources. The ten small specimens do not closely associate to other known sources but being within the same trend are thought to be from Taupō sources with the initial inflated values accounting for the variance. An angular fragment (#30) plots closer to Group 5 than any other, so may be generally attributed to the central North Island but from a source or one with variability not yet represented in the comparative collection. Setting aside #30 and the ten small specimens, discriminant function analysis on seven elements (Pb, Th, Rb, Sr, Y, Zr and Nb) supports the graphical analysis in assigning specimen #14 to Tuhua Mayor Island and the remainder of the archaeological finds to Taupō sources (Appendices 1 and 2).

Figure 6.21: Kakaho obsidian artefacts scatterplot of Ln(Sr/Rb) against Ln(Zr/Rb). Groups for New Zealand reference specimens are separated by convex hulls. The plot includes the 10 small archaeological specimens. Prepared by Andrew McAlister 2013.
Moore (2011) considers the source of obsidian near Kinloch at the edge of Lake Taupō to be the only tool quality stone in the district, and that archaeological evidence indicates that it was gathered from colluvial deposits or as water rolled cobbles from Whangamata Bay. Given this and its proximity to source, the obsidian at Kakaho is not likely to have been considered scarce. The dispersed positioning of the archaeological finds show that the Taupō sourced obsidian was in widespread use across Kakaho, but given their respective contexts, little can be made of activity to which individual finds may have related. It does suggest, however, that the economic value of the raw material provides only a weak rationale for the deposition of the ochre stained cores at T17/66.

### 6.4.5 Ochre (Kōkōwai)

Māori traditional use of ochre (kōkōwai) to rubricate themselves, carvings and things associated with burials, and an association between the symbolic use of red colouring and the management of tapu is well recognised (e.g., Holdaway 1984). Ochre stained artefacts are known from the Waihora shelter (T18/22) near Taupō (Hosking and Leahy 1982). At Kakaho, shelters are marked with kōkōwai, it occurs compositionally with petroglyphs (see Chapter 6) and flecks in the ground were visible to Lawlor at T17/23. Two small pumice beads coated with ochre were
found at T17/23, one in sieving, one at the bottom of blackened sand beneath the petroglyphs. The function of these is unknown, but may be related to ochre preparation. Very sparse flecks were noted beneath ochre marks at T17/23, 54, and 66, however the potential shifting of surface sand in those floors negates the flecks being directly related to the rock art based on proximity. The most notable concentration of ochre flecks was observed in the surface layers excavated near the dripline in T17/66. That deposit may conceivably be part of a soil eroded from the pā above. Across the study area, then, ochre residue is widespread but the most abundant evidence in the ground is away from rock art, and the reddened obsidian artefacts show that kōkōwai was not used exclusively for the rock art production in those localities.

6.4.6 Buried Artefacts

Of all the cultural material discussed, only the two deliberately buried artefacts at T17/66 are recognisable as having been placed in common with rock art. As stone tools they are not inherently unusual. The size of flakes found locally shows the cores are not yet spent so are unlikely to have been discarded wastefully. However, the local Taupō obsidian was not imported from afar and at only 120g combined they are not a sizable ‘economic’ resource. What is unusual is they were purposefully removed from the context in which they were used - or alternatively - that context extended to them being buried. This provides an opportunity for contextual interpretation, with the reddened surfaces being a matter for particular consideration.

The red colouring is visually recognisable as surface residues of ochre powder, mostly on residual cortex (Figure 6.23). This was confirmed by pXRF testing that showed depending on the ochre thickness the red areas had higher iron (Fe) readings (1% and 43% more) than the inner rock of flaked surfaces (Table 6.5). Obsidian from the Whangamata Fault, a Taupō source, can have a rusty brown coloured cortical accretion. Testing of a reference specimen (UoA 29.24-a) showed that iron (Fe) and manganese (Mn) readings for the accretion relative to the inner-rock do not compare to readings from the coloured surfaces of the artefacts.

The variable patterning in the ochre coverage is consistent with that experienced when handling artefacts with kōkōwai stained hands during material studies experiments (Dante Bonica, University of Auckland, pers. comm. December 2013). Such handling can account for uneven patches of kōkōwai powder adhering to the relatively rough obsidian cortex, the flaked edges and although only very sparse flecks, to some of the raised points on the flaked surfaces. Steep, rugged and crushed distal edge damage shows that #03 was a scraper, possibly used on rock (Phillips, pers. comm. March 2014), but the irregular distribution of ochre on that edge suggests it was handled after that use. Were the initial cobbles used for grinding ochre, powder would
probably be more consistently pressed into the surface hollows. Had the artefacts been purposely painted, even accounting for possible differential wear, a more evenly spread residue could be expected. The spread of ochre over the cortical surfaces and edges suggests that handling occurred during the removal of flakes, and the powdery patches of kōkōwai having survived may suggest that handling occurred during the artefacts’ last use before deposition. The spatial proximity of this deposition to the rock art and inference of tikanga-ā-wāhi are discussed in Chapter 7.

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Table 6.5: pXRF Comparison of Reddened Surfaces. Artefacts compared to reference sample UoA 29.24. Prepared with the assistance of Andrew McAlister 2013.

Figure 6.23: Obsidian Cores from Pit Feature, T17/66. (a) Artefact #02. (b) Artefact #03. (c) Distal edge wear on artefact #02. Photographs by Tim Mackrell. All enhanced.
6.5 Chapter Conclusion

No archaeological evidence relatable to the early period of Māori occupation about Kakaho was found. The dating of charcoal recovered from around the rock shelters and the common presence of obsidian tools do fit with the timing of forest edge Māori occupation in the district in the late pre-European to early post-European period. Observed pits on the pā and in the bush, as well as some probable pits noted historically, indicate past horticulture in the area but there is nothing to indicate gardening close to the rock shelters. Nor was significant evidence of food remains found in any shelter. Kākahi was recovered from two sites, and was previously reported at others, but never in numbers that could not be explained as the isolated shells having utilitarian purposes. The archaeological record is void of evidence of forest fowling, contrasting with the ethnohistorical record.

Eighteen shelters and rock bluff sites are considered (including the use of historic records for now inaccessible sites). No consistent patterns were observed between the size and shapes of shelters, the visibility of maunga tapu, readily recognisable acoustic characteristics, and the presence of cultural deposits and of rock art. These features were not consistent determinants for the selection of either occupation or rock art placement. All but one of the eight sites with rock art also has known cultural deposits. However similar cultural deposits are also found at six sites that do not have rock art. A pattern in cultural deposits that differentiates between sites with and without rock art was not observed.

Throughout the study area the shelter floors consistently have a stratigraphy of thin surface deposits in which Māori cultural remains have been mixed with later deposits. The mixing and dispersal of material may have initially been by people as is suggested by the varied collection from Taumaihi-o-Rangi, but more recently it relates to feral animals seeking cover in the bush and dry burrowing locations, and stock that favour the shelters for both rain cover and shade. Two of the shelters tested appeared to have different floor profiles from the others (T17/57 and T17/66), but excavation showed them to be generally consistent with those about Umukuri bluffs with the main differences being colluvium adding to the shelter foregrounds. The formational processes beneath the high cliff at T17/23 differ with deposit accumulating over the narrow floor. However, re-deposition by water flow and plant disturbance at the rock edge has mixed the sand layer that has evidence of Māori occupation.

Other than rock art, there is little evidence of cultural use found within the shelters themselves, and nothing indicative of intensive use. Where material is found inside the shelters, its origin remains uncertain and its current provenance is explicable as either disturbed from within or
having eroded into the shelter (e.g., T17/23, 57, and, in general, 66). Ochre flecks are found at the shelters with rock art, but only in mixed deposits. The obsidian artefacts were mostly isolated finds explicable as accidental loss, discard and/or dispersed by erosion, animal burrowing and stock trampling. They typically exhibit retouching or use, or are small fragments, but given the stratigraphic ambiguity, as artefacts each offers little insight into activities that occurred at the shelters. As a collection, however, they show the local Taupō source was the most commonly used.

FCR is not ubiquitous in the environment which shows that its presence in charcoal blackened soil is evidence of cultural fire features in the vicinity of shelters both with and without rock art. No intact fire features were found but the amount of stone and extent of rock fracturing suggests these were used for *umu*, from which food preparation may be inferred. Exemplified at Te Taumaihi-o-Rangi, the pattern of dispersal of the FCR and charcoal blackened sands suggests *umu* were made outside the rock shelters where they have been subject to erosion. Embedded in the blackened sands, smaller fractured rocks have moved downhill slower than larger rounded stones. It is possible that the original cutting of the ovens contributed to destabilising the volcanic sands.

Outside the shelters the soft volcanic sands are subject to shifting, sometimes away from the shelters, but sometimes into them. Vegetation burn-off is followed by a redepositing of soils, as shown by the alternating layering of brown and charcoal blackened sands at T17/23. Farm modification has substantially reshaped the foreground of that large site, and erosion of others on farmland is exacerbated by stock. Forest and scrub masks visibility from some sites, rock edge deposits are disturbed by roots and in some cases access is prevented outright. Regardless of a farm or forest setting, since Māori occupation all the sites with archaeological deposit have been subject to disturbance associated with modern land uses.

As a result of the above impacts on preservation, the scope for archaeological interpretation of the activities past Māori undertook about the Kakaho shelters is constrained. In particular, this limits the scope to draw contextual associations between archaeological deposits and rock art. An exception is the buried obsidian at T17/66. Found in-situ, it is unique among the surviving evidence and it survived within centimetres of rabbit burrowing that totally disturbed surrounding soils. The reddened surfaces, probably the result of *kōkōwai* stained handling, and burying of otherwise small cores provides a case of a direct association indicative of *tikanga-ā-wāhi* between cultural deposit and rock art. This is discussed in the next chapter that examines the characteristics of the rock art at Kakaho.
Chapter 7 Kakaho Rock Art

The strength of rock art as archaeological evidence may be its certainty in place (Chippindale & Nash 2004:1,7,10) but that strength is contingent on the extent to which a figure can be recognised against the dynamics of the rock surface and how any other figures about it are recognised. This reflects the potential of intra-site spatial analysis to recognise different marking events applied over time in relation to each other. If that choice leads to patterns that demonstrate contextual associations, aspects of belief about the respective markings and place may be able to be inferred.

The rock surfaces of seven sites in the Kakaho study area are marked. These range from simple ochre dots to complex incised and pecked anthropomorphic facial representations painted with ochre. In both the number and the spread of figures the largest concentration is at T17/23, the Umukuri bluffs. The historic surveys by Fletcher (1996) and Lawlor (1983) provide the base references for the Kakaho rock art. These are augmented with field observations of marking events and recent changes to the rock art.

The rock art across Kakaho exhibits some consistency in the visual forms used but also shows variability in the spatial arrangements of figures. At a regional scale observation of the variability exhibited by a range of North Island rock art sites helps to evaluate the local examples.

7.1 Manufacture

Amorphous ochre daubs were applied in all the recorded rock art sites. The spread of pigment within individual marks suggests that the ochre was applied as paint but the typically weathered rock surfaces and small surviving pigment residues make this difficult to discern in some cases. There are four examples at T17/23 of ochre applied to natural hollows, as well as an example of an unmodified natural feature used compositionally in a petroglyph to form the mouth of a mask. The most numerous petroglyph figures are anthropomorphic facial representations which are found in four sites (Figure 7.1). Undulating lines linking the masks, and a few other grooved figures of uncertain representation are also found at two sites (T17/23 and 53). Lawlor (1983) described the petroglyphs at T17/23 as engravings noting that most are ‘incised’ although none are so fine as to have been formed by a single application of a tool. Perhaps resulting from weathering, few grooves are now smoothed suggesting they were abraded rather than partially
pecked as originally described by Fletcher. Some faces at T17/66 have uneven edges and one appears to be ‘damaged’ in a way suggesting it was partly produced by hammering.

The grooved features of the most complex faces include two eyes, a nose shape or a pair of nostrils, and a mouth with formed lips (e.g., Figures 7.1 a,c,d). The simplest faces are two inwardly angled grooves forming a pair of eyes. Almost all the petroglyphs are intaglio, however in T17/23 a few examples exhibit relief techniques (see Figures 7.1 a,f).

Fletcher (1996:np) recorded black pigment applied to the facial figures at T17/66 including outlining of one figure’s mouth. The black staining discernible in the historic photograph has since weathered and was not identifiable as pigment in 2013. However, Māori use of black pigment is known from rock art figures at the Waipapa and Arapuni shelters on the upper Waikato (Davis and Ambrose 1957, Archey 1927), and the outlining Fletcher describes is consistent with local examples in red pigment.

Some petroglyph grooves are in-filled or outlined with ochre. The techniques have different visual results however both occur within a single mask as well as on adjacent figures at T17/23 (and possibly at T17/66) indicating that the two techniques were parts of the same repertoire rather than different ‘cultural styles’.

<table>
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<tr>
<th>Site</th>
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Table 7.1: Rock art types present in Kakaho sites.

The infill colouring of petroglyphs shows the ochre was a secondary application but it is unknown whether it represents a separate marking practice from the petroglyph manufacture, or compositional use. Given this, the potential for compositional use extends to other ochre applications such as outlining or spreading kōkōwai around a mask, or red dots placed immediately about the petroglyphs. No other clear examples of superimposition were identified. At T17/23, a groove partially cuts through another groove in-filled with ochre but it is doubtful whether the loss of pigment results from subsequent cultural modification rather than weathering at the terminal end of a cultural groove. The rock art at Kakaho is devoid of the superimposition of different figures over others. Layering is limited to compositional infill or outline additions to
existing figures. Although these are potentially different marking events, there is not a robust rationale to distinguish them and surrounding ochre marks as that.

Beyond superimposition, other approaches to recognising different marking events might involve spatial positioning of figures or stylistic variation as markers of different applications. Both approaches are problematic at Kakaho.

7.2 Masks

Fletcher (1996:np) initially viewed the petroglyphs at T17/23 as produced in “two distinct periods or styles”. The older he described as triangular eye and mouth masks interconnected by horizontal wavy lines formed by stylised pairs of eyes (see Figure 7.1 a,b,f). The later stage departs from the horizontal arrangements and is characterised by larger and deeper cut masks with nostrils and  kōkōwai applications (see Figure 7.1 c,d). However, a re-examination shows that there is at least as much variability within each style as there is between them. For example, one mask above a wavy line has a nose and heart shaped mouth formed in relief, whereas the smaller adjacent masks, and those that comprise part of the wavy line, are intaglio grooves of eyes and leaf shaped mouths (Figure 7.1b). Other figures that appear to be compositionally arranged (see pou below) differ in style with two masks formed by more ‘slot’ shaped eyes and leaf-shaped mouths, whereas the ochre outlined figure in-between has more arched eyes and a heart-shaped mouth. The distinctive heart-shaped mouth occurs in both style groups. The various facial components are employed across the bluff to form masks of differing complexity and appearance that are not placed in groups based on unique and consistent style. This observation holds true also for the petroglyphs masks found at T17/53, 54 and 66 (see Figure 7.6), and so for the study area as a whole.

Apparent stylistic variance in the petroglyph masks is not therefore a reliable marker of different periods of marking. Rather, the use of different formations of human faces in single arrangements is arguably compositional. This is not uncommon in late period Māori art, as demonstrated in tekoteko (house gable figures depicting ancestors) (for example, Mead 1984:65 fig. 13, pl.46; Starzecka et al. 2010: pl.5/111; Te Papa, online ME023846, WE001687, OL000150). This artistic practice is employed at Kakaho in the differing facial representations of the amo (front posts) and koruru (gable carving) of the 1894 whare Te Kohera (Figure 7.2). The Kakaho petroglyph compositions may have emerged over time from different applications, potentially by different people, but the differences in visual form are not able to be treated as indicative of this, either within sites or between them.
Figure 7.1: Variability among masks in T17/23. Figure (b) note the simple eye-mouth mask at centre and the arched eyes and mouth forming part of the wavy line at bottom-right.
7.3 Spatial Arrangement of Rock Art at Umukuri Bluff, T17/23

Within the study area, T17/23 at the Umukuri bluff stands out for the size and number of rock art figures present. None were observed on the relocated boulders in the foreground, nor on two prominent rocks atop the bluff that although partly lichen covered do have some exposed surfaces that would have been amenable to petroglyph making. Rather than any accessible rock surface, the emphasis in selection for artistic marking was the cliff face itself.

The foot of the bluff can be divided into seven spatial areas based on natural undulations in the rock face. The surviving rock art is spread unevenly across 21 m and is concentrated in three particular areas (Table 7.2, areas 3, 4 and 7) with outlying figures at the northern end of the site. However, the gaps that give rise to the apparent concentrations may previously have been less extensive in the past and may result in part from differential weathering. Lawlor’s plan notes two areas where water washes the rock face (Table 7.2, areas 2 and 5-7, see Figure 7.3) with the ongoing eroding effect evident in noticeably lighter patches in the brown line of sheep rubbing that extends along the bluff face (Figure 7.3). The gaps between the apparent rock art concentrations coincide with those weathered zones and areas with rough or pitted surfaces (Table 7.2, areas 2 and 5-6).
Figure 7.3: T17/23 bluff face. Top – In 2012 light patches in the brown line of sheep rubbing approximates water wash zones mapped by Lawlor 1983 and areas of more weathering (Photo: Geometria Ltd 2012). Middle - rock art mapping 2013 (blue-petroglyphs; red-ochre; brown-dressing; scale 1m). Bottom - Rock art plan, Perry Fletcher, c.1996. Note: measurements vary slightly between Lawlor 1983 and Fletcher c.1996 sketch plans, and 2013 total station mapping.
Table 7.2: T17/23 Spatial Zones

However, within the water washed zones there are some residual large masks, mostly eroded and exceedingly difficult to discern without reference to historic photographs. They were perhaps accompanied by smaller shallower figures but if so those have eroded beyond recognition. It cannot be determined if the more eroded zones were comprehensively marked or were minimally marked based on the residue that survives today.

This adds to problems in defining units appropriate for intra-site spatial analysis and calculating the relative density of markings for quantified comparison of rock art concentrations across the site. At issue is determining what space should be included within units measured. The eroded figures show that some of what are now weathered spaces were once appropriate for marking, but the weathering has created new smooth surfaces in some parts of the site (e.g., Zone 2) and in other areas rendered the surface unusable (e.g., zone 5). Therefore, how much of the surrounding surfaces were suitable when the petroglyphs were made is unknown.

Many figures are low to the ground suggesting that the artist(s) were seated or kneeling, whereas a few are higher than a metre above ground suggesting a standing position. Questions arise if the blank spaces below some higher figures should be considered as useable space, and should blank zones above the low petroglyphs be treated similarly, say to a height comparable to the higher figures? If so, this may characterise blank spaces as useable when they were not necessarily perceived as such by artists focused on making horizontal arrangements in some areas and vertical arrangements in others.
‘Compositional’ groupings are also problematic. For example, there are some masks among the southern figures with distinctive mouths formed by two opposing semi-circular grooves and a central hollow (in one case using a natural indention) to create a mouth outline in relief (e.g., Figure 7.1f). Examples of this mask type are located either side of a bulbous natural pitted surface (the northern ones were recorded by Lawlor but not Fletcher). These could arguably be treated as separate groups given the spatial separation of the pitted protrusion, or included in a single grouping – perhaps of compositional significance - given the graphically consistent markings either side of the pitted surface. The inclusion or exclusion of the pitted surface could be argued either way.

Given these issues, the rationale for selecting approaches to calculating how densely various parts of the sites are marked is too arbitrary to support meaningful analysis and might result in very different and potentially distorted measures. This confounds comparison that might otherwise allow quantified demonstration of potential patterning in figures that may be suggestive of selective cultural behaviour.

The lineal distribution of rock art across the bluff can be more usefully considered. This shows that petroglyphs were made all along the site but the relative intensity of marking between areas observable today is impacted by differential weathering that is evident. If there were cultural motives that gave rise to uneven placement of figures across the site, the identification of such choice is largely obscured by the differential weathering. This point is particularly evident in considering the distribution of ochre marks and higher placed masks.

Several ochre dots are arranged in a small area that overlaps a petroglyph group of masks and a wavy line (Table 7.2, area 4). While there is spatial overlap there is no indication of pigment or petroglyphic superimposition. As such the order of manufacture of the various markings is unclear but the surviving vividness of each shows that if made at different times the pre-existence of earlier elements would be known to the later artist, especially given the physical proximity required for their manufacture in a low space on the bluff. The co-placement may therefore be considered purposeful but not necessarily different marking events given the dual use of petroglyphs and ochre in compositions elsewhere in the site.

*Kōkōwai* was applied to the rims of four small (approx. 6 to 12 cm wide) hollows in the ignimbrite showing that at some point each of those natural features was attributed with some significance. O’Regan, Lawlor and Fletcher each recorded different examples showing the difficulty of identification given their weathered condition. For example, possible ochre residue recorded by Fletcher outlining a hollow about 1 m above the ground in zone 4 is now only
apparent with photographic enhancement (for example using DStretch LAB12.5), but the modern deposition of coins in it (Lane, pers. comm. 2013) attests to the potential appeal of that reddened hollow as a receptacle for the placement of small items, perhaps of a tapu nature or offerings.

Although it is impossible to determine how extensive the weathered marks may have originally been, the kōkōwai dots, reddened hollow rims and a couple of in-filled grooves show ochre was used broadly across the site. Similarly, while a visual feature of the surviving petroglyphs is a typically low placed horizontal arrangement, each of the grooved zones has at least a residue of facial masks that are placed higher above the ground which required standing rather than kneeling. Were the full range of these figures and ochre marks all bold at once, the visual impact of the pou arrangement would be moderated. Today, however, it stands out for its surviving ochre applications and its vertical arrangement that contrasts with the typically lower horizontal arrangement of the other surviving petroglyphs.

7.3.1 Pou Arrangement

The pou arrangement is comprised of three vertically stacked masks with some small grooves in between. Several factors contribute to its visual prominence, which even if moderated as above, would still have had a strong – and seemingly unequalled – presence within the site. Firstly, it occupies a more or less central location within the site. Secondly, the upper masks are positioned on a vertical undulation in the rock that projects slightly out from the cliff face whereas other high placed masks are positioned on recessed or flat panels along the bluff. The upper face is centred on the rise of the undulation with the large eyes spread across its width showing the size and position of the petroglyph is related to the form and dimensions of the natural feature. Thirdly, it is distinctive as the only vertical arrangement and elevated above most of its neighbours. The mouth of the lower mask is the same elevation as the top of the neighbouring figure, and with a height of 1.5 m, the pou contrasts notably with the surrounding rock art that is placed close to the ground.

A natural stippled concretion covering much of the bluff surface above the pou was removed by flaking of the rock surface in the vicinity of the upper mask and above it. The petroglyphs are cut into the exposed ignimbrite beneath. The width of the flaked area is only as wide as the artwork and has an abrupt edge. Possibly the result of frost damage, the flaking would also be consistent with the area having been dressed in preparation for the art work. Other higher patches of ignimbrite without the concretion appear to have more gradated exfoliation edges, suggestive of natural weathering. Sieved soil samples excavated from below the pou had slightly
larger rock fragments at the bottom of the black layer with cultural evidence. However, given the potential movement of that soil (as discussed in Chapter 6) the fragments cannot be attributed to flaking about the *pou* at the beginning of that deposition unless comparative excavations show it to be absent elsewhere along the bluff.

The fourth prominent feature of the *pou* is the upper mask, visually the largest and most complex in the site. Prominent ochre marked nostrils and defined lips make the mask more complex than similar styled examples, and the *kōkōwai* infill of the eyes and mouth, and the no longer visible patches around the face (recorded by Lawlor 1983), contrast with the smaller more simplified facial representations below it.

The vertical stacking of the facial figures is conceptually consistent with the representation of ancestral figures in traditional Māori wood carving of the ethnographic period, for example the *amo* (front posts) of a c.1875 meeting house of northern Lake Taupō (Figure 7.4) (Phillipps 1955:185). The use of similar styles for the upper and lower faces emphasises the compositional consistency of the arrangement, while the different facial traits of the central figure emphasises the individuality of the representations. The relative size, complexity (or ornateness) and higher position of the upmost figure likely reflects that character’s seniority among those represented, possibly an older generation such as a tribal eponymous ancestor.

The key observation taken from this is that consideration of how the *pou* figures are arranged lends support to parallels with other known Māori art forms. This in turns supports interpretation of the *pou* figures as representing particular ancestors. Even if the individuals depicted were alive at the time the rock art was created, with their passing the figures would have gained ancestral recognition from the next generation. In this case, the other masks within the site and across Kakaho are also likely to represent individual people and the spatial arrangement – at least in compositional groups – is likely to depict something of their relationships whether that is genealogical or geographical. Further, as manifestations of named people those figures and the places they are located would have a measure of *tapu* from being associated with the depicted ancestors (Mead 2003:88). This observation is helpful in considering rock art figures at other sites, particularly T17/66.
Figure 7.4: *Pou* Figures. Left - *Amo* (front post) of the carved house Te Tiki o Tamamutu, Taupō. Photo by A.P. Godber, reproduced from Phillipps 1955:187 with permission of Te Papa. Middle - *Pou* arrangement, T17/23, Kakaho. Right - Enhanced, DStretch Ids-ac, arrows show southern edge of surface flaking. Scale: 1 m.
7.4 Spatial Arrangements at Shelters, T17/53, 54, 66

7.4.1 Shelter T17/66

The recognition of the mask figures as probably representing ancestors provides support for the interpretation of the association between the buried artefacts and petroglyphs at T17/66 and therefore a spiritually imbued and respected aspect to the location. The five intaglio masks are located low on the wall. Given their low placement the masks are not visible from beyond the shelter, so their visual significance is contained wholly within the shelter space where they are prominent. The largest mask has a distinctive figure-of-eight mouth and is centrally positioned above three smaller horizontally aligned facial representations. The southernmost of the lower figures is a rough triangular shaped hollow with the central area between the eyes and mouth broken away. Whether that damage occurred during manufacture or subsequently, careful kōkōwai outlining shows that it had some significance despite its rough finish (contra Neich 1993:22). The figures are placed either side of natural crack-line in the rock face but other comparative examples would be needed before intentional significance could be attributed to the rock art placement about it.

Moss growing in the intaglio cavities obscures a careful examination of the rock surfaces but the generally rough edges of the figures suggest they are pecked. One was temporarily exposed when moss detached when a cobweb was removed, showing a smooth inner surface but the cause could not be ascertained. A tiny speck (3mm x 2mm) of red shows through the moss in an eye of the largest mask suggesting it once had some ochre in-fill. If so, like the upper mask in the pou at T17/23, the visual prominence of the figure was enhanced. Two other residues of ochre dots are also noted about the face. Three kōkōwai dots are placed 2.2 m from the ground directly above the petroglyphs. As ochre has otherwise been used with the petroglyphs, an assumption that the dots were a different marking event cannot be made. However, what is certain is that whether as individual or separate marking events, all the rock art in the shelter is lineally concentrated in one space.

Measured along its curve beneath the dripline, the bluff wall at T17/66 is 11m (see Chapter 6, Figure 6.11). The petroglyphs are between 4.5 - 5.5 m from the northern end, slightly offset from centre. The apparent centrality of the spot also diminishes if the wider 13 m floor area is considered. The proximity of the buried artefacts to the rock art does not appear to be random. The hole was dug immediately below the northern most of the five tiki faces, so further offset from the centre of the site. As already noted (Chapter 6.3.3), deposition of cultural material was not ubiquitous along the shelter rock wall. Within these insights, the common placement of the
kōkōwai dots, petroglyphs and buried artefacts appears to have been deliberate. A particular intentionality in this placement is recognisable by their exclusive concentration within the site.

A different scenario may explain such a placement. The rock art - itself potentially made during multiple events - and the artefacts’ burial may have been independent actions in a central part of a persistent place, the only such shelter about the pā. It is also possible that the rock art was positioned in response to memory of the artefacts placement. If so, at most intergenerational memory would have had to stretch between 300BP and the early 20th century shift away from Kakaho. The most straightforward explanation, however, is that the rock art was pre-existing, in which case the depositor of the artefacts would certainly have been aware of it and, therefore, consciously placed the artefacts in proximity to the petroglyphs. If so, the tapu associated with artworks and their naming in traditional Māori art (Mead 2003:88) makes it likely that tapu associated with the facial representations would have factored in the placement of the artefacts. Given that the tapu acted as an attractant, rather than averting the placement of the artefacts, it suggests that in one case at least they were indeed considered special.

Both artefacts were placed with the redden surfaces upwards, suggesting the colouring had significance to the depositor. The hole feature is dated to the late period of traditional Māori culture when red colouring is ethnographically known to have been associated with prized and tapu things (e.g., Holdaway 1984), and that however ‘mundane’ initially, items associated with tapu activity were thereafter considered tapu themselves (for example, Best 1995a:330-331, on obsidian for haircutting).

Linking these evaluations together there is sufficient evidence to conclude that the obsidian was handled in tapu activity prior to deposition in a special place. Examples of tapu artefacts deposited in significant places are known elsewhere, such as the placement of a carved mauri stone in a pit made for its burial on the tihi (the tapu summit) of a pā near Kawhia (Mead 1984:193). At T17/66 either the place was known to be special by the presence of rock art, or it was subsequently marked with rock art indicating it significance – conceivably as part of the same event. The artefacts may have been buried as a votive offering to the atua or ancestors represented by the faces, as a cache for future use protected by them, or as ‘dangerous’ things placed somewhere spiritually ‘safe’ where tapu is contained (see Areta Kapu, Chapter 3, on the cave placement of umbilical cords for a local example of such practice). Indeed, these considerations are not mutually exclusive and varying elements of all three may be relevant. Of interest, if the flakes removed from the obsidian cores were used within the shelter for such tapu activity (e.g., hair cutting, haehae (ceremonial scarification) or kōiwi (human bone) cleansing) they were not similarly deposited under the watch of the tiki faces.
7.4.2 Shelters T17/53 & 54

In contrast to the lineal distribution of figures in T17/23 and 66, the size and shape of T17/53 and 54 give the rock art in those shelters a three dimensional aspect. Taumahi-o-Rangi has weathered ochre marks throughout including a large, high placed figure (54 cm h. x 57 cm w.) that was potentially visible from afar. The other ochre marks, however, are relatively small (3 - 15 cm in length) and are only visible when at the shelter. From a distance, a blackened rim is notable. Fletcher (1996:np) recorded it as rock art but on re-inspection it appears to be a natural water-washed carbon-rich organic build-up. Weathering may account for an absence of ochre markings outside the black staining, however kōkōwai dashes placed adjacent to the inside edge may indicate that it was attributed some cultural significance, perhaps as a spatial boundary with all the rock art located inside. A transition in the spiritual character of space seems to be marked at the low entrance to a Taupō burial cave (classified data) which is adzed, blackened and had petroglyph masks carved on either side.

Rather than different spatial areas for which the relative density of marking can be compared, the continuity across the wall-ceiling in the shell-shaped Taumahi-o-Rangi makes subdivision of the inner space arbitrary. Instead, the inner shelter is better treated as a single panel. In a visual evaluation the wide dispersal of ochre marks and petroglyphs shows no patterns of concentration but rather emphasises the use of the whole space within the black rim (Figure 7.5). All the petroglyphs – three masks and a grooved curvilineal design – are positioned low on the wall, suggesting they were manufactured while seated, but they are spread about the shelter. The visible ochre marks are placed higher than the petroglyphs but if any were placed lower, they are likely lost to the observable sheep rubbing.

The three figures in the crevice-like T17/54 (Figures 7.5, see also 7.6d, 7.7c) are too few to exhibit a spatial patterning but collectively they show the whole space within that shelter was also marked to some degree. On one side an area 1.54 m (h) x 0.34 m (w) was marked with bold kōkōwai figures, and one a possible tiki (anthropomorph) continues to stand out despite weathering and bleeding of pigment. The only other figures are two low placed petroglyph masks, one on the wall opposite the ochre, and one on the central wall between them.
The rock art is dispersed rather than concentrated in these shelters. The floor areas are small and the spaces have a deep three-dimensional rather flat lineal character. These factors mean that
making associations between cultural deposits in T17/53 and 54 to specific rock art figures would be dubious. Instead, any association drawn would almost certainly be at the scale of the particular shelters as a whole.

Given the distance between them and the nature of the space, were the occupations and markings concurrent anyone occupying one shelter would have known of the other and visa-versa. This encourages consideration of the closely neighbouring shelters as a pair – perhaps conceptually somewhere between the metre and kilometre scales. The two shelters both have prominent markings of a similar fashion but these are less extensive in T17/54. The rock art is mostly visible only at the respective shelters and although dispersed across each, it is limited to the shelters. This is not simply external surfaces being subject to weathering because a large crevice between the two shelters has no observable markings despite its useable and protected surfaces. The rock art has the residue of what appears to be a complex figure, possibly a weathered *tiki* among the ochre markings. The stylistic construction of each petroglyph mask is different and within the scope of the spaces, each appears to be positioned ‘apart’. Their size and position shows that all the petroglyphs were readily visible but not intended to be seen from beyond those spaces. The activity to which the rock art relates would appear therefore to be consistent between the two shelters.

From the valley floor, the climb directly to Taumaihi-o-Rangi is steep. A notably more gradated route up the talus slope to that shelter involves climbing first to T17/54 and then along the bluff edge to T17/53. It is not known if the two shelters were used concurrently but both were used within the last 300 years. The older radiocarbon date from T17/53 reflects inbuilt age in the charcoal sample (see Chapter 6) and the shelter’s later use is shown by the historic artefacts and as well as the history of the *tohunga* Piwa’s occupation (Fletcher 1996:np). The current data is insufficient to evaluate if the smaller more modestly marked shelter was a satellite or staging post to the larger shelter or was used as an alternative space for conducting a particular activity not appropriate to the larger shelter. Regardless of whether use was concurrent, the conceptual similarity of shelter markings may indicate their significance extended beyond the individual shelter rims themselves and across the wider outcrop between them. Such an observation is based on the proximity of the two marked shelters in comparison to an absence of marking in other localities (T17/52, 50a-c) that are similar to T17/54 elsewhere along the Umukuri bluff.
7.5 Variety of Ochre Use at Kakaho

In the rock art shelters discussed thus far, ochre was applied as infill and outlines directly to petroglyphs and also as daubs separate from them. The daubs have a wider distribution within the study area (Table 7.1) and exhibit further ways in which they are spatially arranged within sites.

On the eastern side of the stream, T17/47 north of Umukuri is recorded as having a single ochre mark. To the south of Umukuri, T17/64 has a group of seven kōkōwai dots and strikes that
appeared to Fletcher (1996:np) to be finger applied. The rock surface is weathered and exfoliated, and what are now separate marks appear to have once been parts of a smaller number of lines however no recognisable motif is discernible. Placed in a central space, covering an area 14 cm(h) x 48 cm(w) and at about 80 cm above the ground, the marks are conspicuous within the shelter space (Figure 7.7a).

A different application of kōkōwai dots was observed in a shelter (T17/45) in the Pureora Forest just beyond the study area. A 1 m wide circular pattern is formed by fourteen daubs concentrated centrally in the 20 m long shelter, the occupation of which is further suggested by FCR on the surface (Figure 7.7b).

A very shallow 4.7 m wide x 1.8 m high overhang (T17/67) in the rock face on the spur leading up to Te Weri Pā also has faint residues of three 5 cm to 12 cm long ochre daubs. From 75 cm to 1 m above the ground and at the upper edge of the rim, when bold these marks were likely noticeable to people using this narrow access path.

In contrast, beneath Te Weri Pā two crevices under overhangs on a 14 m wide and over 6 m high section of the bluff are marked with vertically arranged kōkōwai daubs up to 4.5 m above the ground (Figure 7.7d, T17/##; no NZAA number). While visible to passers-by, the marks are not of such a size that they would be visible from a distance. If they were a marker of sorts, their purpose related to the specific locality. As the bluff bulges out at the foot and the ground drops steeply away, the crevices do not form shelters. The ochre markings have therefore been applied to a discrete but not immediately habitable locality.

This was the only such overhang observed when circumnavigating around the base of the pā, although the dense bush limited a comprehensive evaluation of the whole perimeter from below and safety concerns restricted inspection at the bluff edge above. With this qualification, the place may have been particularly well suited for the paepae hamuti (latrine) of the pā. A necessary feature of a defendable pā, these were positioned at steep places or cliff brows and comprised two posts supporting a beam upon which the user squatted (Best 1975:87-8), or sometimes simply an overhanging branch of a tree (Skinner 1911:76). These ‘domestic’ facilities had particular tapu within a traditional Māori worldview: a place for hygienic caution with Māori being “extremely particular concerning these sanitary arrangements” (Best 1975:130) on the one hand and the locality for specific protective rituals and initiation ceremonies on the other (Best 1995[1924]: 276-7, 355-6; Skinner 1911:76).

If this particular overhang was such a locality, the ochre markings beneath may have signified tapu associated with that function, particularly to those who ventured around the pā or at a time
when the pā was not occupied but significance still attached to that locality. With bush clearance, an evaluation of the place as a latrine could be investigated and along with a better understanding of the pā layout, indications that the space differed from other activity areas might be determined. Archaeological affirmation would not however provide concrete evidence of an association between such use and the ochre marks. Rather, this observation provides a plausible explanation for the marks that is in keeping with some recorded insights on Māori use of ochre markings, while also providing a further example of the variable application of the ochre marks at Kakaho.

Figure 7.7: Kakaho ochre marks. (a) T17/64. The outcrop has a single concentration of seven ochre strikes. (b) T17/45, Pureora Forest. A concentration of 14 daubs in 20 m long shelter. Enhanced DStretch LAB10. (c) T17/54. Ochre marking, possibly including a tiki figure (lower). Enhanced Dstretch LDS12.5. (d) T17/##. Ochre daubs extend up the bluff beneath a more than 6 m high overhang beneath Te Weri Pā.


7.5.1 Red Markings in History

Some mention of ochre marking practices has survived in traditions from beyond the study area that are useful for comparative purposes. In a Ngati-tai [sic] account Manawa-tere, a man from Hawaiki, marked a pōhutukawa tree in the Auckland area with karamea (a red ochre) as a sign of his pathway to those following, so giving rise to the proverb “‘Ma te tuhi rapa a Manawa-tere ka kitea”’. By the vivid mark of Manawa-tere it will be found” (Graham 1921:252). Of interest the term ‘tuhi’ is used here for ochre marking and is also used for drawings and writing.

Near Martinborough in the southern North Island, a cave named Hui-te-rangi-ora was marked by generations of chiefs, each trying to strike the wall as high as possible with their ochre stained hand. The highest by at least a foot was remembered as the mark of the tall warrior and tohunga Nuku-pewapewa (Downes 1916:88). From this it can be seen that people of high mana sometimes participated in making marks which carried significance over generations regardless of the finished form and that prior marking might attract subsequent additions by appropriately connected people.

At Waitomo, in the central North Island, a war party under the leadership of Tane-Tinorau is credited as having dispatched the wild dogs living at the now famous Te Rua-kuri (‘Den of the Dogs’). He was later laid to rest with others on a recessed ledged above the Rua-kuri cave entrance with the spot “known by a quantity of kokowai (red ochre) that was besmeared there, and that is still visible.” (Cowan 2012[1930]:108). In the same area, a cave near Otorohanga with kōkōwai on the roof is said to have been marked by Kiharoa, a Ngāti Raukawa warrior of remarkable stature. Finding the nine foot high roof too low, he “threw back his head and rubbed his nose, which was covered with ochre, against the roof” (Gudgeon 1904:238). Waitomo and Otorohanga are both just over 60km north-west of the Kakaho study area and within the related Tainui waka area. The other two accounts are from further afield but indicate that the idea of marking places with kōkōwai was geographically widespread among the ethnohistorical informants.

The mentions of ochre marking in texts are incidental to the primary purpose of the accounts, and a more extensive search of the ethnographic literature may bring forward further examples. Testing the veracity of the accounts is beyond this thesis. Rather the utility of the accounts, as read, is the general observations they allow. Firstly, ochre markings are attributed to a variety of motivations: path marking, burial marking and chiefly connection to or spiritual engagement with a place. Secondly, there is a common association in some form with people of high mana, the memory of whom is the focus of the stories. Thirdly, the accounts indicate the idea of
marking places with red ochre was known widely as a practice and at least in part understood by Māori in the post-European period.

7.6 Variability in North Island Rock Art

This outline of Kakaho rock art makes apparent the considerable diversity in both the form and arrangement of figures and the character of places where they were applied. Whether this degree of variability is unusual, perhaps indicative of either a past cultural phenomena or a quirk of the study area, can be tested by expanding the view beyond Kakaho and making comparisons with a broader corpus of rock art.

7.6.1 Taupō Ochre Marks

Extending the view to the kilometre scale, the diversity of ochre markings about the northern edge of Lake Taupō demonstrates that the variability noted within the Kakaho study area is not a sampling anomaly. Around the edge of the Lake there are a number of marked localities that include shelters with evidence of occupation, crevices only accessible by boat, and lake side cliffs with no landing. The range of ochre marks at these places include: dots dispersed widely over panels and shelters with no particular pattern apparent; dots and dashes about a natural red rock; rows of small dashes marked serially on specific rock edges; individual tā-moko-like (tattoo) designs; large strikes several metres up a cliff face; and ochre covered panels visible from a hundred metres away on the lake. While the latter show undoubted visual signalling in some uses of kōkōwai marks, it is of interest that adjacent to both examples of large rubricated panels are other rock faces with arrangements of small dots and dashes that are only visible at the localities. Given their different prominence the markings seem to address different purposes, messaging or audiences, which provides an example of diverse uses of kōkōwai at single localities. This suggests the different ochre markings at Kakaho were created with varying intents.

On the northern edge of Lake Taupō, T18/25 has a number of ochre dots and dashes across the shelter including a small dot (>2 cm dia.) marking the top of a crevice from which Fletcher previously recovered a number of obsidian flakes, a broken wooden comb and a ball of flax fibre soaked in ochre (Figure 7.8). Red stains on a rock panel above the crevice appear to be residues of kōkōwai marks and immediately below the crevice is a deflated midden and fireplace. Combs are items of particular tapu within traditional Māori culture.

The flax ball is undoubtedly a swab of sorts but its purpose may be associated with other activities involving the comb rather than marking the rock face. Its radiocarbon date 183±21 BP
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(WK37519, 277 -2 calBP, SHCal04) therefore does not necessarily date the rock art production. Nor, given the variability in the forms and positions of kōkōwai marks about Taupō, does a date from one site provide an appropriate indication of the dates for others. What it does show is that Māori about Lake Taupō were aware of places with markings and deposited what are likely tapu artefacts in them during the late period of settlement assuming the rock art was pre-existing. Both in timing and behaviour, this activity aligns to that observed with the buried artefacts at T17/66.

Figure 7.8: Ochre stained fibre. Found at T18/25, Whakaipo Bay, Lake Taupō with obsidian flakes and a broken comb.

7.6.2 Regional Rock Art

The dominance of the mask motif among the Kakaho petroglyphs is unusual for Māori rock art. In manufacture and graphic form it contrasts with the kōkōwai dots and dashes ubiquitous at the rock art sites. Yet expanding a view of the rock art to a kilometre-plus scale shows more continuity among these seemingly disparate types of marking than is readily apparent within the study area.

The mask motif is found widely in the North Island. Mention has already been made of a cave used for burials at the edge of Lake Taupō (classified data). The spread of other examples of the basic eye-mouth motif as petroglyphs includes pit walls at Korekore Pā west of Auckland (Firth 1925:iv fig. 8), an embedded rock near Namu Pā in Taranaki (Phillipps 1948:179), and on the opposite coast at a sea cave at Whiritoa in the Bay of Plenty (Law 1969:194-5). Within each are examples where similarities can be drawn to different figures at Kakaho, as can pictograph masks on shelters by the Waikato River. Compared to the central mask of the T17/23 pou, a tiki face with arched eyes and heart shaped mouth at Waipapa was painted in kōkōwai among other numerous red and black paintings of tiki, animals, a canoe, abstract designs and kōkōwai daubs.
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(Davis and Ambrose 1957). In the Arapuni Gorge (T15/197), Archey (1927) recorded three masks executed in black and arranged horizontally among several pictographs of waka as well as nine ochre spots, although the latter were apparently not in close relation to the canoes.

Near Tokoroa a single red painted waka does appear to be placed in relationship with abundant kōkōwai dots covering the shelter (T16/148). Aspects of that waka and those from Arapuni share similarities with examples engraved at Kaingaroa (see Hamilton 1925) and painted at Tarawera (U16/11, see Trotter and McCulloch 1981:44). A feature of the painted canoes is the small vertical daubs that represent the crew (Trotter and McCulloch 1981:40, 44). An individual person represented by an elaborate mask motif can also be represented in the same body of rock art by an amorphous vertical dash – as is also implied in the generational notching of a rākau whakapapa (genealogical staff, for example Mead (ed.) 1984:22, 218). If based only on visual form, that notion of artistic representation could be applied to a series of ochre strikes placed lineally along a rock ledge at Lake Taupō (T18/42). Also of interest, the overlaps include examples of waka images together with script in Te Reo Māori executed in kōkōwai at Pongakawa in the Bay of Plenty (partially illustrated in Tapsell 2006:90), and engraved at T16/96 east of Tokoroa and Rua Hoata (U17/6) on the upper Waikato (Phillipps 1947, Stokes 2000:127).

Far from exhaustive, these few examples allow recognition that the patterns of petroglyph and kōkōwai applications found at Kakaho are part of a more widespread and diverse practice of marking found across the Taupō District and the mid North Island. This shows that continuity can be found in overlapping occurrences of motif, manufacture and rock art use in the North Island. It also suggests that the degree of variability exhibited in both form and placement of figures in the study area is not an anomaly of the size or character of the area selected but rather is characteristic of rock art in the central North Island.

By taking an expanded view of this variability, more continuity can be recognised between tiki masks, waka and amorphous kōkōwai marks. This is not to say they all represent the same things but rather that these are different expressions within a common marking practice, rather than different practices.Treating the petroglyph tiki masks and amorphous ochre marks separately might therefore be arbitrary and unjustified.

7.7 Kakaho Study Area Conclusion

Different manufacture techniques are found among the Kakaho rock art including intaglio and shallow relief in the petroglyphs, outlining and infilling of petroglyphs with ochre, and the
painting of figurative images and daubing with kōkōwai. These various techniques were used compositionally, especially at T17/23 and T17/66. Ochre marks show some artistic or symbolic significance was attributed to natural hollows at T17/23 where another natural hollow was used compositionally for the mouth of a mask. The use of natural features has only been identified at T17/23, so was incidental to, rather than causative of the general marking of places.

A probable tiki figure is found at T17/54 and the residue of a figurative painting is placed in the central roof of the neighbouring Taumaihi-o-Rangi. Although rare in the study area, figurative paintings are known from localities about Taupō and the upper Waikato River. Red daubs are more common at Kakaho and are found at all the known rock art sites. Their arrangements vary, including placed about petroglyphs (e.g., T17/23), marking all areas of a shelter (T17/53), concentrated in the centre of shelters (e.g., T17/64, 66), and vertically arranged up crevices (T17/##). The few ethnohistorical references show that ochre marking was widely employed for various purposes across the central North Island. This suggests that the variable arrangements at Kakaho indicate that kōkōwai daubs were used to signify different things, as appears to be the case around Lake Taupō.

Kakaho has an unusually high proportion of anthropomorphic masks, but the motif is widespread. The various manufacture and motifs in Kakaho rock art fit within the wider repertoire of rock art found across the central North Island. Within that, the concurrence of abstract ochre marking and figurative art is not unusual.

7.7.1 Inter-site Distribution

The petroglyphs are found at or around named places (Umukuri, Taumaihi-o-Rangi and Te Weri Pā). The settings vary from beneath the pā, to discrete shelters, and the foot of the large bluff. No rock art was observed on freestanding rocks, so the marking practice appears to have focused on the bluffs and shelters as localities. Umukuri stands out for the number, size, and compositional arrangements of figures. They are placed along the foot of an impressively high bluff, although 19th century forest may have obscured its visibility as well as the view of the maunga tapu, Pureora, from the site. The echo from the bluff is such that activity there would have been known to others nearby in the valley, and the minimal overhang shows the rock art placement was not related to a need for shelter.

Although Umukuri is an exceptional Māori rock art site, the characteristics of the site are not exclusive to T17/23. Views of maunga tapu, notable acoustics, and the bluff setting are found at other places with rock art, and some without it. Within the small sample of sites, no particular correlation of rock art markings with such characteristics, or site size, shape, orientation and the
presence of archaeological deposit were observed. Rather, the character of T17/23 adds to the variability in the way the rock art was applied within the study area. The different features were likely recognised by the people using the sites, but they were not consistent determinants for the selection of either occupation or rock art placement.

7.7.2 Intra-site Distribution

The method employed in this thesis for intra-site spatial analysis of rock art was generally confounded at Kakaho by difficulty in discerning between rock art marking events. At the ‘millimetre’ and ‘centimetre’ scales of manufacture and motif, the observed examples of superimposition are compositional infilling or outlining of petroglyphs. Where present (T17/23 and T17/66), there is not a robust rationale for considering the surrounding ochre applications as different marking events. Comparison with historic meeting house carvings shows that different forms of faces are used compositionally in single Māori art works, and therefore stylistic variation in the facial motifs is not useful for separating marking events among the rock art.

The ‘compositions’ may result from cumulative markings over time or generations, each enhancing or reviving what was there beforehand. However, there is not a robust rationale to separate neighbouring figures as different marking events based on the observed superimposition, style or manufacture technique.

Petroglyph masks are arranged differently at the four sites in which they occur. They are dispersed at different heights across the bluff at T17/23, positioned low on the wall at T17/53 and 54, and concentrated in a central location at T17/66. At the ‘metre scale’ the dispersed rock art, size and shapes of T17/53 and T17/54 negate consideration of the markings as distinguishing significant areas within the shelters. The low position of the petroglyphs probably reflects the practicality of the carver having been seated. The markings in T17/54 show that the rock art is not exclusive to its larger named neighbour that is associated with known tūpuna. Considered as a set they may indicate that part of the bluff held particular significance. This distribution appears to be deliberate as other nearby shelters comparable in size to T17/54 are not marked (e.g., T17/50a-c). However, substantiating this observation would require a recurring pattern of ‘satellite shelters’ across a broader data set.

Quantitative assessment of the density of marking in spatial zones proved problematic at T17/23. A qualitative lineal assessment, however, showed differential weathering in water-washed zones may account for some of the apparent unevenness in the rock art distribution. Reference to the historic records highlights the issue, but there is insufficient surviving evidence to attempt a reconstruction of rock art data for the water-washed zones. The surviving residues of larger
figures make it uncertain if shallower smaller figures, as found accompanying larger figures elsewhere in the site, have been obliterated. The uncertainty caused by the weathering and the compositional factors noted above confound the separation of neighbouring figures as marking events. The surviving physical evidence does not provide appropriate data for analysis at the ‘metre scale’, the placement within a site – in which behaviour between marking events might be identified.

The vertical arrangement of three anthropomorphic masks, the *pou*, at the Umukuri bluff appears to be deliberate. The upper two are positioned on a protruding section of the rock wall, the rough surface of which was possibly dressed in preparation for the petroglyphs. The relative size of the top figure is notable among the surviving masks in the site, and its visual presence would have been amplified when the *kōkōwai* infill was complete.

Other historic Māori art shows the vertical stacking of ancestral images which supports an interpretation that the spatial arrangement of the *pou* figures represents a *whakapapa* relationship between three *tūpuna*. This provides some support for the iconographic interpretation of other mask figures as representing *tūpuna*, including those at T17/66. As ancestral representations, the petroglyphs likely cemented the association of particular *tūpuna* with the specific locality marked and required *tikanga* with regard to that, as is the case for ancestral representations in carved Māori houses. It is not clear, though, given the issues confounding the intra-site spatial analysis whether such *tikanga* applied broadly to the site and led to additional marking in respect of that.

Throughout the study area, where rock art exists, the central parts of the sites are marked but not exclusively as noted at T17/23, 53 and 54. Only the *pou* figure at T17/23 is visible from beyond the respective sites. In favourable light the upper mask can be discerned from over 50 m away. Other rock art in the study area is only recognisable within the sites, but no observed figures are hidden from people at those localities. If the rock art had an intended audience beyond its creation, it was people visiting those specific sites.

### 7.7.3 Archaeological Deposits

Historical maps and aerial photographs show the valley was progressively converted from forest to scrub and tussock from the late 19th century, and from the mid-20th century converted to farmland on one side and returned to bush and forest plantation on the other. These modern land uses impact the preservation of the archaeological deposit in different ways. Farming activity masks previously recorded sites in the open land and bush obscures sites elsewhere. Other than part of the pits and terracing on the mostly overgrown Te Weri Pā, the rock shelters are the most
visible archaeological sites in the study area. Historic records and pits in the forest agree with the characterisation of Māori settlements about Taupō gardening at the forest edge in the late pre- and early post-European period. There is no evidence of gardening within the immediate vicinity of rock art sites, nor of fowling that was historically important in the area. Sparse flakes of mostly Taupō obsidian show the sites investigated were occupied when that stone was still in use, but other than rock art there is little to indicate the activities that were carried out at the shelters and bluffs.

The main archaeological deposit found was FCR, the fragmented nature of which suggests use in umu. However, no intact fire features were found and all the FCR observed was eroded deposit. In some cases FCR has eroded into the sites (T17/57 and T17/66). At T17/23 smaller fragments are dispersed across the site. The movement of the deposits reflects the matrix of soft volcanic sands that are subject to erosion, exacerbated by stock trampling on farmland and feral animal disturbance in the bush.

Unless eroded (e.g., T17/64), the floors inside the shelters are consistently thin surfaces of mixed sand and modern organic matter overlying culturally sterile base sands. The modern mixing of those deposits results from stock and feral animals using the shelters. As a result there is no recognisable difference between the archaeological deposit in occupied shelters with and without rock art. Little cultural material is found in the shelter floors and the palimpsest nature is highlighted by the historic collection from Taumaihi-o-Rangi that included obsidian and FCR along with metal items including cartridge cases.

The absence of food remains is not shown to be a purposeful separation between food and rock art. The pattern is the same at localities without rock art and demonstrating a separation requires food remains to be identified elsewhere. Other activity, such as the separation of food from sleeping places may also account for the absence, but placement of the umu outside the shelters spaces almost certainly reflects the diminutive size of most occupied spaces. Where there does appear to have once been a more substantial archaeological deposit, T17/23, that deposit was dispersed by water wash prior to the modern soil build-up, and the foreground has been substantially modified for farming.

Across the study area the few artefacts and archaeological deposit found are generally not sufficient to identify the activities that took place. The radiocarbon dating is mostly informative of the maximum age of the deposit in which FCR is found. Those results agree with accounts of people living in the area and using the localities from the late pre-European period but no
evidence was found that dated to within a few generations of Māori arrival in New Zealand as is suggested in the traditional accounts.

### 7.7.4 Preservation and Tikanga-ā-wāhi

The NLC minutes show that shelters were widely used for a variety of purposes by people living around Kakaho in the 19th century. This included use as sleeping places, associated with birding, for ritual deposits and a tohunga residence. Some shelters had specific names but not all. The most specific traditions for a shelter with rock art relates to Taumaihi-o-Rangi. The accounts maintain memories of the people who used the shelter early in Māori settlement and in the post-European period but do not mention rock art. It is not known if the presence of markings attracted the tohunga, Piwa, to occupy the shelter but as with all localities in the study area, if the rock art already existed it would have been noticed by subsequent occupants.

The impacts on the preservation of archaeological deposit result in all the shelter floors appearing the same. As a result, the variability in the rock art and traditional knowledge of places is not matched by that in the archaeological deposits. This prevents drawing contextual associations between the rock art and archaeological deposit that may be indicative of tikanga-ā-wāhi at Kakaho with the exception of the obsidian artefacts buried beneath petroglyph masks at T17/66.

A large flat wall along which the rock art is concentrated in a specific part, rather than dispersed as at T17/23, facilitates recognition of a deliberate spatial association. Comparison with obsidian found across the study area shows the raw material is not rare. This emphasises the significance of the upward facing reddened surfaces that appear to have resulted from handling during activity involving kōkōwai. Dating shows the deposit was late pre-European or early post-European, a time when it is ethnographically known that kōkōwai was associated with tapu marking activity. Comparison can also be made to tapu artefacts that date to a similar time and were deposited in an ochre marked shelter at Whakaipo Bay. These combine to show that the location at T17/66 had special significance, and that was associated with the kōkōwai enhanced facial depictions of ūpuna above. The flakes removed were not similarly deposited. It is unclear what particular activity occurred and whether the whole shelter would hold the same significance. However, there is sufficient in the find to demonstrate a regard for tikanga-ā-wāhi at the marked locality. That location and any rock art in it at the time would have been known to the occupants of the pā above.

The find demonstrates the circumstances and preservation required for the intra-site methodology to be effective in drawing associations between rock art and the archaeological
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deposit. Of the investigations at Kakaho, this was the single association that has strong contextual evidence for *tapu* significance. The *pou* at Umukuri bluff has good historic linkages for a similar interpretation. Rock art at other locations may also have been associated with *tikanga-ā-wāhi*. For example, a possible association is speculated for some ochre marks with a possible latrine. However, preservation issues at various scales prevent these being recognised and/or demonstrated. The major confounding factors are the states of preservation of rock art within T17/23 and of archaeological deposit elsewhere. This provides a useful basis for comparison with the findings from the Opihi study in South Canterbury.
Chapter 8 Opihi Study Area, South Canterbury

The South Canterbury downlands rise from the flats of the South Island’s east coast up towards the interior ranges and inland Mackenzie and Opuha basin. To the West the Main Divide is formed by the Southern Alps, prominent among which is Aoraki-Mt. Cook, Ngāi Tahu’s tribal mountain. The mana whenua of the district are centred at Arowhenua Marae, Temuka, on the northern side of the Opihi River 6 km from the coast. In the downlands 26 km from the coast, the Opihi study area extends along limestone outcrops and up a small tributary gully on the southern bank of the Opihi River (Figure 8.1).

Figure 8.1: Opihi Study Area. Arrows indicate the riverside limestone bluffs. KiwImage Satellite Imagery, GeoDataHub Geospatial Data Repository.

The southern setting, limestone bluffs and loess soils may be the most obvious differences with the Taupō study area and its volcanic geology. The other key differences are that almost all the known archaeological remnants of Māori occupation around Opihi are rock art sites, European stocking and the concomitant separation of Māori from traditional use of the land occurred earlier, and the rock art has received decades more scholastic attention. These differences provide an opportunity for regional comparison of the preservation of traditional knowledge of places on the one hand and the physical remnants of archaeological deposit and rock art on the
other. This chapter outlines the geographic setting, traditional knowledge and land use histories to provide an appreciation of the wider tribal and archaeological context of the Opihi study area.

8.1 Geographical Setting

8.1.1 Geology

Among the South Canterbury downlands the Geraldine Ecological District (McEwen 1987b) is an area of between 100 m and 300 m a.s.l. drained by the Orai, Opihi and Tengawai rivers. It has mostly loess soils forming a mantle over “Pleistocene tills and loess-covered weathered gravels on terraces with smaller areas of Tertiary marine deposits including… limestone and small areas of Holocene alluvium in river beds” (McEwen 1987b:32).

Within the Geraldine ED, the study area is situated on the north-west tip of a 9 km long hill on the southern banks of the Opihi River. The western end of the hill is mapped as ‘pale coarse-grained sandy limestone… underlain by green-grey calcareous glauconitic quartz sandstone’ (Cox and Barrell 2007). The rock art sites investigated are in the exposed outcrops of the limestone. At the eastern edge of the hill’s limestone formation a gully runs from near the ridge down to the Opihi River. East of the gully the hill is a different geological formation, alluvial deposits of ‘weathered river gravel, sand and silt associated with moderately to poorly preserved depositional landforms’ (Cox and Barrell 2007). Water-rolled greywacke stones erode from the wall of a sink hole in the limestone which opens into the gully adjacent to the Taniwha Shelter. This provides an immediate and abundant supply of stones for umu in the gully, as does the braided bed of the Opihi River for sites along the river bank.

8.1.2 Ecology and Forest History

The climate of the Geraldine ED is sub-humid with cool winters and mild dry summers, annual rainfall of 700-800 mm and prevailing NW winds (McEwen 1987b:32). The conditions were beyond those suitable for pre-European kumara cultivation, the southern frontier of which was Te Waihora (Lake Ellesmere) about 100 km to the north-west (Anderson 1998:72, 207).

At the time of Māori arrival the downlands area was covered in extensive podocarp forest. The New Zealand potential vegetation pattern (Landcare Research n.d.) indicates the hill at Opihi had a pocket of ‘Matai-tōtara-kahikatea-rimu/broadleaf-fuchsia forest’. The flats to the south were covered with ‘Kahikatea-pukatea-tawa forest’ associated with alluvium and floodplains, and the wider surrounding area was ‘Matai-kahikatea-tōtara forest’. A compilation of fossil avifauna from sites in the South Canterbury downlands lists 61 species (52 confirmed, 9 probable)
The forests of the eastern South Island were among those significantly reduced in the ‘initial burning period’ (IBP) that occurred soon after Māori settlement (Perry et al. 2014b:161-2). Analysis of pollen and charcoal from inland South Island lake sediments indicate that rapid deforestation occurred within decades of Māori settlement (McWethy et al. 2014). As the seral vegetation was particularly fire-prone, a positive feedback for burning existed, and once started a one-way transformation to shrubland vegetation was inevitable (McWethy et al. 2014:4, Perry et al. 2014b:159, 162, Perry et al. 2012). Sub-fossil logs, relics of former forest, are found across the eastern South Island, including in the vicinity of Opihi (Molloy et al. 1963:figure 1).

The deforestation of Canterbury was coupled with changes to the avifauna that were associated with bush and shrublands (Holdaway and Worthy 2008:485-6). Of significance for early Māori subsistence was the loss of the large and ground dwelling moa. Direct human exploitation rather than habitat loss was the main driver for the demise of moa at a national scale, such that moa were economically depleted within 150 years of Māori arrival and biologically extinct by 50 years later (Perry et al. 2014a:133-4). Whatever the balance of causative factors impacting on localised populations, the general loss of vast areas of habitat within the first decades of human settlement saw moa and other bush birds no longer characterise the avifauna of Canterbury’s lowlands and foothills (Holdaway and Worthy 2008:486).

Prior to European settlement the vegetation of Geraldine ED was mostly lowland tussock and small remnants of podocarp forest (McEwen 1987b: 32). Weka (Gallirallus australis), now extinct in the region, were once widespread in Canterbury forest and shrubland (Holdaway and Worthy 2008:460). It appears that weka were found on run holdings neighbouring Arowhenua up until 1865 (see Dacker 1994:36), and were seasonally hunted in the inland Mackenzie country until the late 19\textsuperscript{th} century (Anderson 1998:160-1, Dacker 1994:35-6). Given this, weka may have also been present about Opihi over the same period. The Geraldine ED is now highly modified by farming, and native avifauna is limited with small bush birds and kererū (NZ wood pigeon, Hemiphaga novaeseelandiae) persisting in forest remnants (McEwen 1987b: 32). Introduced rock pigeons (Columba livia) roost in the limestone bluffs about Opihi, and feral mammals in the study area include rabbits, hares and possums.

McDowall and McIntosh (2008:622-3) describe the main rivers of Canterbury, of which the Opihi River is one, as having a low diversity of fish species. Two species of tuna (eel) remain widespread and abundant. The short fin (Anguilla australis) favours still or gently flowing
waters, while the long fin eel (*Anguilla dieffenbachii*) occupies more riverine habitats (McDowall and McIntosh 2008:627), like the Opihi River in the vicinity of the study area that is now fished for introduced trout.

### 8.2 Māori History and Tribal Relationship to the Land

#### 8.2.1 Initial Settlement

According to traditions the first explorers and settlers of Canterbury were voyagers from Hawaiki (Anderson 1998:14, New Zealand Geographic Board 1990:90-1). After the migration canoe Uruao landed in Nelson, Rākaihautū explored the interior of the island on foot creating the major interior lakes as he went. From Foveaux Strait he returned north and joined the *waka* at Waihao about where his son, Rakihouia, established eel weirs at the South Canterbury river mouths. The crew of the Uruao then shifted north and settled on Banks Peninsula, their descendants becoming Waitaha for which the Canterbury Plains are named, Kā pākihi whakatekateka a Waitaha, ‘the seed beds of Waitaha’ (Anderson 1998:21, New Zealand Geographic Board 1990:91).

Another exploration tradition relates to Tamatea Ure Haea who made a local canoe naming it Takitimu after the migration *waka* of which his grandfather, Tamatea Mai Tawhiti, was the *tohunga* (New Zealand Geographic Board 1990:73). The later Takitimu was wrecked about Waiau River that flows into Foveaux Strait. Numerous place names in that area relate to Takitimu and recall Tamatea’s time there, including that of Te Ana Whakairo, an adorned cave (and the traditional term for rock art) where one account has it that Tamatea inscribed on the walls ancient scripts from Hawaiki (Downes 1914:112). Accounts of Tamatea’s return north differ, but one has him traversing the interior and passing through the Mackenzie Basin, inland from Opihi, and on to Banks Peninsula where his visit is further remembered in another landscape feature (New Zealand Geographic Board 1990:74).

The traditional accounts vary and some of the acts of these ancestors are fabulous if taken literally rather than recognised as giving name and explanation to a new landscape (Anderson 1998:16, also Tau 2003:18-19 regarding mythical and historical aspects in Māori genealogy). The traditions recognise that the Canterbury coast and interior were explored and named, and the region settled within the first few generations of Māori having arrived in New Zealand. However, the places of traditional significance, as far as has been determined, are not within close proximity to the Opihi study area.
8.2.2 Tribal Occupation and Boundaries in South Canterbury

The tribal occupation of South Canterbury is enmeshed with the settlement histories of the wider South Island that were investigated for the Ngāi Tahu claim (see Anderson 1998 for a considered subsequent synopsis). The original settlers of the eastern South Island were collectively referred to as Waitaha (Waitangi Tribunal 1991:3.1.3). Their various tribal ascriptions were Rapuwai, Waitaha, and Hawea – all named after ancestors in a line of descent from Rākaihautū – and Kahui Tipua and Kahui Roko, compatriots on the Uruao waka (Anderson 1998:18-22). An abundance of coastal and inland shell middens were traditionally attributed to Waitaha (Anderson 1998:22) and remains from moa hunting indicate a broad footprint over Canterbury from early settlement (see Challis 1995:12). The Waitangi Tribunal and High Court accepted Waitaha as being woven together with Ngāti Mamoe and Ngāi Tahu, later arrivals into the South Island (O’Regan 2014:28).

In the North Island a section of Ngāti Mamoe from around the Hawkes Bay moved south to Wellington, and then in the mid-16th century shifted across Cook Strait to Wairau (Waitangi Tribunal 1991:3.1.4 citing Tipene O’Regan). Pressured by other migrants from the North Island, some Ngāti Mamoe shifted to North Canterbury and others further south to settle among Waitaha (O’Regan 2014:2, Anderson 1998:23). Through conquest and strategic marriage they came to dominate and the southern tribal communities became known as Ngāti Mamoe even though by decent they were largely Waitaha (O’Regan 2014:2, also Anderson 1998:25, Waitangi Tribunal 1991:3.1.4 citing Tipene O’Regan).

In the 17th century others from the Hawkes Bay area also moved south through the Wairarapa and Wellington, and shifted across Cook Strait (Waitangi Tribunal 1991:3.1.1), probably sometime about the start of the 18th century (Anderson 1998:57). Migrations of Ngāti Kurī, Ngāi Tūhaitara and Ngāti Irakehu established themselves in northern Canterbury and Banks Peninsula coalescing in the South Island as constituent hapū of Ngāi Tahu (O’Regan 2014:2, Anderson 1998:27). The migrating groups may have numbered only in the hundreds but with localised concentrations of men of military age they were able to exert mana over the dispersed Ngāti Mamoe communities (Anderson 1998:27). Traditions of outright slaughter are few but rather the defeat of key individuals and strategic marriage saw mana shift (Anderson 1998:59). For a time Ngāti Mamoe continued to hold sway in Otago and Southland until they were formally united with Ngāi Tahu by a rongopai (peace agreement) (Anderson 1998:27, Waitangi Tribunal 1991:3.1.7). The expansion of the Ngāi Tahu presence and dominance across the length and breadth of the island occurred within about 60-70 years - less than two lifespans - of having crossed Cook Strait (Anderson 1998:57).
Social turbulence was ongoing, particularly as the Kaihuanga (‘eating relatives’) inter- hapū feud of the mid 1820’s strained hapū affiliations across the tribe (Anderson 1998:78-80). Greater community upheaval soon followed. Ngāti Toa, a group from Tainui waka, having asserted authority over the Wellington region conducted devastating musket armed raids on Ngāi Tahu in northern Canterbury and Banks Peninsula from 1828 to the early 1830’s (Anderson 1998:80-5). The raids stopped short of South Canterbury and were repelled by Ngāi Tahu forces largely from Otago and Foveaux Strait (Anderson 1998:85-6). Nonetheless, the effect was a major upheaval and shifting among the southern communities with Arowhenua and other new settlements emerging to accommodate those displaced (Anderson 1998:90).

The ‘archaic period’ of Canterbury’s occupation corresponds to Waitaha, and the ‘classic’ as Ngāti Mamoe and Ngāi Tahu, (Anderson 2008:66). However, this does not imply the cultural displacement of an early ‘archaic’ culture by the intrusion of an external ‘classic’ one. The tribal occupations typically followed a process of conflict, intermarriage and a shifting of mana over areas and people, rather than necessarily permanent displacement of tribal groups or their traditions (e.g., Anderson 1998:57-9, also O’Regan 2014:2-3). Given this, the ‘classic’ or late period Māori culture in the South Island emerged from the experiences of all its predecessors. This would be expected if the common practice involved taking wives from older tribes so securing traditional rights for future generations (e.g., Anderson 1998:57-9, 205-6).

The southward movement of Ngāi Tahu fragmented original hapū leading to southern communities with multi-hapū compositions, a process compounded later by the Ngāti Toa raids (Anderson 1998:207). For example in the middle of the 19th century at Waiateruati, then the main settlement near Opihi River mouth, a minority of people still listed their hapū affiliations as Ngāti Hinekato of Te Rapuwai and Ngāti Rakai of Ngāti Mamoe, while a little later almost half the settlement affiliated to Ngāti Huirapa and Ngāti Whaea, hapū of Ngāi Tahu (Anderson 1998:104-5). Now typically referred to as simply Ngāi Tahu, the genealogical strands of Waitaha, Ngāti Mamoe and Ngāi Tahu are recognised as woven together, as is in the constituency of the Arowhenua families today (Waitangi Tribunal 1991:3.1.10).

Land divisions in the tribal area were conceived of at a number of levels and were most defined at the coast. Anderson (1998:105) notes an ancient area known as Waitaha that extended from about the Selwyn River south to the Waitaki. Historically at a district level Arowhenua people claimed land between the Ashburton and Makihikihi Rivers (Anderson 1998:107). In some sense the districts were owned by particular chiefs and c.1850 Umukaha, near the Opihi River mouth, was identified as the boundary between the areas of Te Rehe and Tarawata to the north,
and Horomona and Pohio to the south (Anderson 1998:107-8). Wakawaka were strips within particular mahinga kai (food gathering areas) that were owned at family level but the land between mahinga kai was open to communal use. If rock art had an inter-group boundary marking aspect, it is not likely to be relatable to these territories. Opihi, and much of the rock art in South Canterbury, sits centrally within the larger regions, while the significant movement of people in the settlement histories means the boundaries associated with historic period chiefs or families cannot be assumed to have been representative of earlier boundaries when the family networks were different.

Today Ngāi Tahu politics and administration are organised around eighteen rūnanga or local tribal forums. The takiwā (district) of Te Rūnanga o Arowhenua is based on traditional associations and extends on the coast between the Rakaia and Waitaki rivers and inland to the Main Divide. Opihi is located centrally within this. This takiwā overlaps with those of neighbouring Canterbury rūnanga near the coast, and interests blend further inland towards the Main Divide. In part that reflects overlaps in hapū affiliations associated with places and the multi-hapū communities.

8.2.3 Historical Māori Occupation about Opihi

In the 1840-50’s the major Ngāi Tahu settlements in South Canterbury were located near the coast about the lower Opihi River. The recorded population dropped from about 120 people in 1844 to about 80 in 1852 before recovering in the 1860’s (Anderson 1998:156 figure 9.6). While gardens of European crops were established about villages, South Canterbury people remained engaged in traditional subsistence activities of which the tī kōuka (cabbage tree, *Cordyline australis*) industry was the most important (Anderson 1998:158). The root and stem of the young plants were systematically harvested and baked in earthen ovens to produce kāuru, a sugary food. The management of this resource was such that it may have become a domestic crop had European crops not arrived when they did (Anderson 1998:145, 208). In lists of named mahinga kai places for procuring eels were the most numerous in South Canterbury. Fewer places were noted for weka however it thrived in the scrub and tussock country and was hunted both opportunistically and systematically (Anderson 1998:142-3). For example, in 1870 one of the last weka hunts in the Mackenzie country had a catch of 3 tons (Dacker 1994:35-6). The coastal settlements were linked to inland seasonal camps, such as a house and garden recorded in 1849 near the Tengawai Gorge (Anderson 1998:156, 160-1), an area in the downlands south of Opihi known for rock art sites.
The middle of the 19th century was bleak for all Ngāi Tahu. Introduced European diseases wreaked havoc on the tribe, although how devastating and lasting that impact was on the overall population is hard to gauge (Anderson 1998:193-4). The Kemp Purchase of 1848 saw the Government acquire most of Canterbury from Ngāi Tahu. The land was quickly sold to European interests and by the end of the 1850’s the whole lowland South Canterbury was occupied by sheep runs (Wilson 2012:5). The creation of private European farm runs saw Māori denied access to large tracts of land, sometimes with the threat of gaol or being shot, while the traditional mahinga kai were devastated: kāuru and fern by burning; weka by European dogs and poisoning; eels by European exploitation, drainage and protection controls for introduced trout (Evison 1997:327-9, Dacker 1994:35-6). In 1865 the official advice to Arowhenua people was that European land holders had the legal power to prevent them hunting weka and pigs on the neighbouring runs (Dacker 1994:36).

By 1850 most Ngāi Tahu had converted to Christianity, related to which literacy was common with 20% of people able to read and 12% able to write (Anderson 1998:215). In South Canterbury the shift in belief systems had an indigenous aspect. In 1865 Piripi Te Kohe, a visiting tohunga of a Māori Christian faith developed in the North Island, travelled the South Island helping locals remove the old tapu from places. At Arowhenua he trained the local Te Maiharoa who was to become a prophetic leader himself and continued the tapu lifting work (Dacker 1994:51-2). There are differing suggestions that the missionary style writing in Te Reo Māori in rock shelters about Opihi may be related to these endeavours (e.g., Fomison and Fyfe 2014:87-8).

The Crown failed to protect traditional food gathering rights and allot adequately sized reserves leaving South Canterbury Ngāi Tahu communities impoverished (e.g., Dacker 1994:48, 57). The continued destitution of southern Māori gave rise to ‘Te Kereme’, the historic Ngāi Tahu land claim as well as the 1870’s protest occupation of the upper Waitaki led by Te Maiharoa and resulting in a forced removal by an armed constabulary (Mikaere 1988, Dacker 1994:65-6). It is also remembered in the 1905 Māori hall at Arowhenua being named ‘Te Hapa o Niu Tiren’ – ‘The Left Out of New Zealand’ (Evison 1997:335). It was in these circumstances that 19th century Ngāi Tahu people were increasingly disconnected from the localities where rock art is found (O’Regan 2003).

8.2.4 Knowledge of Specific Places

The published historic records do not document the localities where Te Maiharoa lifted tapu but that work does indicate South Canterbury Māori recognised the existence of tapu places in their
landscape and how it affected their behaviour. Some were very specific features such as a pond where travellers stopped to pray that was considered an ancient *umu* that cooked human flesh (Beattie 1995:36). Others were more general, such as Cave Hill, 20 km south of Opihi that young Māori employed as shepherds considered a *tapu* mountain and resisted crossing in the 1855 pursuit of Mackenzie, an infamous sheep rustler (Crawford 1981:11-12). By the 1870’s the loss of cultural knowledge of places in the wider landscape was a concern among southern Māori leading some elders to set about recording these locations, especially *mahinga kai* (Beattie 1995:6, 60). Drawing from two primary published accounts and checked against community knowledge, Te Rūnanga o Arowhenua and the tribal administration have recently engaged in a cultural mapping project using GIS. In the vicinity of the Opihi study area only two localities are identified: Kohinewāhia, a *mahinga kai* site at Hazelburn to the south, and Te Wai a Kanekane, a *mahinga kai* on the Opihi River where eels, fernroot and tī kōuka were gathered (Figure 8.2) (note: Beattie 1995:47,71,78 locates Te Wai o Kanekane as several kilometres to east). However, the mapping of the localities is only approximate given the detail available from the historic records (Te Rūnanga o Ngāi Tahu, n.d.). Another locality can be added. Visited by Stack, Parihaka at Hanging Rock Bridge is across the river east from the study area and a rare example of a named locality with rock art.

Figure 8.2: Recorded Māori localities near Opihi. Sources: Archaeological sites, NZAA; *Ara tawhito* (traditional trails) and *wāhi tawhito* (traditional places), Te Rūnanga o Ngāi Tahu; Study area, SIMRAP.
Integral to the knowledge of specific places was an understanding of the extensive trails Ngāi Tahu had running the length and breadth of the island, those inland typically following river valleys (e.g., Brailsford 1984). The Opihi River was a recognised trail into the hinterland however given the details of the historic records its modern mapping is limited following the river course (Iain Gover, Te Rūnanga o Ngāi Tahu, pers. comm. May 2013) (Figure 8.2). It is clear from this work that places in the region of the study area were known to local Māori in the mid-late 19th century but details that can be specifically related to the sites have not been retained in the historical accounts.

8.3 Archaeological Setting

8.3.1 Archaeology in South Canterbury

Evidence shows the South Island was settled at the outset of Māori occupation in New Zealand. At the northern end Wairau Bar has some of the earliest known archaeological deposits in the country and is argued as having been a first settler locale (Jacomb et al. 2014). Archaeology shows that people arrived in Canterbury about the mid-13th century and established coastal settlements focused on the exploitation of large game and foraging the hinterland, particularly for moa and ŭi kōuka (Anderson 2008:67-71). The inland distribution of ŭumu ŭi (ovens for baking ŭi kōuka) and sites with evidence of moa hunting, especially in the southern parts of the district suggests this pattern may hold for South Canterbury (see Challis 1995:12, 31).

The loss of megafauna and forest with the IBP necessarily changed subsistence patterns but archaeological interpretations of how that affected the use of the hinterland in Canterbury differ. Trotter and McCulloch (1997:72) considered that late period Māori made temporary use of shelters where convenient but no longer occupied the inland rock formations used previously by earlier hunting parties. Challis (1995:44) sees the evidence as indicative of early visits to the rock shelters ongoing from an early to late period, though perhaps reduced, after the loss of moa. However, the evidence cited in support of these propositions is scant and offers little to confidently generalise the patterns to Opihi.

Rather, archaeological reports from within the vicinity of Opihi are void of conclusive evidence of either moa hunting or ŭumu ŭi. Challis (1995:31) shows no ŭumu ŭi (nor ovens or pits) in the vicinity of Opihi. Two nearby sites (J38/105 and 107) on the northern side of the river are depicted as having “moa remains probably in human association” (Challis 1995:12). Anderson (2008) includes these as ‘moa-hunting sites’ however the localities are recorded as Māori sites
for rock art whereas the moa foot bones from one (J38/107) and egg shell from the other (J38/105) are not known to be from cultural depositions. Almost all the NZAA listed Māori archaeological sites between State Highways 8 and 79 inland from Temuka to Fairlie (an area generally about 20 km N-S x 30km E-W) are recorded as either ‘rock shelters’, ‘art shelters’, ‘rock art’, ‘drawings’ or descriptions of drawings. The only exceptions are a possible chert source (J38/191) and a small eroding oven (J38/186) near Kakahu Bush.

A recent excavation of a rock art site at Hazelburn near Opihi has produced evidence of kākahi use and eeling, and what appear to be culturally deposited moa remains (Allingham, pers. comm. July 2015). Anderson notes that with little archaeological evidence for the late period in Canterbury, current understandings are based on ethnohistorical information (see 8.2.3 above). Following this, the archaeological understanding of the area about Opihi is based entirely on what is understood of the rock art shelters where to date the archaeological attention has focused almost entirely on the rock art in them. In light of this, the archaeological evidence could be construed as indicating people visited those places for the purposes related to rock art and associated activities (Challis 1995:46).

The rock art about Opihi was visited as early as 1897 by Hamilton. Since then various people have recorded aspects, including Elmore who chalked outlines on some figures in 1916 (Allingham et al. 2013:np) and Schoon who retouched some in the late 1940s (see Chapter 10). Duff also examined some rock art but his commissioning of Fomison produced the most systematic survey and documentation of the figures up until the current SIMRAP project.

8.3.2 Description of the Opihi Study Area

The limestone outcrops with rock art are found on both sides of the hill at Opihi. On the northern side the western outcrops are high near the ridge with steep grassed slopes down to a river terrace. To the east the slopes are lower exposing a high limestone bluff with shrubs about the base and river edge. From the western end of the hill the study area follows the north facing outcrops 1.3 km east and about 800 m up the gully rising to the south from Opihi River. Various sized and shaped limestone outcrops occur on both sides of the gully forming low bluff edges in places and rock shelters where these are undercut. For the most part the gully floor is a swampy flat fed by a spring that seldom runs dry. The gully opens slightly at its head from which it breaks into three branches that rise towards the ridge of the hill. An historic aerial photograph shows that in 1939 the steeper eastern branch was lined with mature exotic trees, and the more gently sloping western branches were in pasture (see next Chapter, Figure 9.1). Today that is reversed with western branches now in pine forest (see Figure 8.1). Sinkholes are evident in the
Opihi Study Area, South Canterbury

hill top and along the eastern branch that is now the main access track. The slopes above the gully are in pasture and a sinkhole at the edge of the eastern field opens into the gully below and adjacent to the Taniwha Shelter (J38/75, SP21-3). In places the gully is edged by talus slopes of colluvium slipping from the fields above.

The gully offers no particular advantage as a trail across the hill compared to the course of the modern road to the east or rounding the river flats at the western end. Rather, it fits with the observation that shelters are often located in side valleys that were destinations within themselves (Challis 1995:44).

The study area is within the boundaries of the current farm owned by Richard Gould. Most rock art sites on the western (Raincliff Road) side of the hill are on other landholdings, as is one at the lower eastern section of the gully. Only the 23 sites of the northern side of Gould’s property were included in the study area.

8.3.3 Modern Land Use

The study area became part of a sheep run in 1851 when the Rhodes established the extensive Levels run, the first in the district (Crawford 1981:4 map A, 9). From 1905 until recently the current farm was lived on and worked by the Gould family of whom Richard Gould (pers. comm. May 2014) has provided the historical farming observations. Their first house, a small cottage, is understood to have been constructed with timber milled from the gully. Whether the trees were exotics planted by the previous landowners(s) or a remnant of native bush is unknown. If the latter, the gully may have been particularly attractive to Māori in earlier times if the surrounding land was in open tussock. As part of the Level run it is likely the farm was stocked by sheep prior to the Gould’s occupation, as it was for most of the 20th century thereafter. Sheep are able to crowd inside shelters and Gould recalls as many as fifty at times in a large shelter in the upper gully. Proposed mitigation for fencing the Taniwha Shelter in 1986 included a shed for housing stock.

Hamilton (1897) records that cattle sheltered in the Taniwha Shelter. For the most part though, cattle are likely to have been limited to ‘house cows’ as they otherwise need to be fenced away from the bluff edges (Gould, pers. comm. May 2014). A c.1950 photograph by Schoon shows the pasture land above the Taniwha Shelter as unfenced. Cattle stocking over the last decade or so has resulted in deep pugging about the gully edges and especially the flats about the creek. They have also contributed to trampling downslope of the foreground of the more open shelter in the current pine forest where historically Clydesdale farm horses were kept. Goat remains
around the farm are attributable to a brief period of angora goat farming by Gould. No feral
goats or pigs are known on the farm but rabbits and hare have long been present. The shelters
and their foregrounds have therefore been subject to extensive stock trampling over the last 150
years accounting for the loss downslope of the earlier floors in most.

Gould’s father reportedly exposed a ‘Māori oven’ when ploughing the paddock above the west
of the gully (Gould, pers. comm. May 2014). Such cultural deposits in paddock areas are likely
to now be masked by modern farming. The 1939 aerial photograph shows a historic farm track
down the west edge of the Gully. Recently a foot track was graded down the eastern upper
branch and farm roads bulldozed along the west side of the gully, as well as from the riverside
bluff to the western river flats. That work exposed some previously eroded deposits of fire
cracked rock and mussel shell adjacent to shelters with rock art (Chapter 9).

The rock shelters have received extensive visits over the last century by both researchers and an
enthusiastic public. The major impact of this is to the rock art itself either to enhance scholastic
recording by chalking and retouching, or by the addition of graffiti. The gully was also a venue
for at least one organised ‘rave’. Stairs cut into the wall of the sinkhole next to the Taniwha
Shelter provided a pathway immediately past some unprotected rock art fragments. The greater
part of the study area is currently leased by the Ngāi Tahu Māori Rock Art Trust for heritage
management and interpretation purposes. It has been de-stocked, exotic trees about some
shelters have been removed, public visitation controlled and native replanting planned.

### 8.4 Chapter Conclusion

This chapter has outlined the geographic setting, traditional knowledge and land use histories to
provide an appreciation of the wider context of the Opihi study area. Both the archaeological
evidence and tribal histories suggest that South Canterbury was settled from the outset of human
arrival in New Zealand. The histories highlight eel as a key resource, the archaeology identifies
**tī kōuka**. Both were crucial to late period occupation. Initially forested, the area about Opihi
was part of a landscape changed by the IBP and the loss of moa. Whether the area was actively
utilised at that time, including for moa hunting, is thought likely but there is no archaeological
evidence for that unless an early period attribution for rock art holds true.

The inland localities with rock art in South Canterbury were undoubtedly occupied by the
ancestors of today’s Ngāi Tahu but given the shifting groups and changing tribal identities they
are not readily ascribed to particular tribal entities within that mix. If, for example, the rock art
record did reflect stylistic patterning in superimposition – and that is not clear – an attribution of
black and red drawings to Waitaha and Ngāti Mamoe respectively (e.g., Anderson 2008:66, 1998:23; Beattie 1918:148-9, 155) cannot be taken as people of Ngāti Mamoe descent overwriting works of a different descent group any more than later people partly of Waitaha heritage overwriting the works of their ancestors.

It is clear that late period Māori made extensive use of the inland areas and that knowledge of those, including aspects of tapu, influenced peoples’ behaviour. However, disconnection from their landscape through the various impacts of European colonisation saw Ngāi Tahu knowledge of places recede. Subsequent efforts to record that knowledge were neither designed for nor typically detailed enough to correlate to archaeological remains, and certainly not for those about the Opihi study area.

The study area became part of a sheep run in the 1850’s and since the start of the 20th century has been intensively worked as a small family farm. With the exception of the Taniwha Shelter in recent times, stock – sheep for the most part – have had free access to the shelters. The rock art localities have been subject to 150 years of modern impact and modification, particularly by stock in regards to the shelter floors and human interest in the rock art above them. Where the tribal and archaeological information for the study area is scant and distant, the modern land use is more clearly understood. This backgrounds the discussion of archaeological remains and rock art in Chapters 9 and 10 respectively.
Chapter 9 Opihi Archaeology

This chapter evaluates the distribution of sites at Opihi, their character and condition, and the survival of surface and subterranean deposits. Many of the sites have no surface remains in the shelters or the foregrounds but cultural material on the floor of a large riverside shelter suggested it has potential for excavation and provides an opportunity to investigate intra-site associations between archaeological deposits and rock art. Excavations at that site and in the gully have provided evidence of occupation dating from the mid to late pre-European period. The recovered remains of cooking activity in particular contribute to the wider understanding of the occupation of the study area. Preservation issues limit the scope to relate that activity to the rock art component of the record, which is discussed in the next chapter.

9.1 Aligning the Archaeological Context and Surviving Evidence

Based on general patterns of land use in the district the archaeological context of the study area is thought to relate to occasional occupation of shelters associated with inland travel and resource gathering, whether that was for moa and bush bird hunting during the IBP or later in pursuit of weka, ī kōuka and eels as informed by ethnohistorical accounts of land use. No pā, house sites or pits are recorded in the study area. Unlike some other places in the district the traditional accounts and place names referenced do not indicate that these were present. Rather, the rock art is the most visible archaeological feature surviving at Opihi.

All the known Māori archaeological sites in the study area are rock art sites. Fomison developed his own numbering system, and although the NZAA SRS site records are based on his field notes, it ascribed numbers under its own system, initially referenced to imperial maps and now converted to metric sites numbers. SIMRAP has developed its own numbering protocol that lists 23 sites including subdivision of some of Fomison’s ascriptions and the addition of newly found sites. This thesis follows that with the prefix ‘SP21’ denoting ‘SIMRAP survey block 21’ which is followed by the site number.
9.2 Shelter Localities

The rock art shelters are distributed across the areas about the hill with limestone outcrops (Figure 9.1). On the riverside five are situated in the bases of limestone bluffs at the top of the steep grassed slopes (SP21-8, -8B, -9, -13 and -22). Smaller marked outcrops are also located in the mid-slopes (SP21-21) and at the bottom of the slopes by the riverside flats (SP21-18). Two other sites are at the base of large boulders fallen to the riverside (SP21-7, SP21-7B nearby is not shown as it was not relocated but its general position is known from the historic records).

Two sites are located on high ground at the entrance to the gully. SP21-20 appears to be positioned in a relatively inaccessible part of the bluff face overlooking the river. The location is not ‘hidden’ in that it is clearly visible from the river below, but not so the fragments of rock art thereby providing no indication that it was a prominent signpost at the gully entrance. The location’s relative inaccessibility in 2015 is likely the result of the foreground having eroded since the site was occupied. Hamilton (1897:27) notes a similar circumstance for another high placed rock art site further east where the Opihi River had probably cut away the bank in front giving the appearance of the shelter as positioned high on an inaccessible cliff face.

Eleven shelters in the gully have been marked but these are not interpreted as a concentration of sites in that confined space. The subdivision of some sites for SIMRAP recording increases the
numbers in the gully by two, and three are known only for historic period writing. The gully is marked on both sides and throughout its length.

One part of SP21-7 is on the south side of a boulder but the rock art there would have been freely visible to people in that space. It is not difficult to access and cannot be easily interpreted as a hidden or private locality, as opposed to offering different shelter conditions than the northern side of the rock. All the other shelters are easily accessible with at least some of the marked rock surfaces in each visible to people walking up the gully, along the bluff edges, or past the riverside outcrops.

The size and shape of each site varies but all have the potential to provide some aspect of shelter or shade in particular weather conditions or at particular times of the day. The majority of the shelters have a northerly aspect but this reflects the study area being located on the northern side of the hill rather than a selective preference of Māori. Five sites (including the southern side of SP21-7) have different orientations and there are 19 NZAA registered rock art sites on the Totara Valley side of the hill that would have a predominantly westerly aspect.

Not all the sheltered spaces have evidence of use. Those that do not tend to be low lying and/or have damp floors but similar examples that have been used are also known. For example, SP21-15 is a very low lying shelter overhang of little over a metre in height in most places, and SP21-8, the site with the most extensive surviving surface cultural material has evidence of episodic water flow across the shelter floor. The most notable shelter void of cultural material is a large cavern on the upper eastern branch of the gully (lined with pines trees in Figure 9.1) that now houses historic farm machinery. Set below the current access track into the gully, run off flows episodically across the cavern floor as shown by debris accumulated around the farm machinery. A test pit near the wall of the cavern showed the floor to have been eroded to a clay base explained by water washing across the surface and the trampling impact of as many as fifty sheep at times (Gould, pers. comm. 2014). The absence of cultural evidence in shelters may then be attributable to taphonomic processes and therefore non-use or avoidance by Māori cannot be assumed.

The outlook from the different orientated sites is highly variable and viewed from the study area there are no specific landmarks known, such as mountains with spiritual significance or outstanding rocks to which the cultural orientation of sites may be evaluated. Similarly, none of the shelters are noted to have particular acoustic properties over and above that associated with the bluffs or gully in general.
Given the above, in the Opihi study area and across the hill in general, there is no specific site distribution pattern based on location, elevation, accessibility or outlook, or other locational factors other than the availability of sheltered rock surfaces. The NZAA records describe several sites as being of limited or no ‘habitable’ use (e.g., for SP21-2, -4, -5, -6, -9 and -16), but whether that was true in the past is difficult to gauge given the erosion of most shelter floors. It may also neglect consideration of sun shade that can be seasonally important in South Canterbury. In different weather conditions and at different times in the day, each variously orientated shelter provides some cover or shading. The distribution of the sites seems to reflect the selection of dry floored spaces with some sheltering or shading quality and that have, or have had, rock surfaces appropriate for the application of paintings and drawings. That site distribution is consistent with occasional occupation of the localities in a context of resource gathering in the area or travel through it.

<table>
<thead>
<tr>
<th>SP</th>
<th>Location</th>
<th>Situation</th>
<th>Width (m)</th>
<th>Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gully</td>
<td>Western side</td>
<td>SE</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NE</td>
<td>6</td>
</tr>
<tr>
<td>2B</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NE</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NW</td>
<td>18</td>
</tr>
<tr>
<td>3B</td>
<td>Gully</td>
<td>Eastern side</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NW</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>Gully</td>
<td>Western side</td>
<td>E</td>
<td>10</td>
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<tr>
<td>15</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NE</td>
<td>16</td>
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<td>11</td>
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<td>Western side</td>
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<td>4</td>
</tr>
<tr>
<td>19</td>
<td>Riverside</td>
<td>Bluff face</td>
<td>NW</td>
<td>5</td>
</tr>
<tr>
<td>20</td>
<td>Riverside</td>
<td>Hillside outcrop</td>
<td>NE</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Riverside</td>
<td>River edge</td>
<td>N</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Riverside</td>
<td>River edge (reverse of rock)</td>
<td>SE</td>
<td>5</td>
</tr>
<tr>
<td>7B</td>
<td>Riverside</td>
<td>river edge</td>
<td>N</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>65</td>
</tr>
<tr>
<td>8B</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>7</td>
</tr>
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<td>22</td>
<td>Riverside</td>
<td>Upper-hillside outcrop</td>
<td>N</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>Riverside</td>
<td>Mid-hillside outcrop</td>
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</tr>
<tr>
<td>9</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>Riverside</td>
<td>Lower-hillside outcrop</td>
<td>N</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 9.1: Opihi Rock Art Site Descriptions.
9.3 What has Survived at the Shelters?

9.3.1 Erosion and Earth Works

A common feature of most sites in the study area is the eroded state of the shelter floors, 13 of which are either rubble or exposed bedrock and five of which are grassed banks dropping away from the rock faces (Table 9.1). The earthen floors of five sites in the gully appear to be clay bases with any soil overlay contributed to in a large part by modern stock droppings and/or colluvium from the hilltops above. All of the sites are accessible to at least light stock (sheep and goats). The eroded character of the floors is largely attributable to the long term exposure to stock trampling, historical observations of which are available for the Taniwha Shelter. Hamilton’s (1897:26) note that cattle used the shelter may only relate to the outer parts as in 1959 McCully reported the ceiling was only three feet (0.9 m) from the ground when he first saw it (Fomison 1959:14). Until it was fenced in 1986, large numbers of sheep used the space and the floor is now 2 m below the roof in the central shelter (Figure 9.2).

As a result of the erosion there is limited scope to examine in-situ archaeological deposits within the shelter spaces themselves. Evidence of eroded cultural deposits has been found in and about SP21-7 and -8 on the riverside and SP21-3, -3B and -6 in the gully. At SP21-7, a riverside shelter under a massive boulder, a 1.2 m wide surface concentration of FCR is under the rock overhang and about 1 m in front of the smaller boulders forming the shelter wall. The FCR appears to be the residue of a deflated umu which was of small size if the volume of surviving stones is representative of the original quantum. The dispersal of the stones on the eroded sandy floor indicates that they have been disturbed, limiting the potential for the recovery of reliable datable material, but their presence does indicate that umu were made within the general shelter space.
In 2013, on the western side of the gully dispersed FCR, kākahi shell and fragments of china were exposed in the section of a bulldozer cutting about 2 m in front of SP21-6. Spread over about 1.5 m and between 20 and 50 cm depth in the topsoil that slopes away from the shelter, the exposed material is eroded occupational deposit including umu remains. The floor of the low shelter is a mostly moss covered clay base with no evidence of a surviving occupational layer. A carcass by the rear wall shows it is used by stock.

Magnetometer surveys of the south-western areas of the gully showed dispersed anomalies many of which had signatures typical of metal. Given the historic farm track, modern surface debris and extensive cattle pugging, these are considered likely to result from farming activity rather than Māori occupation. In 2011 SIMRAP monitoring of topsoil grading of a 1.4 m wide path across most of that area found nothing of archaeological significance. Heavy rain caused a mudslide from the western bank of the gully that covered much of the flat ground opposite the Taniwha Shelter with a clayey deposit approximately 10 cm deep and scoured a creek channel in the previously swampy gully floor. This shows the episodic erosional and infilling processes are still active in the gully.

The path grading on the eastern side of the gully creek exposed a fragment of basalt - possibly part of an adze rough-out, and a piece of chert, both at 10 cm depth in the topsoil outside the northern end of the Taniwha Shelter (SP21-3). SIMRAP also found a discoidal flake of greywacke and a small percussion flake of black basalt in soil at the southern end of the shelter floor around which a few fragments of fire cracked rock and charcoal were noted inside and outside the shelter. At the southern end of the shelter the roots of a tree have retained a small area of soil covering the base rubble. It may potentially contain residual archaeological deposit but given McCully’s comment (above) the soil is almost certainly eroded in part and disturbed by the tree roots. Magnetometer surveys of the foregrounds of SP21-3, -3B and -4, and at SP21-8 on the riverbank show anomalies suggestive of localised fire remains. These were investigated in archaeological excavations in November–December 2012 conducted under NZHPT authority (2013-189).

### 9.3.2 Taniwha Shelter, Gully, SP21-3

A 2 m (dia.) umu dug into the south-eastern gully hillside was identified in the magnetometer survey aided by the strong contrast of the anomaly against a consistent background reading of surrounding soil and its location just beyond the masking effect of the dominant signal of the iron fence at the edge of the Taniwha Shelter (SP21-3) (Figure 9.3). The slopes immediately above drain towards a large sinkhole (SP21-3B) in the limestone that opens into the gully.
adjacent to Taniwha Shelter. The umu is situated 5 m west of the Taniwha Shelter in the colluvium covered slope immediately beneath the sinkhole mouth (Figure 9.4). Water still flows through the sinkhole eroding a seam of water rolled greywacke cobbles from the back wall. Those stones are visually consistent with and the likely source of the umu stones.

Two 0.5 m bisecting trenches were excavated showing the umu to be 1.9 m in diameter, and 69 cm from its highest to the deepest point which is 74 cm below the ground surface (Figure 9.5). The numerous stones at the top of the dish-shaped feature are mostly intact or minimally cracked. Those lower are more fragmented and the bottom of the umu is comprised of highly fragmented FCR in a very soft and loose mix of charcoal fragments and blackened sand (Figure 9.6). A charcoal fragment of short-lived bracken (*Pteridium esculentum*) from the very bottom of the umu dated to 382±20 BP (WK37506, 465-328 calBP, SHCal04). Most of the charcoal is mataī, but kānuka, tōtara, rimu and possibly kahikatea are also represented. A sample of mixed podocarp charcoal from the base of the umu has a conventional radiocarbon date of 891±28BP (WK37508, 774-728calBP, SHCal13). As the long-lived species have the potential for significant inbuilt age, the result is indeterminate on whether relic logs from the IBP were used as fuel or if forest trees were available in the vicinity of the gully after that.

The southern edge of the umu is 19 cm higher than the northern edge showing it was dug into a slight slope through earlier grey-brown topsoil into an underlying light yellowish clay base (Figure 9.7). The eastern end of the E-W section has a slightly yellowed band between the old topsoil and overlying topsoil. This may be the result of the grey-brown soil mixing with a yellow clay sediment that has infilled the dish-shaped top of the umu, or from the oven cover comprised of mixed soil and base clay dug for the umu being pulled laterally when opening it. The over-burden of a rubbly colluvium has a grey clayey matrix that gradates into the topsoil layer beneath the turf cover. It is notably steeper than the old topsoil gradient with 67 cm depth over the southern edge of the umu and less than 22 cm over the downhill northern edge. Three fragments of non-local stone and a piece of aluminium foil from between 10 - 25 cm below the turfed surface demonstrates the mixed nature and recentness of the colluvium overburden.

Rabbit bones and one unidentified bone were recovered from the topsoil. There is no evidence of faunal or artefactual remains associated with the umu itself. A 1 x 0.5 m excavation (Figure 9.3, Square 5) at the same elevation 2 m west of the umu had no cultural material in the section profile which is a 4-10 cm turf, a 35–50 cm grey-brown topsoil that gradates to a more rubble bearing yellow-grey clay near the bottom, and a firm yellow base clay. This excavation shows that the umu is not part of a wider surviving cultural layer that extends laterally across the slope.
Figure 9.3: Taniwha Shelter SP21-3 site plan. The test pit is inside the entrance to the sinkhole, SP21-3B. The magnetometer anomaly showing the umu is highlighted. The black and white data in the east of magnetometer survey is signal from the iron fence at the front of the shelter.

Figure 9.4: SP21-3 umu setting looking South. (A) Sinkhole; (B) SP21-3B, Sinkhole mouth; (C) SP21-3 Taniwha Shelter; (D) Umu excavation.
9.3.3 Gully, SP21-4

Also on the eastern side of the gully SP21-4 is a high roofed shallow shelter notable for historic period writing among the rock art. A 35 cm high and 45 cm deep clay shelf at the base of the rock wall in the central part of the shelter indicates a past floor level. The current floor is a slightly sloping grassed flat that continues out to the bank that slopes down to the creek.
Three magnetometer data anomalies indicate possible localised fire events. However, a 1.5 m x 0.5 m and 0.5 m deep excavation and surrounding test pits showed no evidence of these (Figure 9.8). Rather, the turf overlaid a 29-35 cm deep firm grey-brown soil with limestone chips, fragments of hard clay pebbles and sparse charcoal fragments throughout (Figure 9.9, layer L1). Beneath that is limestone bedrock and rubble near the shelter wall, and away from it L1 transitions to a yellow clayey matrix with limestone chips and hard clay cobbles changing with depth to more uniform clay with larger limestone blocks (L2).

No artefactual material was recovered. Identified faunal remains from the L1 deposit included a paradise duck (*Tadorna variegata*) femur, various rabbit, hedgehog and numerous rat elements, several fragments of moa eggshell and *kākahi* shell. All were dispersed through the deposit. A fragment of moa eggshell dated to 10,282±45BP (WK37511, 12,083-11,827 calBP, SH offset (43, 23)) and a fragment of kānuka (*Kunzea ericioides*) charcoal dated to 1,538±20BP (WK37510, 1,392-1,341 calBP, SHCal04) were from the same excavated spit 22-33 cm below the turf. This confirms that the current floor of the shelter is comprised of mixed colluvium that forms the toe of the talus slopes either side and that the floor at the times of Māori occupations, possibly indicated by the clay shelf, has been eroded away.

![Figure 9.8: SP21-4 site plan.](image-url)
9.3.4 Riverside Bluff, SP21-8

SP21-8 is a north facing 65 m long overhang under the riverside bluff. A slightly sloping foreground extended out about 7 m from the rock face to a grassed bank that drops away to a natural terrace on the riverbank slopes. Sand from talus build-ups at either end of the site erodes across the shelter floor.

In 2013, the surface was mostly a floor of limestone sand mixed with stock droppings and guano from pigeons roosting in the cliffs. It rises to the east where in 2011 the outer (northern) edge was covered in blackberry. Large mostly intact river stone cobbles are dispersed on the surface, particularly about a central alcove. In five visits, Fomison recorded varying surface finds of cultural material distributed across the site (Figure 9.10, Table 9.2).
A magnetometer survey in 2011 showed three localised anomalies of interest. The largest with a possible metal signature near the bottom of the grassed bank in the foreground was covered beneath a newly formed vehicle track in early 2013. The bulldozer cutting exposed the profile of the central to western foreground of the site as a very loose sandy brown soil associated with the turf and a firm grey-brown topsoil of 0.2 to 0.4 m variable depth overlying a light grey clayey base. Dispersed kākahi shell, small fragments of FCR and charcoal flecks in the topsoil are remnants of eroded cultural deposit. Previously under blackberry at the eastern end of the site, a localised 3 m wide charcoal stained grey soil with FCR was exposed in the cutting. An approximately 30 cm wide x 15 cm deep patch of darker charcoal stained and flecked sand with FCR appears to be the cross section of a ‘v’ shaped water channel with a concentrated infill of the eroded oven deposit. The exposure shows umu were made at the far eastern end of the site and the 0.4 m overburden shows the subsequent accumulation of a pale yellow sand topped by an organic brown stained layer and dense guano in that area. The extensive sand build-up probably results from a combination of the talus build-up to the east and the extensively eroded sandy limestone bluff face immediately above.

Rivulets show episodic water flows from the higher eastern part of the site across the central shelter floor including into and around two alcoves (Figure 9.11). The section of a 2 x 0.5 m excavation (Figure 9.10, excavation 2) showed the ‘v’ shaped cross-section of a 35 cm wide x 18 cm deep rivulet cutting into a lower sand layer (Table 9.3, layer 2) about 25 cm beneath the current surface. This demonstrates that water flows have disturbed previous floor surfaces in front of the eastern alcove. As a result, cultural and natural material of various ages is mixed in
that part of the shelter (Table 9.3). No evidence of an intact cultural feature was identified. The principle cause of the magnetometer anomaly in that area was a steel tent peg as used previously by SIMRAP for survey.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Material Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 Very loose surface dust</td>
<td>FCR, kākahi, sheep bone</td>
</tr>
<tr>
<td>L2 Moderately loose brownish-grey sand</td>
<td>FCR, kākahi, adze flake, shotgun cartridge fragment</td>
</tr>
<tr>
<td>L3 Firm pale grey sand</td>
<td>FCR, kākahi, pāua shell, eel bone, dog (Canis familiaris) zygomatic fragment, duck pelvic fragment (Anas sp.), adze flake, chert flake, desicated sheep droppings</td>
</tr>
<tr>
<td>L4 Soft pale yellow silty-sand</td>
<td>FCR, kākahi, unidentified bird bone fragment, eel bone.</td>
</tr>
</tbody>
</table>

Table 9.3: SP21-8 mixed cultural and faunal material represented in layers of excavation 2.

Figure 9.11: SP21-8 water wash of shelter floor. Laser scan showing rivulets in 2013 across the floor of the Eastern alcove. Excavation 2 was approximately centre frame.

A small umu and surrounding burnt surface indicated by the magnetometer anomaly at the western end of the site was uncovered in a 2 x 1 m excavation (Figure 9.10 excavation 1, Figure 9.12). It is located on a flat area above the grassed bank, near the toe of the western talus slope.
and centred 6 m from the rock face on which a large red tiki is visible. The area is covered with a mixture of small bits of dried vegetation, copious sheep and rabbit droppings, small fragments of limestone and occasional fragments of small burnt bone (Figure 9.12, L1). That covers a very loose brown sandy surface (L2). Beneath that a 13-19 cm thick firm yellowish-grey sand with limestone chips (L3) overlies a thin surface of grey charcoal stained sand with FCR, charred monocot leaves (probably Cordyline) and fragments of soft charred wood. This extended across the excavation but thinned towards the excavated south-western corner showing it to be fire remains associated with the umu rather than a wider burnt surface.

The 24 cm deep umu was dug into a finer pale yellow sand with relatively sparse limestone chip (L4) and a slightly sloped surface (12 cm drop over 2 m S-N, 15 cm drop over 1 m W-E). A large river stone and similarly sized rounded and charcoal blackened piece of the limestone formed the umu base. The higher umu stones were smaller and more fragmented, and the top had been raked across the surrounding surface dispersing small FCR fragments. The tops of the umu and an adjacent hollow (mostly 40 cm wide x 20 cm deep) are at the same level. The latter is infilled by grey charcoal stained and flecked sand topped with small FCR. It may be a borrow pit for the oven cap subsequently infilled by umu rake out.

The top of the fire feature and the deposit above it contained numerous fragments of kākahi shell (n = 70), three other shell fragments - possibly of pāua, and sparse fragments of unidentifiable bone. Identified bone elements associated with the fire feature were a kākāriki (Cyanorhampus sp.) carpometacarpus, weka (Galliralus australis) distal tarsometatarsus, shearwater (Puffinus sp.) humerus and the head bone of a small eel (Anguilla sp.). Whereas the bird species may occur naturally about the shelter, the presence of the eel is undoubtedly cultural. Four fragments of kākahi shell were recovered from a sample of charcoal blackened sand from the bottom of the umu.

Samples of hebe charcoal from the top of the feature dated to 204±20BP (WK37523, 280-147 calBP, SHCal04), and from about the base stones at the bottom to 180±22BP (WK37509, 276- -2 calBP, SHCal04). Seven chert artefacts were recovered from the deposit above the umu, six of which were at the top of the feature. At least three chert forms are represented – a dark yellow brown, a limey white and a variable white-pink-red stone which may have been fired. Ranging in size from 19 to 35 mm, the two complete flakes, distal flake and four angular fragments show the umu was made at a time when a variety of cherts were still in use by Māori. Coupled with the radiocarbon dating these date the umu as late pre- or early post-European.
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The preservation of the umu is attributable to its position on a relatively flat surface at the western end of the shelter where it was capped by a sandy deposit from the western talus slope. That archaeological feature is secure in place and spatial associations with nearby rock art have the potential to be considered (see Chapter 10). The shelter floor in the central and eastern part of the site is also capped by colluvium but the deposit has been mixed by water flowing across and cutting into the surface, possibly exacerbated by stock trampling. The palimpsest character of that part of the site is exemplified by Fomison’s note of moa eggshell on the surface next to a sheep carcass. Direct spatial associations between the known cultural material and nearby rock art in that part of the site cannot be drawn with confidence.

Figure 9.12: SP21-8 excavation 1. 2 x 1 m excavation showing eastern section the umu feature.

9.4 Discussion on Archaeological Deposits

9.4.1 Umu

The presence of cooking and fire remains at southern Māori archaeological sites may not necessarily be indicative of only ‘domestic’ consumption. Food, particularly cooked food, is an important component of Māori ritual activity. Beattie was advised by a ‘well-informed kaumātua’ that:
The tuahu might be a carving, or a stone or a heap of stones perhaps. You would always see a stone at a tuahu in any case covering ashes or other things. Fires were used for some karakia and also to roast selected food to give the visitor to the tuahu a taste of tapu food during the performance of the karakia or ceremony connected with that place. (Beattie 1994:208).

Another venerable informant of Beattie advised that a tohunga could make a man tapu by taking him to a pool and sprinkling water on him, and then conducting the taowhakamoe ceremony to remove it. “To take the tapu off, an umu would be made and four potatoes and some fish put in. The man would lie on this umu perhaps an hour or so. When the food was cooked all ate a little of it and the tapu was lifted, and the man was noa.” Beattie 1994:206.

The archaeological remains expected from such an umu may compare to that excavated at SP21-8; its small size would cook a limited amount of food; eel bone shows fish remains associated with the umu, and it is located in proximity to possibly significant red paintings. However, the umu remains were not treated cautiously such as ashes at a tūāhu being secured beneath a stone. The charcoal flecked sand in the hollow, a possible ‘borrow’ pit, were under small fire cracked rocks that are distributed over a wider area rather than a ‘protective capping’. On the other hand, following a tapu lifting ceremony there may have been no perceived need to secure the umu remains. The archaeological character of the umu does not allow a definitive interpretation but with consideration of the ethnohistorical accounts above, a solely subsistence purpose cannot be assumed.

The umu in the eastern gully is located immediately in front of the large sinkhole (SP21-3B) and next to the large and elaborate depictions of fabulous creatures in the Taniwha Shelter (SP21-3). It does not, though, readily relate to South Island Māori traditions of making fires at the mouths of caves to smoke out or destroy resident taniwha (e.g., Beattie 1994:561, Cook cited in Best 1995b:473). Rather than being a broad fire directed at the cave entrance, the fire place is a localised dug feature with the quantum of stones used clearly demonstrating its purpose as a substantial oven. Its location, size, round shape and absence of associated faunal remains is within the range of oven features Fankhauser (1987) describes for South Canterbury umu īūka. Ethnohistorical accounts indicate that specific rituals were associated with umu īūka, the archaeological signature of which is an adjacent shallow umu-karakia (oven associated with ritual incantations) (Fankhauser 1987:153). No evidence of such a feature was found in the excavation next to the umu at SP21-3 (Figure 9.3, square 5), nor indicated in the
geophysical survey although the signal of the iron fence around the Taniwha Shelter may have masked this.

The remains of five *umu* found in the study area show that ovens of different sizes were made in and around the shelters. The impact of erosion on the preservation of each differs. The eroded oven material in the bulldozer cutting at the eastern end of SP21-8 has been subject to water wash and colluvium overlay. The matrix at SP21-7 has eroded leaving a residual *umu* on a deflated surface. The oven remains at SP21-6 are part of a subsiding shelter foreground, possibly exacerbated by stock trampling. The preservation of the large SP21-3 and smaller SP21-8 *umu* are attributable to having been dug into slightly sloped surfaces in line with colluvium that has capped them.

### 9.4.2 Dating

The variable oven remains noted at four sites suggest that other sites also once had similar deposits but that the shape of the shelter floors and foregrounds have seen these eroded, particularly by stock activity. As a result there is limited scope to secure through excavation cultural material appropriate for dating that allows a comprehensive understanding of the timing of Māori occupations to be developed. The dates from the *umu* show that Māori made use of the places at times between the late 15th century and early 17th century after the IBP, the pre- or early post-European period (Figure 9.13), and after the middle of the 19th century as shown by missionary taught Māori writing in the rock art (see Chapter 10).

![Figure 9.13: Radiocarbon dates of cultural material from the Opihi Study Area. Excludes mataī charcoal sample from SP21-3 *umu.*](image)

### 9.4.3 Material Culture

The few artefactual finds reported above are not inconsistent with the dating. The dispersed flakes from adzes and chert flakes are not unusual finds in pre-European Māori archaeological sites but are too few and dispersed to indicate the activity they were associated with. A past
Opihi Archaeology

tenant of the farm reported having found a cache of adzes under the roots of a pine tree in the upper eastern branch of the gully (in bush in Figure 9.1) (Montelle, pers. comm. 2011), however another piece of adze he pointed out by Taniwha Shelter and collected by Montelle appears to be a natural cobble causing doubt as to the identification of the purported cache. Martin’s (2003) survey included the holdings of Te Papa, South Canterbury, Canterbury and Otago Museums, the institutions most likely to have Māori collections from the district. A review of that database for names and place names associated with the farm (Ley, Howell and Gould) and the NZAA imperial and metric site numbers found no artefacts with a provenance in the study area.

The kākahi shell fragments were not found in a midden context but occur generally with FCR suggesting they are food debris. The presence of pāua, a coastal resource, may also be explained as a food supply brought to the site. A complete shell found at an inland Otago site had been used as a container for kōkōwai (Anderson 2014a:71) but the small fragments found at Opihi had no obvious indication of artefactual use. A small pebble of sandstone with a reddish colour was found at the eastern end of SP21-8, and a river stone (approximately 25 cm in length) in the central alcove has a very slight reddish tone on its up-facing surface. The colouring on each was insufficient to determine that it represented kōkōwai use and both were sitting on modern surfaces thick with stock droppings and guano. The cultural material historically known from the sites and that recovered through excavation are insufficient to interpret the activities they were associated with and do not exhibit spatial associations that inform on tikanga-ā-wāhi.

9.5 Chapter Conclusion

The general understanding of the archaeological context of the area surrounding South Island rock shelters is associated with seasonal inland travel and resource use. Trotter and McCulloch (1981) link that to forest fowling early in Māori occupation, and the ethnohistorical accounts describe it for the European contact period. The principle archaeological indicator of Māori occupation of shelters in the study area is the rock art. All the shelters have the potential to provide shelter and shading in differing weather conditions, and that may contribute to variable size, localities and orientation of those used. This is consistent with a pattern of shelter use related to logistic mobility.

All the occupied shelter floors have been significantly impacted by various erosional processes depending on the shape of the shelter and its foreground. This is exemplified in the gully by the almost complete loss of the occupational floor of the Taniwha Shelter that now has a mostly limestone rubble surface, and the nearby grassed floor of SP21-4 where a residual clay shelf shows the level of a past surface that is almost completely eroded but infilled by colluvium of
two talus slopes either side. The only two features known to be intact are in-situ ovens, one a small *umu* at SP21-8, the other a substantial oven at SP21-3 that is probably an *umu tī* made before these changed shape to oblong ovens in the late pre-European period (Fankhauser 1987:153). The preservation of these two features reflects their positioning in front of actively eroding deposits that provided protective colluvium caps. Both features are consistent with inland resource use and travel.

Cultural material - mostly oven remains, at four variously sized and situated shelters suggests that occupational deposits likely existed at other shelters but have been lost through erosion. Almost all the cultural material in the gully is in secondary deposition. The faunal remains are too sparse to indicate particular subsistence activity although this likely explains the presence of *kākahi* shell with FCR in two fires features (SP21-8 and SP21-6). No evidence was found of pig that was important to Māori in the second half of the 19th century.

Radiocarbon dates on charcoal of short-lived plants and the artefactual evidence show the locations of the two largest shelters were used sometime between the 15th - 17th century and after the mid-17th century. No evidence of occupation at the time of the IBP or indicative of moa hunting was found, however, that cannot be dismissed given the surviving evidence is too scant to develop a comprehensive outline of the times in which the study area was utilised.

Ethnohistorical accounts and archaeological investigations elsewhere in South Canterbury suggest that specific rituals were associated with *umu tī* (Fankhauser 1987), perhaps like the oven at SP21-3. The smaller in-situ *umu* at 21-8 could be interpreted as evidence of either subsistence activity or a particular ritual. Whatever the case the *tikanga* associated with a possible specific ritual use or with cooking may relate more to that activity rather than *tikanga-ā-wāhi*. The *umu* noted at Opihi are insufficient to identify patterns of how such features may be consistently situated across the study sites.

Archaeological deposit was only found about the shelters in which most of the rock art is of a traditional character. That is, none was noted around shelters marked exclusively with post-European text (see Chapter 10). However, three of the four sites with cultural deposit do have some written names, and fragments of china are reported as having been found among the cultural material in the other. The limited preservation of the cultural deposit does not allow for recognition of patterns of either consistent or different activates having occurred at the shelters across the study area. The principal component of the archaeological record that may support an investigation of *tikanga-ā-wāhi* at the shelters is the rock art itself.

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Chapter 10  Opihi Rock Art

Of the Opihi rock art, the Taniwha frieze has historically attracted the most attention of visitors and recorders (Allingham et al. 2013:np). Other figures are among the data sets for Fomison’s (Fomison and Fyfe 2014) and Bain’s (1985) stylistic analyses. The interest in tikanga-ā-wāhi focuses this investigation on recognising spatial patterns of association between figures and the cultural circumstances of Māori writing in the rock shelters. Intra-site investigations of different marking events and the recognition of patterns suggestive of contextual associations in the marking behaviour are not however straightforward at Opihi.

The SIMRAP Opihi survey volumes (Allingham et al. 2013) are used here as the reference base for the 23 rock art sites. Two sites (SP21-4 and 8) were selected for intra-site analysis based on the potential for recognising different marking events through the variety of rock art figures present and the possible presence of ground deposits (SP21-8) from which activity areas in relation to rock art placement could be examined. Those investigations are discussed with a particular focus on the ‘millimetre’ scale examination of pigments at SP21-8, and an understanding of the ‘metre’ scale positioning of elements at SP21-4. Extending beyond the study area observations are made of how European colonial period script was used by Māori in different art forms and contexts. This is related to the possible cultural significance of writing in the shelters by 19th century Māori.

10.1 Manufacture

Māori rock art in the Opihi study area was produced with kōkōwai, carbon-based black pigment and abrading that either left a residue of a lighter softer piece of rock adhering to the surface or that exposed lighter coloured rock under the limestone patina. Variable weathering obscures the evaluation of how some elements were made. Their assignment as traditional rock art (here including script in Te Reo Māori) or modern is based on what can be discerned of their manufacture and form by visual inspections. Some finely incised or scratched figures are considered modern based on the imagery, while others were drawn with chalk or pencil. Schoon retouched some figures with modern crayon (Fomison 1987 1962:116; Schoon 1962) and Elmore chalk outlined several to enhance photographic recording (Allingham et al. 2013:np).

Trotter and McCulloch (1981:25) describe South Island Māori rock art as mostly drawings applied as a dry pigment. Fomison (1962:119) identifies all the black and white, and most red
figures in South Canterbury as drawn. Allingham describes the majority of figures in the Opihi study area as painted black (Allingham et al. 2013:np). A traditional recipe for black rock art paint was recorded from people associated with South Canterbury. Soot collected from burning resinous monoao (possibly silver pine, *Manoao colensoi*) wood was mixed with tarata (*Pittosporum eugenioides*) gum, rautawhiri (*Pittosporum tenuifolium* / *P. colensoi*) berry oil and weka oil to produce a durable paint (Beattie 1918:148-9). At Opihi a combination of weathering and retouching with modern crayon makes a definitive assessment of the original application difficult in many cases.

Most elements in most sites are monochrome black. Monochrome red figures are found in SP21-3, -8, -13 and -21. Where bi-chrome figures occur it can be difficult to discern if the pigment applications were contemporary or accumulated over time (Allingham et al. 2013:np) but there are some clear examples of bi-chrome composition (e.g., a black taniwha outline with an abraded centre at SP21-4, and an abraded tiki partially outlined with red at SP21-8). An example of superimposition includes the Taniwha frieze that overlies a tiki figure and what appears to be a rubbed lineal figure (SP21-3) (Allingham et al. 2013:np). However, in many instances where red and black pigments and abrading appear in unison the surviving residues on a panel are too fragmentary to know if they formed compositional or discrete figures (e.g., SP21-8, -13, -22). The clearest examples of superimposition of red and black pigments are in parts of SP21-8 that have subsequently been shown to be retouched (below). This causes doubt in using historic observations of pigment superimposition as a guide to different applications by Māori at Opihi.

### 10.2 Motifs

Many figures are of unknown subjects, lines or residual fragments. The most recognisable motifs at Opihi are taniwha and tiki that demonstrate the variability in the styles, sizes and forms produced across the study area and written text that in contrast shows notable consistency. Taniwha vary from the distinctive Taniwha frieze trio in SP21-3 that share manaia heads (beaked profile) and ornate limbs, to the horizontal bodied versions with simple limb or flippers (e.g., SP21-4, -5 and -8). A version of the latter from Hanging Rock Bridge (J38/71) was described by knowledgeable Māori as a tipua - a fearsome supernatural being, in that case a ‘fabulous marine monster’ (Stack 1877:55-6). Taniwha occur in four extensively marked sites but there is not a consistent pattern of association or avoidance with other motifs. For example, at SP21-8 a large taniwha is positioned with large tiki, while other examples are isolated on individual panels.
Anthropomorphic *tiki* in the study area vary from large in-filled figures in the frontal *haka* (dance) stance and elaborate profiled examples with extended arms, to small visually simple stick figures. Some distinctive features are repeated at different sites, such as an ovate blank or whitened patch in the *tiki* abdomens at SP21-18 and J38/84 on the opposite side of the hill (just outside the study area). Some *tiki* are arranged in series (e.g., SP21-1, -8), while others are individually placed separate from nearby rock art (e.g., SP21-13, -18).

Recurring among rock art sites about the district are a number of Māori names written in Roman block letters with a consistency in style and finish that sets them apart from modern graffiti (Fomison and Fyfe 2014:86, Hamilton 1897:26). Short passages in copperplate script are attributed to Māori based on the use of Te Reo Māori (e.g., SP21-3B and 4 below). An example of cursive script reads “going to Temuka Sports” (SP21-1), with the English text broadening the possible cultural affinities of the writer and suggesting that something identifiably Māori in the script content or context should underpin attributions to Māori. The recurring initials ‘H.R.E.’ and ‘R.C.’ are similar in form and placement to other Māori names suggesting they are probably part of that set (Fomison and Fyfe 2014:86-7). Across the study area the writing in Te Reo Māori occurs mostly in or next to shelters with other rock art, although three shelters in the gully have only Māori text recorded (SP21-14, -16 and -17).

A possible depiction of moa at SP21-8 has been suggested (Allingham *et al.* 2013, np). Some of the pigment is a partial red outline of a rubbed white *tiki* figure (Fomison 1961:54) and the other lines include reds in differing hues. Māori may have used elements of existing figures in subsequent compositions, however, the attribution of a moa depiction in this case is not convincing.

### 10.3 Spatial Arrangement Across the Study Area

A qualitative outline of the visual characteristics of the rock art and taphonomic factors impacting on that is provided in Table 10.1. Weathering is highly variable within individual sites and across the study. The recent changes are demonstrated by writing recorded by Fomison no longer being discernible in 2013 (e.g., SP21-3B, -8B, -14, -16 and -17). Table 10.1 describes the weathering that impacts on visual assessments of the rock art and the surrounding surfaces. Natural processes that obscure figures include weathering of the pigment to faded residues, dust covering, wind erosion of the rock, and exfoliation of rock surface as salts are drawn to the surface by moisture.
The intensity of markings in the study area varies from the Taniwha Shelter (SP21-3) of which almost all surfaces are marked to some degree, to SP21-13 occupied by a lone red *tiki* (see below). Several factors prevent analytically useful measurements of the density of markings that might otherwise allow quantified comparison between shelters and testing for patterns of rock art concentrations. Some shelters have well defined drip lines in which the wall surface could be measured but calculating the proportion of marked space would depend on how elements are recognised as either larger compositions or smaller individual figures (e.g., SP21-1 and -4). Conversely, marked walls at some other sites have no immediately recognisable limit such as the entrance to the sinkhole (SP21-3B), or the rock face of SP21-2B that is a continuation beyond the dripline of the rock wall of SP21-2. Other sites such as SP21-8 have fragmentary residues either side of wide areas of exfoliation in which the potential continuity of rock art is arguable but not provable. Given these factors, and the impacts of weathering, the amount of area marked as a proportion of a wall surface is not a practicable guide to the relative intensity of marking. The qualitative assessment provided here considers marking to be extensive where most of the shelter or spaces within it are marked to some degree, moderate where figures mark several spaces in a site, and sparse where very little of a site is marked.

The largest sites in each area are extensively marked, possibly suggesting that they were particular centres of marking attention and occupation. These are SP21-8 at the riverside and SP21-3 in the gully (noting that the long tunnel-like SP21-15 is not comparable being only about 1 m high throughout). However some smaller shelters are also extensively marked, notably SP21-1 and SP21-4, while others of a comparable size are more moderately marked with smaller figures spread widely across the rock surfaces (e.g., SP21-9).

No natural features that stand out as landmarks appear to have rock art, although beyond the shelters options are limited to an upstanding limestone outcrop in the central gully between the Taniwha Shelter and SP21-4 and a massive limestone block at the riverside below SP21-8. Were these marked the rock art placement could be argued to be in keeping with the use of sheltered places rather than reflecting symbolic associations of the particular rocks.

The overall quantum of rock art in SP21-3 and SP21-8 is significantly greater than elsewhere, but otherwise differences in the manufacture types, recognised motifs and relative intensity of marking of different shelters do not appear to correlate to particular aspects of shelter location, size or orientation. No particular distributional pattern based on the shelter morphology is evident.
<table>
<thead>
<tr>
<th>SP</th>
<th>Location</th>
<th>Situation</th>
<th>Width (m)</th>
<th>Rock support condition</th>
<th>Rock art intensity</th>
<th>Colour</th>
<th>Known retouch</th>
<th>Original pigment condition</th>
<th>Writing</th>
<th>Tiki</th>
<th>Taniwha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gully</td>
<td>Western side</td>
<td>SE</td>
<td>9</td>
<td>Mostly stable, patchy exfoliation</td>
<td>Extensive</td>
<td>B</td>
<td>•</td>
<td>Mixed bold and faded</td>
<td>Cursive Roman</td>
<td>•</td>
</tr>
<tr>
<td>2</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NE</td>
<td>6</td>
<td>Mostly stable</td>
<td>Moderate</td>
<td>Bw</td>
<td></td>
<td>Mixed bold and faded</td>
<td>Roman</td>
<td>•</td>
</tr>
<tr>
<td>2B</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NE</td>
<td>-</td>
<td>Seepage stained</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NW</td>
<td>18</td>
<td>Mostly stable, algae on wall</td>
<td>Extensive</td>
<td>BRW</td>
<td>•</td>
<td>Mixed bold and faded</td>
<td>Roman</td>
<td>•</td>
</tr>
<tr>
<td>3B</td>
<td>Gully</td>
<td>Eastern side</td>
<td>N</td>
<td>-</td>
<td>Partial exfoliation and algae cover</td>
<td>Sparse</td>
<td>Bw</td>
<td></td>
<td>Faded fragments</td>
<td>Cursive Roman</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NW</td>
<td>7</td>
<td>Stable, variable dust cover</td>
<td>Extensive</td>
<td>Bw</td>
<td></td>
<td>Mixed bold and faded</td>
<td>Cursive Roman</td>
<td>•</td>
</tr>
<tr>
<td>14</td>
<td>Gully</td>
<td>Western side</td>
<td>E</td>
<td>10</td>
<td>Stable</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Almost all faded</td>
<td>Roman</td>
<td>•</td>
</tr>
<tr>
<td>15</td>
<td>Gully</td>
<td>Eastern side</td>
<td>NE</td>
<td>16</td>
<td>Wall mostly algae covered</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Gully</td>
<td>Eastern side</td>
<td>W</td>
<td>11</td>
<td>Eroded and exfoliated in parts</td>
<td>Extensive</td>
<td>Bw</td>
<td>•</td>
<td>Mostly faded</td>
<td></td>
<td>•</td>
</tr>
<tr>
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<td>Gully</td>
<td>Western side</td>
<td>SE</td>
<td>8</td>
<td>Extensive exfoliation and seepage staining</td>
<td>Sparse</td>
<td>Br</td>
<td></td>
<td>Mostly faded fragments</td>
<td></td>
<td></td>
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<tr>
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<td>Gully</td>
<td>Western side</td>
<td>NE</td>
<td>8</td>
<td>Extensive exfoliation</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Gully</td>
<td>Western side</td>
<td>NE</td>
<td>4</td>
<td>Extensive exfoliation</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Riverside</td>
<td>Bluff face</td>
<td>NW</td>
<td>5</td>
<td>Stable, eroded and exfoliated patches</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Riverside</td>
<td>Hillside outcrop</td>
<td>NE</td>
<td>3</td>
<td>Mostly stable</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>Location</td>
<td>Situation</td>
<td>Location</td>
<td>Width (m)</td>
<td>Rock support condition</td>
<td>Rock art intensity</td>
<td>Colour</td>
<td>Known retouch</td>
<td>Original pigment condition</td>
<td>Writing</td>
<td>Tiki</td>
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</tr>
<tr>
<td>7</td>
<td>Riverside</td>
<td>River edge</td>
<td>N</td>
<td>6</td>
<td>Stable areas, some erosion and exfoliation</td>
<td>Moderate</td>
<td>BW</td>
<td>•</td>
<td>Mostly faded, bold text</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Riverside</td>
<td>River edge (reverse of rock)</td>
<td>SE</td>
<td>5</td>
<td>Extensive exfoliation</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7B</td>
<td>Riverside</td>
<td>River edge</td>
<td>N</td>
<td>-</td>
<td>Not identifiable</td>
<td>Sparse</td>
<td>B</td>
<td></td>
<td>Not found</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>65</td>
<td>Variable eroded, exfoliating, and stable zones</td>
<td>Extensive</td>
<td>BRw</td>
<td>•</td>
<td>Mostly faded, some fragmentary, some bold red</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td>8B</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>-</td>
<td>Mostly eroded</td>
<td>Sparse</td>
<td>R</td>
<td></td>
<td>Faded fragments</td>
<td>Roman</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>7</td>
<td>Extensive erosion, stable patch</td>
<td>Sparse</td>
<td>R</td>
<td></td>
<td>Bold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Riverside</td>
<td>Upper-hillside outcrop</td>
<td>N</td>
<td>2</td>
<td>Extensive erosion</td>
<td>Moderate</td>
<td>R(?)B</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Riverside</td>
<td>Mid-hillside outcrop</td>
<td>N</td>
<td>5</td>
<td>Variable eroded, exfoliating, and stable patches</td>
<td>Sparse</td>
<td>R</td>
<td></td>
<td>Faded fragments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Riverside</td>
<td>Foot of bluffs</td>
<td>N</td>
<td>8</td>
<td>Extensive erosion and exfoliation</td>
<td>Moderate</td>
<td>B</td>
<td>•</td>
<td>Mostly faded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Riverside</td>
<td>Lower-hillside outcrop</td>
<td>N</td>
<td>7</td>
<td>Part exfoliated, part stable</td>
<td>Sparse</td>
<td>Bw</td>
<td></td>
<td>Mostly faded fragments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10.1: Opihi Rock Art Site Descriptions. Manufacture methods: upper case - main colour used, lower case - also present, B - black, R - red, W - white. Includes retouched but not modern figures.
10.4 Spatial Arrangement SP21-8 and 8B

10.4.1 General Description and Layout

At SP21-8 and 8B, the riverside locality selected for intra-site spatial analysis and discussed here as one site, the rock shelter formation under the overhang forms five general zones (Table 10.2, Figure 10.1). Two alcoves (zones 2 and 3) in the central part of the site have the boldest and most extensive figures, including large compositions finished in black with white infill. A number of red figures survive on the more ‘open air’ western rock face (zone 4). Very faint residues of pigment survive on weathered surfaces at each end of the site (zones 1 and 5). The rock patina in zone 5 is extensively eroded and historically recorded writing (Fomison 1960:17) has been lost.

Advanced pigment weathering on the lower parts and outer edges of the central alcoves has left several figures barely visible even though the rock support is intact. The motifs and amount of rock surface originally covered are not consistently discernible. The extent to which the weathered residues may have been separate or continuous with nearby bold elements is masked by modern retouching of selected figures. These factors confounded the evaluation of elements as marking events resulting in most of the western figures being grouped for mapping purposes (Figures 10.2 - 3).

<table>
<thead>
<tr>
<th>Area</th>
<th>Spatial Zones</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>15 m long open-ended arched tunnel behind the overhang dripline that extends to ground level. Dust covered inner southern wall and rough eroded northern wall, neither with recorded rock art. Residual black writing (Roman initials) on the open wall at eastern end, but otherwise not amenable to rock art application or preservation.</td>
</tr>
<tr>
<td>2</td>
<td>14 m long alcove space at the open western end of the tunnel. Concave wall section with dusty outward sloping lower wall and partially exfoliated vertical section. Upper wall mostly stable with extensive black outlined and white infill composition with some red lines. Residual black figure across exfoliating overhanging roof. Stable but weathered and dusty outer wall between the alcoves with very faded figures and fragmentary pigment residues.</td>
</tr>
<tr>
<td>3</td>
<td>11 m long alcove with concave wall section. Very faded residual red figure near ground level on a sloping central panel. Large black frieze across the mid-upper wall includes black fish, taniwha and several tiki figures with some red marks. A mostly intact surface beginning to exfoliate in places.</td>
</tr>
<tr>
<td>4</td>
<td>A vertical rock face under high overhang with rock art extending to about 12 m west from the zone 3 alcove. Several red figures on mostly stable dusty surfaces to about 1.5 m above ground. Extensive erosion and exfoliation above that with fragmentary residues of black and red on the surviving weathered panels. The western most figure is a bold red tiki.</td>
</tr>
<tr>
<td>5</td>
<td>An outwardly sloping shelf about 16 m long above zone 4. Extensively eroded surface throughout. Recorded writing now eroded. Fragmentary residue of red lines on a low sloping panel at the western end. Recorded as SP21-8B</td>
</tr>
</tbody>
</table>

Table 10.2: Spatial Zones in SP21-8 and 8B.
10.4.2 Rock Art Sampling from SP21-8

SP21-8 provided an opportunity to directly date Māori rock art and potentially compare the age of some traditional motifs to occupational evidence recovered from excavations, which if younger could inform consideration of if and how the rock art influenced the activity that gave rise to the deposits. It also allowed the potential evaluation of the time gap between the
Opihi Rock Art

traditional figures and post-European writing contributing to a discussion of the continuity/discontinuity between those practices. The dating of the rock art was however confounded by modern retouching. The current NZAA site record describes retouching of the original yellow drawings with white based on Fomison (1960:17) who also noted three different red pigments - ‘orange’, ‘bright red’ and ‘purple’, of which only the purple is in connection with and superimposed by black figures. Neither record suggests that the black or various red figures had retouching but dating, pigment analysis and further archival information show that this was indeed the case.

Exfoliating but still in place fragments of black pigment bearing rock were collected from the western alcove for dating. As part of the composition comprised of large tiki, the samples are representative of the central figures within the site rather than spatial outliers or anomalous motifs (Figure 10.4). A close visual inspection by Allingham and O’Regan considered that the black pigment looked authentic and not retouched. On that basis two fragments (RSB1 and 2) that have consistent pigment suggestive of the same episode of drawing were collected from one large tiki figure, and three fragments (RSB3-5) also with consistent pigment from another (Figure 10.5). Two other pieces of rock with pigment residues, one black (RSB6) and one red (RSB7), that had fallen to the ground were also collected and their original provenance identified by refitting on panels.

Figure 10.4: SP21-8, zone 3 in 1948. Arrow indicates position of fragment RSB2 radiocarbon dated. Photograph by Theo Schoon. Source: Māori Rock Drawings Album, PA1-o-330-08. Alexander Turnbull Library, Wellington, N.Z.
Figure 10.5: Fragments RSB2 (left) and RSB5 (right). In situ (above), and as collected prior to pigment removal (below).

10.4.3 Dating Analysis

The following observations and results of the dating were advised by Petchey (pers. comm. 2013) who conducted the analysis. Two of the collected fragments had sufficient recoverable pigment for dating samples. RSB2 is from a black line extending from the arm of a large tiki figure (Figure 10.4). RSB 5 is from the arm of a different tiki figure. The pigment layer was not continuous on either fragment but rather adhered only to the peaks of the stone surface. The pigment sample from RSB2 was 0.53mg. At 0.15mg the sample from RSB5 was below the normal cut-off for dating (0.2mg) but given an expected age of <1,000 years it was considered potentially viable. Minimal pre-treatment, a simple acid wash, was applied to remove limestone with ancient $^{14}$C while preserving the maximum sample sizes. The two samples acted differently during pre-treatment. WK36523 (from RSB2) was a mix of fine charred matter and wax that was on top of a less waxy material but the sample was too small to reasonably attempt removing the waxy component by solvent extraction. Also, as traditional paint may have organic gum residues (see recipe above) similar in age to the charcoal pigment, the sample was considered
Opihi Rock Art

potentially viable for dating. The sample WK36524 (from RSB5) had the appearance of particulate charcoal with no visible wax. Given the small size of that sample, the Carbon-13 stable isotope value (δ¹³C) was measured on prepared graphite using the AMS spectrometer. The radiocarbon date has been corrected for isotopic fractionation but as the AMS-measured δ¹³C value can differ from the δ¹³C of the original material it is not shown.

<table>
<thead>
<tr>
<th>Fragment</th>
<th>Waikato No.</th>
<th>δ¹³C</th>
<th>δ¹⁴C</th>
<th>F¹⁴C%</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSB 2</td>
<td>36523</td>
<td>-29.5 ± 0.0%</td>
<td>-530.7 ± 1.5%</td>
<td>46.9 ± 0.1%</td>
<td>6077 ± 25 BP</td>
</tr>
<tr>
<td>RSB 5</td>
<td>36524*</td>
<td>*</td>
<td>-180.7 ± 2.8%</td>
<td>81.9 ± 0.3%</td>
<td>1601 ± 28 BP</td>
</tr>
</tbody>
</table>

Table 10.3: Radiocarbon Dating Results for SP21-8 Rock Art. Data provided by Fiona Petchey.

% contamination ancient (¹⁴C free) Carbon  
<table>
<thead>
<tr>
<th>1%</th>
<th>5%</th>
<th>10%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>980</td>
<td>1320</td>
<td>1770</td>
<td>6630</td>
</tr>
</tbody>
</table>

Table 10.4: Effect of Contamination by Ancient (¹⁴C free) Carbon on the Apparent Age of a Sample with a True Age of 900 years BP. Data provided by Fiona Petchey.

The ¹⁴C results (Table 10.3) indicate contamination of the pigments by modern crayon produced with coal or petroleum, both of which are ¹⁴C free’ giving dates older than 50,000 BP (see Chaffee et al. 1994 for a similar examination of kerosene staining on rock art dating). The date of 6,077 ± 25 BP for WK36523 (RSB2), and a predicted age of less than 1000 years for the rock art would suggest approximately 50% contamination of the pigment by modern crayon (Table 10.4). Wood charcoal typically has a δ¹³C value of about -25 and is rarely as low as -29. This value for WK36523 is more typical of petrochemical products. The 1,601 ± 28 BP date for WK36524 (from RSB5) indicates about 5-10% contamination, which is in line with the observed lack of wax during pre-treatment.

10.4.4 Archival Information

Subsequent to the collection of the rock art fragments further archival information was able to be identified and accessed. Among a private collection of Schoon’s papers typed field observations recognisably referring to zone 3 at SP21-8 records that “These drawings were hardly visible in their original state and have been restored successfully” (Schoon, note on Gould’s Ranges, Vance collection, viewed prior to auction at Art+Object, Auckland, May 2014). That the tiki from which RSB2 and 3 were salvaged is bold in Schoon’s 1948 photograph (Figure 10.4) shows that it had been restored beforehand which is consistent with other examples of Schoon’s recording practice (Fomison 1987:158-9; Schoon 1962:126).
Fomison produced two index books for his tracings that include shelter plans and comments on the specific figures recorded. In 2013, the Canterbury Museum was able to make available a photographic record of the tracings. Correlation of the tracings (Canterbury Museum registration numbers 1969.312.828 and 1969.312.830) and notes in the indices (Fomison 1961:50-51, sheet ‘J’ and ‘N’) confirm that the *tiki* sampled for RSB2 was evaluated by Fomison c.1961 as having been retouched, but the *tiki* from which RSB5 was recovered is not specifically described as restored. The general observation of retouching in the shelter and of the *tiki* figures does not, however, demonstrate that the specific fragments collected and dated had been crayoned.

### 10.4.5 Crayon Analysis

Schoon is known to have used grease crayons in his restoration endeavours (Fomison 1987:159-60) which Burns Polloch of North Otago advised were ‘Moa’ brand (Allingham, n.d.). These were a product of S A Smith Ltd. established in 1915 but records of the crayon formulae have not been retained (Rik Walkley, Thermo Fisher Scientific, pers. comm. April 2014). A small collection of historic Moa brand crayons was acquired with five versions represented and sequenced by the labels (Table 10.5). The red and white crayons are all type 3, and the black are types 2 to 5 that post-date the formation of Smith Biolab Ltd. in 1979. Although 1940’s examples of black and red crayons are not represented, analysis of the current collection provides some insights into the investigation of retouching.

<table>
<thead>
<tr>
<th>Type</th>
<th>Cross-section</th>
<th>Moa logo</th>
<th>Label statement</th>
<th>Elemental characteristics of black crayons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>octagonal</td>
<td>old</td>
<td>Manufactured by S.A. Smith &amp; Co. Ltd.</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>octagonal</td>
<td>old</td>
<td>Manufactured by Smith-Biolab Limited</td>
<td>High: Br</td>
</tr>
<tr>
<td>3</td>
<td>octagonal</td>
<td>old</td>
<td>Manufactured by Kind Industries (N.Z.) 1973 Ltd – for Smith-Biolab Ltd.</td>
<td>High: Fe</td>
</tr>
<tr>
<td>4</td>
<td>octagonal</td>
<td>new</td>
<td>Manufactured for Smith Biolab Ltd</td>
<td>High: Fe</td>
</tr>
<tr>
<td>5</td>
<td>round</td>
<td>new</td>
<td>Marketed by Smith Biolab Ltd</td>
<td>High: Zn</td>
</tr>
</tbody>
</table>

Table 10.5: Age Sequence of Moa Brand Crayons.

Elsewhere pXRF has been used to show modern materials having been applied in rock art (McDonald *et al.* 2014:200, Newman and Loendorf 2005). Examination with pXRF showed the four types of black Moa brand crayon have different elementary compositions but all contained mineral constituents. The type 3 red crayon had a low iron (Fe) component and no discernible mineral concentration suggesting the pigment was organic (McAlister, pers. comm. 2015).

In the laboratory the red crayon, four types of black crayon and some red ochre sourced from the North Island were applied to pieces of freshly cut limestone to approximate the character of the
rock art samples. The blank limestone support and pigmented areas were tested on each crayon sample and selected rock art fragments employing a qualitative approach given the mixed matrices. Spectra were normalised to the Compton scattering of Rhodium (shown as Compton, Rh and Pd in the charts) and the results for blank limestone were overlaid on those of pigmented patches for comparison (Figures 10.6 and 10.7).

Fragment RSB2 that had pigment removed for dating was replaced by RSB1 from the same tiki figure for the pXRF analysis. A pigmented area had readings high in iron compared to a blank area of the same rock surface, which compares to the crayon types 3 and 4. A fragment of black rock art not known to be retouched from Maerewhenua, North Otago, was also analysed. There is no difference in iron or other mineral readings between the pigmented and non-pigmented area of the same surface, as would be expected with an organic paint. If this is representative of traditional Māori black pigments, it supports the interpretation that the high iron reading in the fragment RSB1 from SP21-8 reflects contamination by modern crayon.

The readings for the fragment of red rock art, RSB6, had no discernible difference between the red pigmented and blank areas, mirroring the results of the modern crayon rather than the North Island kōkōwai sample that gave a significant iron signal compared to the blank limestone, as would be expected for ochre based rock art (e.g., Nuevo et al. 2012:3). Crayon overlay does not appear to mask underlying iron in the ochre which suggests the figure from which RSB6 derives may have been exceedingly faded before being retouched or was produced with other than an ochre based pigment. The results are not definitive given that a single small rock art sample is compared to non-local ochre and a post-1979 crayon, but do indicate further testing for retouching is required to draw confident associations with red figures at SP21-8.

Figure 10.6: Elemental profiles of black pigment. Samples (red line) on limestone supports (black line).
Elevated iron (Fe) and lead (Pb). High iron is probably elevating the titanium (Ti) reading.

High elevation of iron (Fe), probably causing elevation of titanium (Ti) also.

Elevated zinc (Zn).

Identical spectra shows no mineral component to the pigment.

Figure 10.6: (continued) Elemental profiles of black pigment. Samples (red line) on limestone supports (black line).
Identical spectra shows no mineral component to the crayon pigment. 

Elevated strontium and zirconium (Zr) is likely variation in the limestone support. Almost identical spectra shows no mineral component to the pigment.

Elevated iron (Fe) and titanium (Ti). 

Elevated iron (Fe) and titanium (Ti) shows crayon does not completely mask underlying ochre.

Figure 10.7: Elemental profiles of red pigment. Samples (red line) on limestone supports (black line).

This is particularly relevant regarding the umu 6 m in front of the western-most figure in zone 4, a 0.7 m high red tiki. The main image is one of the bolder red figures in the site but the lower portion is very faded (Figure 10.8). The current visibility of the upper parts of the tiki would be unmissable if it pre-dated the late period umu. In that case, either the presence of the tiki did not deter the occupants from preparing food in its vicinity, or it attracted the activity perhaps indicating a zone of particular mana appropriate for a ritually specific umu (see Beattie on umu, 9.4.1 above). While either interpretation of tikanga-ā-wāhi may be valid, testing is required to demonstrate that the tiki has not been retouched and, so, would have been visible. If like the lower portion it was barely noticeable, an umu for general cooking may have been randomly
positioned, or perhaps purposefully placed away from other areas of rock art or likely to be used for sleeping.

Schoon’s artistic records at SP21-8 are selective (Fomison 1960:17). The same selectivity is shown with retouching by the contrast of the bold restored figures to surrounding faded and fragmented elements. There is no reason to think that figures were created where no traditional pigment existed, and the overall restorations may reasonably represent the original Māori rock art. However, for the purposes of this study they cannot be used as data of Māori marking events. Firstly, it is not viable to evaluate marking events through visual comparisons of pigment, and so determine if the compositions are synchronic or cumulative. Fifty years ago Fomison noted that “… as elsewhere in this composition, retouching makes it impos[sible] to define succession where black subjects overlie one another” (Fomison 1961:51). Secondly, the visibility of figures to past artists in most light conditions cannot be reasonably assessed. This means that any choice exhibited in placing rock art in proximity to or away from earlier works is masked. Given the faded and fragmentary nature of many figures prior to restoration, it is
possible figures may have been added to the site cumulatively with little awareness of those already existing. Due to the combined effects of weathering and retouching, the images as seen today at this otherwise impressive rock art site are not reliable for determining intra-site spatial patterns of association in the marking behaviour and the influence of tikanga-ā-wāhi.

10.5 Spatial Arrangement SP21-4

In the gully the rock art in SP21-4 is openly visible being on a well-lit shelter wall under a high but shallow overhang. Of the 42 recorded elements, 29 are attributed as Māori rock art, including two cursive script sentences in Te Reo Māori and 10 Māori names written in Roman block letters (Figure 10.9, Appendix 5). The visually dominant image is a taniwha drawn in a black double outline that has partially faded to a blue-grey, a line in-fill of a less deteriorated black, and a rubbed in-filled central blank. It was possibly developed over time but is not obviously retouched by modern pigments (Fomison 1961:15). The lower rock wall and hollows in it are marked with black lines and partial designs that appear to be fragmentary residues of Māori rock art.

Modern additions are noted by the underlying limestone of a scratched patina or soft rock drawing additions not having ‘yellowed’ as much as a modern name scratched over the taniwha. The recorded elements attributed as modern include scratched names, initials and images not in keeping with the recognised Māori examples, including a white multifaceted curvilinear design fitting with naïve imitations of Māori art. These are not shown in Fomison’s tracings even though he considered that he recorded all the surviving drawings in the shelter (Fomison 1961:19). If they were present at the time of his work, Fomison had grounds to ignore them as he did a pencilled translation of Māori script that is visible in an earlier Schoon photograph (Te Papa B.076870).

In 2013, the taniwha and adjacent name ‘PIWA’ appear to be the same black pigment and are visually indistinguishable as marking events (Figures 10.11 and 12). Fomison (1959:17; 1961:15) notes that these have not been retouched. A sentence in copperplate script addresses someone held dear, “e hoa, e teipo...” being “friend, the loved one...”. A mid-word line break used to avoid a limb of the taniwha shows the script was added after the image (Fomison 1961:15). This shows respect for the taniwha but it cannot be determined by spatial association that the passage addresses that image rather than similarly close names of WIREMU and PIWA, or the name TEIPO which is found elsewhere in the shelter.
Excluding the modern elements from consideration, the wall above the hollows is marked exclusively by the *taniwha* image, Māori writing and lines that appear to be associated with those elements. The writing forms a band across the shelter at about 1.25 m above the ground (Figure 10.10). Although they differ visually in boldness that is not necessarily reflective of weathering and relative age. ‘PIWA’ and the *taniwha* stand out with modern white crayon outlining (Fomison 1959:17) and other names are partially obscured by a pink dust that adheres to slightly upwardly angled rock surfaces. The consistency in form and height of the written names suggests that they may have been written in sequence across the shelter. The names may be explained as signatures left by individuals, perhaps each placed in response to earlier ones, but it is equally plausible that a single scribe wrote the names in sequence. A synchronic composition cannot be proven but the grounds for categorising them as individual marking events is also weak.

The hollows are the most notable natural features in the shelter. It is uncertain if a small red stain in one hollow is cultural. The *taniwha* image is placed above the cavities, but not so close to the hollows as to prevent the names and the script being written in between. The black marks on the lower wall are not restricted to the hollows. There is not, then, a specific pattern of association in the rock art with those natural features. Given the space occupied by the band of names, the availability of sheltered blank rock surface can be argued to have been the attractant for the writing rather an association to figures on the lower wall were they pre-existing. At a broader level, the quantum of writing in the openly visible shelter in the central gully suggests a purposeful intent to boldly mark the gully but in a manner that stood out from and/or did not impinge upon nearby pre-existing art.

*Figure 10.9: Rock art distribution at SP21-4. Looking East. Element key: dark grey = black pigment; light grey = black pigment and rubbed; green = modern. Bottom grey line is the top of clay shelf. Dotted red lines are hollows. Dotted grey line is the dripline.*
Figure 10.10: SP21-4 band of writing (continues to the right).

Figure 10.11: SP21-4 taniwha, ‘PIWA’ and cursive script at bottom left.
10.6 Spatial Arrangements at Other Shelters

Two extensively marked and well-known shelters in the gully, SP21-1 and SP21-3, were not selected for detailed intra-site analysis as they are historically known to have been partially retouched and the original floors have been extensively eroded. However, some observations that extend consideration of tikanga-ā-wāhi in the study area can be made of the placement of rock art in them and SP21-13 on the riverside bluff.

Viewed from inside all areas of the wall above the moisture line and across the ceiling of SP21-3 can be seen as marked to some extent, with the large Taniwha frieze being visually dominant (Figure 10.13). However, given the ceiling angle and dripline, the Taniwha frieze is not readily discernible from outside the shelter. Prior to the modern markings the red figures on the moderately marked back wall and rear ceiling would have been the most visible figures viewed from outside the shelter (Figure 10.14). Given the association of red with tapu and the absence of other substantial red figures in the gully, their relatively prominent placement within the shelter may signal a particular aspect of that place’s character in terms of tikanga-ā-wāhi. That is not substantiated, though, by a recurring pattern of similarly positioned red figures in other sites. The two comparable examples in the study area are SP21-8 where the relative prominence of red figures is uncertain given the nearby erosion and possible retouching (as above), and SP21-13 also on the riverside bluff.
A single red *tiki* is prominently placed in SP21-13, a 7 m wide shelter of which the eastern half of the wall surface is eroded but the western half is intact with a pink dust accumulating on it. There is sufficient blank intact rock surface surviving about the *tiki* to recognise that the isolated positioning was intentional. The rock surfaces of the similarly sized adjacent shelter are extensively eroded but small residues of black and red pigment across its breadth show that it was once extensively marked. If the rock art in both shelters was contemporary, or the *tiki* was older, the blank space about it might indicate that it signalled the shelter as a place to be avoided, at least for further marking. However, given the weathered state of the neighbouring shelter, it is also possible that a later artist was unaware of the markings and randomly positioned the red *tiki* on the available intact rock support.

**Figure 10.13**: Rock art distribution at SP21-3. Elements: dark grey = black pigment; tan = black pigment and rubbing; red = red pigment; green = modern. Grey line is the back wall floor. Tan line is the outer fence foot.

**Figure 10.14**: Oblique view of SP21-3. Looking approximately NE and excluding modern elements. Colour coding as in Figure 10.13
At the head of the gully, the rock art at SP21-1 is visually dominated by five large tiki figures, two in profile and three in a frontal stance. These have been partially retouched by Schoon (Fomison 1959:9). The arm of the central profile tiki extends across the upper torso of the neighbouring frontal figure and the lower parts of both are thought to superimpose a faded design, possibly a fish figure (SP21-1 figures 8-10) (Allingham et al. 2013:np). However, recognising the selective retouching of the figures, a more convincing interpretation is that the faded design is the penis of the profile figure extending to the groin of the frontal figure. Copulation scenes are not uncommon in Māori wood carving, and are particularly well recognised in tāhuhu (house ridgepoles) part of which commonly depict Rangi (the sky father) and Papatūānuku (the earth mother) in primordial union (e.g., Mead ed. 1984:215). A copulation scene in traditional Māori art is likely to represent some account of whakapapa (genealogy), and so specific tūpuna. Assessing whether such depictions influenced tikanga-ā-wāhi at SP21-1 is problematic though as possible spatial relationships are partially obscured by retouching of the rock art and the almost total erosion of the original shelter floor.

10.7 Writing

The missionary taught script is indicative of exposure to Christian doctrine in the Māori community and indicates syncretic beliefs with new forms of representation integrated into traditional place marking practices. The circumstance of the writing, its integration with traditional imagery and its representational content may be indicative of tikanga-ā-wāhi at Opihi.

10.7.1 Writing and Figurative Māori Art

Trotter and McCulloch’s (1981:16, 81-2) stylistic argument that South Island post-contact writing was a separate practice from pre-European rock art is inconsistent with their acceptance of the commonality of writing and traditional images among North Island rock art (1981:45). North Island petroglyphs include a waka image labelled ‘Ko Tanui’, the name of a tribal migration canoe, at T16/96 near Tokoroa, and elongated leaf shapes – possibly representative of waka – with inscribed names at Rua Hoata (U17/6). A Bay of Plenty canoe portage used by migrating hapū and a war party (Stafford 2002:178, 258-9) has a rock wall painted with kōkōwai waka motifs and script in Te Reo Māori (Tapsell 2006:90). Traditional imagery and writing are also integrated in other Māori art from a part of the North Island where Ngāti Mamoe and Ngāi Tahu originated. The barge boards of an 1870’s Wairarapa meeting house depict traditional fish motifs and canoes like those found in rock art with text labelling the human figures as Maui and his brothers (Neich 1993:175). Some traditional Ngāti Kahungunu meeting house carvings also have the ancestors’ names added in block letters (e.g., National Museum of New Zealand
In the South Island a tiki-like figure and adjacent cursive script in the rock art at Maerewhenua are considered compositional based on pigment and spatial positioning (O'Regan 2007:111).

These few examples show 19th century Māori used writing to enhance traditional representations in other media as well as rock art and the contemporaneous use of both graphic forms should not be unexpected if pigments can be shown to be original. Regardless of contemporaneity, across the study area the spatial association of writing added to localities with other rock art but without disfiguring those indicates recognition of the existing figures and respectful interaction with the spaces.

10.7.2 Circumstance of the Writing

It is suggested that the written names in South Canterbury are of individuals associated with 1870’s prophet Te Maiharoa and may relate to his travels about the district to remove the old tapu and make places safe for future generations. Fomison, however, considers the writing to be associated with the first influence of missionaries and rejecting a direct association to known Māori spiritual leaders regards the writing as “not being religious in content” (Fomison and Fyfe 2014:87-8). This may be an overstatement. Enquiries made of Arowhenua elders (Philippa Graham, historian, pers. comm. May 2015) and people knowledgeable of local whakapapa today (Mandy Home and Terry Ryan, pers. comm. August 2014) do link some of the names to local people with family associations to Te Maiharoa. He was trained in the religious practice by the North Island tohunga, Piripi, and continued doing battle with the spirits of places (Dacker 1994:52). Even if not directly related to the prophet, the individuals named are undoubtedly from the same Māori community in South Canterbury and, so, under the same range of influences, as was Te Maire who described avoiding a shelter when it was found to have rock art (Beattie 1918:156). The names may commemorate tapu lifting events or if marked later may reflect the ‘old tapu’ having been removed, so making it safe to add names to those places.

10.7.3 Content of the Writing

Several historical photographs illustrate 19th century Māori tattoos of names in Roman block letters like those in the Opihi rock art (e.g., Yarwood 2013:98, Te Awekotuku 2007:74, Main 1976:71, Blackburn 1999:27, 47) (Figure 10.15). The practice of tattooing names may have emerged from Christian identity tags marked by European missionaries on the forearms of baptised Māori (Blackburn 1999:15, 27; Main 1976:71). In a c.1890 group portrait five Ngāti Whakaue women display similar tattoos (Te Awekotuku 2007:74) which are family names.
applied to the arms as a precursor to women receiving their *moko kauae* (chin tattoo) (Ngahuia Te Awekotuku, University of Waikato, pers. comm. July 2013). Goldie’s 1906 oil painting of renowned *tohunga tā-moko* (tattooing expert), Te Aho o Te Rangi Wharepu, shows the name ‘ERANA’ tattooed on the arm of the Waikato elder (Te Awekotuku 2007:66-67). A sense of personal connection through the written name is shown by a grieving Northland family’s *hongi* (sharing of breath by the pressing of noses) of the printed name of their lost boy that allowed them to connect with his *wairua* (spirit) (Jones and Jenkins 2011:140). Although not from the South Island, these examples show the significance of the written names as used in the context of the *tā-moko* tradition. Given such use, it seems unlikely that personal names in a similar form and time would have been causally employed in the Opihi rock art. Within a Māori worldview they are at least likely to have engendered a respect for the named individuals’ association with the place by subsequent audiences.

![Image of unidentified sitter showing arm tā-moko in Roman block lettering. c.1865. American Photographic Company, Auckland. Courtesy of the Museum of New Zealand Te Papa Tongarewa (A.004687).](image)

At SP21-4 in the gully the cursive script ‘*Tena ra koutoutou* [sic] *katoa*’ is a general greeting to many people, while the passage by the *taniwha* is specific to an individual held dear. Spatially that is conceivably associated with the *taniwha*, PIWA or WIREMU, but it may also address an audience beyond the figured group. Whichever the case, the greetings acknowledge entities, be
they indwelt within the places as figured in the rock art, or subsequent audiences reading the messages.

Duff (n.d:62) recorded a residue of cursive script on the wall of the sinkhole SP21-3B but it is now almost entirely faded. Duff’s transcription is not entirely decipherable but repeated words and phrases written in five lines give it the form of a traditional karakia (incantation). If serving as an instruction of karakia to be recited at the locality, or commemorating one said, it reflects tikanga-ā-wāhi probably making the place spiritually safe. This could relate to the rock art in the nearby Taniwha Shelter but conceivably may relate to other events that occurred there or a mauri not specifically related to the rock art. The passage recorded is too fragmented to draw further clues from a translation.

10.8 Opihi Study Area Conclusion

10.8.1 Inter-site Distribution

The most abundant archaeological resource available for investigation in the study area is the rock art. At the kilometre scale the spatial distribution of rock art in the study area does not exhibit consistent patterning beyond the availability of suitable rock support and some potential shelter or shading. The largest sites in the gully and on the riverside have the greatest quantum of rock art but that is not shown to reflect specific concentrations as some smaller sites are also extensively marked. The intensity of rock art marking does not show a particular pattern that correlates to size, location, or orientation of the shelters. No freestanding rocks likely to have been considered notable natural features are known to be marked, and none of the recorded art is hidden from view by people within the shelters. Among the diverse figures the most recognisable motifs are taniwha, tiki and writing. These representations of dangerous mythical creatures and people are found distributed across a range of shelter shapes and sizes. Based on their size and the nature of the foreground, not all of the sites can be described as habitable, but each has the potential to offer shelter or shade in different weather conditions. Not all the potentially habitable shelters are marked – most notably one large enough to currently house farm machinery - however the habitable character of those spaces and shelter floors may have been substantially different prior to farming. There are no recognised patterns in the distribution of rock art sites over and above the use of sheltered spaces with rock surfaces appropriate for pigment application.
10.8.2 Intra-site Distribution

The method of intra-site spatial analysis employed by this thesis proved inapplicable for identifying and demonstrating patterns of association indicative of tikanga-ā-wāhi at Opihi. The principal obstacle is an ability to discern separate marking events. Although the varied rock art figures were undoubtedly applied at different times, at the sites selected for intra-site spatial analysis a robust rationale for distinguishing neighbouring figures as different markings is lacking in too many cases. Extensive erosion and weathering limit evaluation of continuity or discontinuity of figures and pigment at the extensive SP21-8 site. This is compounded by modern retouching that makes large arrangements of figures appear contemporaneous regardless of whether they were or not. These preservation issues mask the recognition of both different applications in the first place, and the past visibility the figures can be assumed to have had that might have influenced subsequent artists’ choice of placement.

The dispersed historic records for SP21-8 hindered the timely integration of past observations on the one hand and although highlighting the presence of modern retouching, are not specific enough to be fully informative. Radiocarbon dating and pXRF analysis highlight the unreliability of visual assessments of pigments given their state of preservation at the site. A means for discerning modern retouch awaits a more complete pigment reference base.

In contrast, the intra-site analysis at SP21-4 is confounded by the spatial arrangement of the figures themselves at a metre scale. The consistent form and placement of the writing in a band across the site would not be unexpected were they produced in a single event. The integration of traditional imagery and writing in other Māori art negates a stylistic rationale for separating a taniwha and written name that appear to be the same pigment. Given these observations all the Māori art higher in the shelter is conceivably contemporaneous and may reflect the availability of rock surface rather than having been selectively placed in association with the eroded figures below.

Three examples of prominently placed red tiki figures are not readily interpreted as a pattern of marking places as tapu based on the cultural significance of the colour. Each has a different setting in relation to surrounding rock art, and black figures are more commonly placed prominently in other shelters.

There is limited scope from which to infer aspects of tikanga-ā-wāhi by combining spatial distribution and iconographic interpretations. The representation of taniwha is not restricted to either more cave-like shelters or the gully. The varied distribution does not suggest that the locality marked was an abode of such beings. Fomison considered a figure in the Taniwha
Shelter among his examples of *whakapapa* (genealogy) represented in Māori rock art (Fomison and Fyfe 2014:75). This may also be implied by a copulation scene at SP21-1. Showing that the subject influenced subsequent marking behaviour beyond the availability of useable rock surface in that retouched shelter requires the development of more definitive pigment recognition. Investigating its influence on other activity in the shelter is negated by the almost complete erosion of the shelter floor.

### 10.8.3 Archaeological Deposits

Four differently situated shelters among the 23 sites have cultural material in the floors or foregrounds but in almost all this is disturbed. It suggests other shelters probably had occupational deposit that is now eroded away. The activity implied by the scant surviving cultural deposits may not be representative of the range or variability of activity that occurred across the study area.

Where in-situ archaeological evidence does survive in proximity to rock art, an *umu* and bold red *tiki* both placed at the western end of SP21-8, drawing a contextual association is confounded by retouching in the shelter. If the figure was pre-existing its visibility to the *umu* makers cannot be assumed. The activity associated with the *umu* is also open to divergent interpretations. The results of the archaeological excavations in the study area do not provide for the recognition of recurring patterns of association between activity represented by cultural deposits and the rock art. The dating of the two *umu* does show the largest shelters with the most extensive rock art were occupied at times after the IBP and in the late pre- or early post European period.

Ethnohistorical records and place names contain traditional knowledge that makes reference to *tapu* places about the district and refers to trails inland and *mahinga kai* within the vicinity of Opihi. The traditional site closest to the study area was known for eeling and *tī kōuka*. The archaeological evidence surviving at Opihi is consistent with this but does not reflect extensive use as a *mahinga kai*. Eel bones were found at SP21-8, but not in a concentration or numbers that would indicate systematic eeling and the probable *umu tī* at SP21-3 is an isolated find. With the historic separation of Māori from those places, the traditional knowledge has receded and is not specific enough to relate directly to the occupation of the study area, the sites within it and the archaeological deposits found. The same can be said for most of the written names although future tribal research may change this.
10.8.4 Writing and Tikanga-ā-wāhi

The written names at Opihi are not anomalous within Māori rock art and can be considered part of a wider development that integrated such personal labelling with other traditional Māori art forms. This included tā-moko and house carving, both practices recognised as steeped in tapu and associated with whakapapa and identity. Recognising this suggests that the application of the names shows an intent to establish or reflect associations of the people named with the places. The greetings in cursive script support such an interpretation and the application of a probable karakia may be indicative of an embedded spiritual dimension of the locality.

The respectful placement of text in Te Reo Māori specifically around existing rock art and at other shelters at Opihi suggests that in the 19th century some practice of marking rock shelters either continued or replicated past traditions with a new form of expression.

The circumstance of the writing remains unclear. If dating to the missionary period it may reflect reinforcing the tapu of the places with a new expressive form. If later, it may be associated with tapu removal practices, or reflect those having been conducted so making the places safe for different personal connections to be established. Whichever case, given the significant issues of preservation of both rock art and other archaeological deposits at Opihi, it is drawing on historic interpretations of the writing that provides the strongest basis for inference of tikanga-ā-wāhi in the study area to date.
Chapter 11   Discussion and Conclusions

The investigations at Kakaho and Opihi sought to determine if and how *tikanga-ā-wāhi* contributed to the formation of the archaeological record in a way appropriate for consideration in archaeological assessments under New Zealand legislation. Both investigations focused on developing an understanding of the context of rock art in which associations indicative of selective behaviour may be recognised through patterning in the archaeological remains. The common theme to emerge is that in most circumstances such demonstration is confounded by preservation issues. This chapter first compares the results from the intra-site investigations of the two study areas which allows those confounding factors to be further clarified. It then considers the issues relating to the archaeological deposits and wider context, and how those impact on demonstrations of *tikanga-ā-wāhi*. Conclusions concerning a better understanding of the issues of past Māori beliefs in the management of Māori archaeological heritage are then considered.

11.1 Intra-site Investigations at Kakaho and Opihi

11.1.1 Millimetre Scale - Rock Art Pigment Analysis, Weathering and Retouch

A recurring issue in the intra-site investigation is that preservation at the different spatial scales typically confounded demonstration of patterns of association at other scales. In part this is due to observations at the millimetre and centimetre scales forming some of the building blocks necessary for the metre scale analysis where the action that allows the influence of *tikanga-ā-wāhi* to be explored is likely to be recognised. At the sites selected for intra-site spatial analysis of rock art, investigations at the millimetre scale focused on manufacture techniques and examples of superimposition that might demonstrate different marking events.

The rubrication of Kakaho petroglyphs by infilling and outlining with *kōkōwai* is compositional rather than the superimposition of different figures over others. Other surrounding pigment marks are not distinguishable as separate marking events from the ochre applied to the petroglyphs (e.g., masks at T17/66 and the *pou* at T17/23). Different people may have contributed to the compositions over time, however that cannot be distinguished from a single production event that employed multiple techniques, similar to the use of intaglio and relief techniques in single mask figures.
Discussion and Conclusions

The extensive weathering of some pigment at SP21-8, Opihi, obscured recognition of whether some markings were continuous or separate from neighbouring markings. The retouching of figures with modern crayon also gives the appearance of pigment continuity where potentially there was none. Another consequence of the retouching is the relative visibility of figures in the past cannot be assumed, which limits the potential to demonstrate selective choice by Māori in response to other rock art. Future applications of technology such as pXRF in pigment analysis may allow improved distinguishing of marking events and the identification of modern retouching but comprehensive reference data for that is not yet developed. A simple test for the presence of mineral constituents using pXRF may be insufficient to identify retouching of red pigments in particular, as iron of underlying ochre applications can show through superimposing crayon.

11.1.2 Centimetre Scale - Motif Style

The other building block for the metre scale analysis is the motif. Drawing on historic references from further afield shows that variability in apparent motif style is not a reliable indicator of separate marking events. Rather than demonstrating separate marking events that exhibit a close spatial relationship, the deliberate vertical arrangement of three different styled masks at T17/23 is instead comparable to single compositions in Māori house carvings that exhibit whakapapa. This historic reference indicates that the masks probably represent ancestors to which tikanga-ā-wāhi is likely to be associated. At SP21-4 a traditional taniwha form and neighbouring written names appear to be the same pigment. Examples of similar writing and traditional imagery in rock art elsewhere and in other 19th century Māori art forms show that the two cannot be separated as marking events based on apparent style. As such, a contextual association between an earlier traditional figure and later writing that might be suggestive of tikanga-ā-wāhi cannot be demonstrated over and above the possibility of syncretic aspects to Māori imagery in the post-European times.

11.1.3 Metre Scale - Relationship Between Rock Art Figures

The choice of placement of figures in different marking events at the metre scale is where recognition of spatial patterns indicative of tikanga-ā-wāhi are most expected. However, issues of distinguishing marking events at the smaller spatial scales were compounded by erosion at T17/23 and SP21-8, two of the sites selected for intra-site spatial analysis of rock art placement based on preliminary evaluations of the range of figures in each and the potential to recognise ground deposits around the rock art. Some figures that were historically recorded were no longer visible in 2013 causing uncertainty as to the extent of the past marking and useable rock surface.
The combination of factors varied at each site but the density of markings and spatial proximity between elements that may show particular concentrations of rock art or relationships between marking events could not be meaningfully measured at either.

Drawing on the possible compositional use of petroglyphs and kōkōwai observed at T17/23 and T17/66 suggests that the two art forms should not be viewed separately at the smaller T17/23 and T17/53 shelters at Kakaho. The small size and shape of those shelters and the dispersed placement of the rock art within each does not allow for specific patterning in the relationships between individual markings to be clearly identified. At Opihi, on the other hand, the horizontal arrangement of names at SP21-4 is more suggestive of a single episode of marking (including the taniwha as above). This may indicate the availability of useable space was more of a selective factor than associations with other imagery. Reference to the use of similarly written names in other historic Māori art, the messaging evident in the greetings, whether that was directed at spirits embedded in the place or later audiences, and the placement of a probable karakia at the sinkhole entrance (SP21-3B), all indicate some significance in the marking of the places with writing. However, particular spatial associations in these examples are not able to be related specifically to other rock art imagery, such as the large and elaborate Taniwha frieze in SP21-3. Where written names are in close proximity to other rock art (e.g., SP21-1 and SP21-2), testing for modern retouch in the shelters is warranted.

These findings emphasise that working across the scales of Chippindale’s ‘millimetre up to kilometre’ framework is important to the investigations of rock art in both study areas. Demonstrations of patterns of association at the metre scale are dependent on the state of preservation of figures at the smaller scales. This does not mean that the figures within a site were necessarily compositional or single marking events but rather that they cannot reasonably be demonstrated as separate marking events. In both study areas this limits demonstration of the selective choice in marking at these scales and the scope to demonstrate the potential influence of tikanga-ā-wāhi.

11.2 The Distribution of Rock Art at the Inter-site Kilometre Scale

A combination of the variable use of markings, the number of sites and the scale of the study areas limits the potential to fully evaluate patterning at the kilometre scale. Across both study areas shelters of different sizes, shapes, locational situation and outlooks were marked. However, no exclusive or consistent pattern was demonstrated that correlated the presence of rock art with the physical character or orientation of the shelters. Localities at Kakaho with traditional histories and place names were marked, but not exclusively so. The visual orientation
to *maunga tapu* was not consistent and to the extent that they were noted, acoustics that would undoubtedly have been noticed by people at Umukuri bluff are not exclusive to the named and most intensively marked sites. The Umukuri bluff (T17/23), SP21-8 at the Opihi riverside bluff and the Taniwha Shelter (SP21-3) all have a quantum of rock art that suggests they were places of particular marking significance but this is not readily demonstrated. The size of the shelters and large compositions within each may amplify the apparent concentration of marking, and relative to their size other smaller shelters are also intensively marked.

A few historic references to ochre marks elsewhere may suggest *kōkōwai* daubs indicate *tapu* associated with localities, but this is not demonstrated by consistent patterns at Kakaho. *Kōkōwai* was used to elaborate petroglyph masks and was applied throughout a shelter linked to a *tohunga*. However, it is also found both as small marks and elaborate patterns in nearby shelters that have no known histories. It is speculated that a series of daubs under Te Weri Pā may mark the *tapu* location of a latrine but the surrounding features are not sufficiently understood and other examples that may show a consistent pattern of marking such localities are not known.

The varied distribution of *kōkōwai* and masks at Kakaho, and of taniwha, red *tiki* and written names at Opihi shows that rock art motifs were employed in various ways. The few ethnohistorical accounts of North Island *kōkōwai* applications supports this, as does consideration of written names applied in other Māori art. The use of such script in the wider cultural contexts of *tā-moko* and *whare* carvings shows a special regard for the written name as a graphic extension of representations of ancestors and *whakapapa* that are associated with personal identity. The application of the names at Opihi almost certainly reflected or established an association between the named people and that place. Perhaps applied in conjunction with *tapu* removal or indicating the place was safe, the bold marking noted connections to the place but without impinging on earlier rock art.

Arising from the variable use of marking forms and motifs, patterning that may be indicative of particular associations is not likely to be recognised at the scale of the study areas investigated. Southern Māori rock art is recognised as a widespread practice and the motifs from Kakaho are also shown to be part of practice that was widely spread across the central North Island. However, the detailed data of the settings of the different motif use at the smaller of Chippindale’s scales are not usually well documented within the current recording systems (Chapter 2). As a result, the different uses of motifs at regional scales are not able to be
correlated with particular features and sufficiently evaluated as to the presence of patterns relevant to the recognition of tikanga-ā-wāhi.

### 11.3 Archaeological Deposits

Given the state of preservation of archaeological deposits and features across the study areas, drawing associations between ground deposits and parietal art is negated in most circumstances. The variability in the rock art is not matched by that in the surrounding ground deposits at either Kakaho or Opihi. This is directly attributable to erosion with the process more advanced at Opihi. As evident at Kakaho, the shelter floors typically have thin surfaces that include modern organic material and very sparse residual cultural material in secondary deposition. The palimpsest character of the floor surfaces is attributable to mixing of the deposits by stock and feral animals. The main indicator of human occupation in the ground deposits are small fragments of FCR in eroding blackened sand in the shelter foregrounds and larger rounded umu stones that have eroded further downslope. In two cases (T17/57 and T17/66), the pattern is similar but with deposit from elsewhere also eroding into the shelter foregrounds. The result is that surviving residues of cultural material about the shelters look the same regardless of the presence or not of rock art.

The pattern is slightly different at the Umukuri bluff where recent eroding sand has capped a layer of blackened sand containing cultural material. The FCR, obsidian artefacts and flecks of ochre are in secondary deposition, probably dispersed by water wash across the site. This parallels the processes evident in the archaeological excavations and observed in a track cutting at the eastern end of SP21-8. These examples show that the archaeological deposit at the large bluff sites is not necessarily representative of different activity at those locations compared to shelters, but rather reflects different preservation due to the form and shape of the spaces.

Most of the Opihi shelter floor surfaces have been completely eroded exposing culturally sterile bases of clay, rubble or bedrock. The remains of eroded umu at three sites, two of which were only exposed by recent road cutting, show a similar pattern to that evident at Kakaho. Given this, like at Kakaho, most of the Opihi rock art shelters probably had some deposit around them in the past, with the present difference attributable to a longer period of deforestation and, particularly, a century more exposure to stock. The notable exceptions of surviving intact features at Opihi are two umu that were dug into the ground and covered by eroding colluvium. The circumstance of their intact preservation is not typical.
Based on the evidence at Kakaho it is suggested that umu were generally made outside of the shelters, but this cannot be shown to reflect solely a cultural separation of cooking from sleeping or otherwise tapu areas rather than a practical concern for fires in the confined shelter spaces. The exceptional example at Opihi of in-situ deposit in immediate proximity to a particular rock art figure is the small umu near a large red tiki at SP21-8, but a clear association is not demonstrated. The oven could match archaeological expectations of an umu for either subsistence activity or a specific ritual, each with differing implications in terms of tikanga-ā-wāhi, and the visibility of the rock art at the time is uncertain.

In contrast, a strong contextual relationship can be demonstrated between the in-situ buried obsidian artefacts and rock art at T17/66. This is based on the restricted spatial concentration of both deposited artefacts and rock art in the same small area of a large shelter. That spatial association is strengthened by inter-site observations made in the sourcing of obsidian and interpretation of facial masks as representations of ancestors. It is known ethnographically that utilitarian items used in ritual practices were treated as tapu and that tapu artefacts were buried. This aligns with an interpretation that the reddened cores, probably stained with kōkōwai during handling, were used in such activity. In large part this scenario is archaeologically demonstrated by the distinct colouring of the sand in which the artefacts were deposited and the fact that the feature remained undisturbed by adjacent rabbit burrowing.

The single example from T17/66 among the rock art and other shelter sites examined at Opihi and Kakaho, demonstrates that the action necessary to demonstrate tikanga-ā-wāhi is possible where preservation occurs and is observed across Chippindale’s spatial scales. It also emphasises that in the case of most shelters the archaeological remnants necessary to demonstrate contextual associations are not preserved. Comparison of the archaeological remains in the study areas at the kilometre scale provides an understanding of the preservation issues and their impact on understanding of the wider archaeological contexts.

11.4 Comparison of the Archaeological Contexts

If any of the rock art in the study areas dates to an early period in Māori settlement of New Zealand, then its archaeological context has changed through time. How this, and so how tikanga-ā-wāhi is understood is affected by issues in the preservation of the archaeological record.

Since the initial occupation by Māori the districts about each study area have been subject to continual anthropogenic change. The initial bush clearance around Opihi was probably part of
the IBP although the availability of podocarps, possibly relics from the IBP, and timber for an early 20\textsuperscript{th} century house suggest some bush remained in the gully or nearby. The early loss of moa and other bush birds created new environmental conditions and resource opportunities in the district, particularly with the increased availability of \textit{tī kōuka} and weka. Archaeological evidence shows Opihi was occupied at least sometime between the 15\textsuperscript{th} and 17\textsuperscript{th} centuries and after the mid-17\textsuperscript{th} century when those resources were likely available.

The clearance of forest around Taupō situated Kakaho at the forest edge with trails over open ground to the east and the avifauna rich Pureora Forest to the west. Local conditions amenable to gardening appear to have been a factor in the bush clearance further up the stream in the 19\textsuperscript{th} and 20\textsuperscript{th} centuries. Widespread use of the shelters from the late pre-European period is shown archaeologically by the common presence of obsidian artefacts and radiocarbon dating of charcoal recovered from eroded fire features.

Evidence was not found that links to the early occupation of each area noted in local traditions but environmental changes did not limit the presence of people at the localities. Rather, it appears that people used the available local resources according to the different environmental conditions although this is not so clearly demonstrated archeologically. There is no evidence of moa hunting or early forest fowling at Opihi. The earliest evidence of Māori occupation in the archaeological deposit is a probable \textit{umu tī}. Similarly, there is no evidence of forest fowling and very limited evidence of gardening at Kakaho even though the local histories emphasise the importance of those activities in the occupation of the area into the early 20\textsuperscript{th} century. This highlights the relative archaeological visibility between rock art and evidence of other cultural activity. This is most evident in the case of Kakaho.

\textbf{11.4.1 Archaeological Preservation at Kakaho}

Being positioned on rock formations, the rock art sites have not been extensively developed. They are located on bluff faces from which land modifications stop short as shown by the bulldozing at Umukuri bluff (and paralleled at SP21-8 at Opihi), or shelters mostly at the top of hillslopes where modifications are typically on the open land below. In contrast, the areas of open land below the rock art sites are modified by farming and road developments. As a result indications of Māori cultural activity, probably associated with gardening, that were visible to Fletcher in 1996 were no longer identifiable by 2013. Some of the recorded features probably relate to the post-European Māori settlement of the valley given the \textit{pā} was occupied in the European colonial period and the historic accounts of gardening at Umukuri. Vegetation has a similar impact on the archaeological visibility in areas that have returned to bush or forestry.
Fewer hollows, possibly related to pits, are recognisable in the bush below Te Weri Pā than were noted by Fletcher in the 1990’s, and on the pā itself only a few pit and terrace features are identifiable under the scrub and pine cover. Some recorded sites are now inaccessible due to the dense vegetation cover. Remnants of the cultural features may still survive but they are substantially masked in both settings by the impacts of modern land management decisions. Given these circumstances, the rock art sites and other occupied shelters have the appearance of being small locations isolated from other settlement activity. Without reference to historic accounts, archeologically demonstrating how the rock art is situated within the wider archaeological context is confounded by the loss of the surrounding context.

The peripheral appearance of the rock face and shelter sites is amplified by the minimal surviving deposits. At the shelters themselves, the foregrounds of soft volcanic sand are subject to farmland erosion, exacerbated by stock trampling, or to revegetation by forest. This makes evidence of cultural activity that occurred outside the shelters prone to loss. *Umu* that date from the late pre-European period are potentially the most recognisable ground features about the shelters of Kakaho but are represented only by residual eroding deposits. For whatever reason, these fires were positioned outside the shelters and so were located in the parts of the sites prone to erosion. It is uncertain whether the thin palimpsest surfaces inside the shelters ever had more substantial deposits, however, any such cultural material was prone to being kicked out of the shelters by trampling and the sparse surviving residues, mostly small stone items, are in secondary deposit mixed by feral animals in the bush and particularly by stock on the farmland. Given the preservation issues of the ground deposits, the rock art is the least disturbed and most visible part of the surviving archaeological record.

The overall result is that the rock face and shelters have the appearance of isolated or peripheral sites that were not used intensively, as may be expected of the archaeological remains of places used temporarily in the course of logistical mobility. However, the traditional information from Kakaho suggests that this was not solely the case. One shelter is described as having been lived in. Given the size of areas around the sites, people engaged in other activity such as gardening at Umukuri and those occupying Te Weri Pā would likely have known of the presence of rock art about those localities. However, the preservation issues at the various scales limit the scope to develop a comprehensive understanding of the archaeological context of the rock art and recognise patterns of the association within that that may inform tikanga-ā-wāhi.
11.4.2 Archaeological Preservation at Opihi

The example of Kakaho may help to identify processes at Opihi which appear to be similar but more advanced. Although the geologies are different, the loess and limestone sands about the shelters at Opihi are subject to similar erosion as the volcanic sands at Kakaho. Less archaeological deposit survives in the shelter floors at Opihi. In many cases the shelter floors have totally eroded, and where deposit does survive it is typically disturbed by trampling or in the case of SP21-8, water washing across the surface. As with the floors, most of the foregrounds of the rock art shelters at Opihi are significantly eroded. The very sparse fragmentary cultural evidence that does survive is not readily visible at most sites, and is largely made up of eroded fragments of shell and stone or umu residues. In comparison to the widespread blackened sands at Kakaho that indicate more recent deforestation and farm burning, only sparse charcoal flecks in colluvium were observed at Opihi with no evidence of more widespread fire events. The umu excavated at SP21-8 and in the front of the gully sinkhole were recognisable as discrete fire events.

Based on the example of Kakaho, it can be expected that more of the Opihi sites originally had substantial deposits in and beyond the shelters reflective of other activity. The large umu, probably an umu ā, in front of the sinkhole in the gully at Opihi provides an example of such evidence. Given the location of the gully near to a traditional trail, and only about 25 km inland from known coastal settlements, it is likely that the area was utilised regularly throughout the course of Māori occupation in South Canterbury. This is especially so if use of the renewable resource of tī kōuka was a part of the activity that occurred. It is unlikely then that the presence of the umu reflects an exceptional event or exceptional activity, but instead it is an exceptional example of preservation.

This is not to say that the Opihi study area was settled as intensively as the known 19th century occupation about Kakaho. Rather, the comparison allows a better recognition of the formational processes and how these have impacted on what is archaeologically discernible. Compared to the more recent forest clearance and advent of farming at Kakaho, the conversion of large areas of South Canterbury from forest to open land in the IBP made it immediately convertible to sheep runs when Europeans settled the district over 150 years ago. As a result, the shelters, the foregrounds and surroundings were subject to the impact of stock for a century longer than those at Kakaho. It also led to a longer duration of Ngāi Tahu separation from the lands about the rock art sites. This has resulted in traditional knowledge of the localities receding and becoming less topographically precise in comparison to Kakaho.
In the area around Kakaho specific tapu sites are known such as the nearby ritual posts and two maunga tapu are visible from some sites. There are accounts of specific named resources, such as birding trees. In general, though, histories focus on associations of particular people to the places rather than describing the physical details of the localities. Despite the rich accounts of the people associated with the shelters around Kakaho, and including Taumaihi-o-Rangi and Umukuri, there is no mention of rock art found in the records researched. The accounts relating to the rock art marked localities do not allow the markings to be attributed to specific people, but in both study areas it is clear the figures likely had changing audiences over time. The traditional histories outline shifting communities in response to tribal conflict and the impacts of European colonisation, but also show aspects of tribal continuity. Southern Māori considered parts of their landscape as particularly tapu, as shown by Te Maiharoa’s work in removing tapu from places about South Canterbury. The details of those localities and recorded mahinga kai are not, however, as well preserved compared to traditional information still known and recorded at Kakaho.

What is similar between the two locations is how preservation of the overall archaeological record significantly limits the scope to identify and demonstrate patterns of association between rock art and surrounding features. It also shows that it is not simply a matter of the traditional knowledge having faded. The result is the same even though the histories for Taumaihi-o-Rangi relate to a very specific locality while the history of Te Maiharoa visiting places is geographically more generic.

As the application of Chippindale’s multi-scalar framework at both Opihi and Kakaho demonstrates, preservation across the spatial scales is necessary to identify patterns indicative of tikanga-ā-wāhi on the one hand, and test them against alternative explanations on the other. Both the character of traditional knowledge and the preservation of ground deposits confound the ability to make matches with the rock art which is the most visible surviving component of the archaeological record in both study areas. Given this, there is limited scope to apply insights from a traditional Māori world to the interpretation of patterns of association, and so demonstrate if and how tikanga-ā-wāhi was a contributing component of the formational processes.

There are exceptions. An association between the small umu and red tiki figure on the riverside bluff at Opihi may be reinvestigated if pigment testing allows the uncertainty of past visibility of the rock art to be overcome. A strong association indicative of tikanga-ā-wāhi is demonstrated at Kakaho with the deposition of artefacts below rock art T17/66. These examples emphasise spatial arrangements for which explanation is informed by ethnohistorical information. The
interpretation of the *pou* at Umukuri and the placement of names about other rock art in Opihi, particularly in a band across SP21-4, also involve the spatial arrangements but draw more extensively on reference to other historic use of similar motifs to suggest *tikanga-ā-wāhi*. A similar interpretation for the placement of greetings and a probable karakia in the gully at Opihi draws directly from the messaging understood by reading those scripts and their placement in the shelters generally. This handful of examples where *tikanga-ā-wāhi* can be suggested, and in one case arguably demonstrated, all merge recognition of spatial attributes at more than one of Chippindale’s spatial scales, and draw on ethnographic insights to varying degrees. The interpretations blend observations made through both formal and informed approaches and show that *tikanga-ā-wāhi* can be proposed as contributing to the archaeology in some cases.

The few examples identified highlight an issue in relation to the HNZPT Act 2014 in that the clear pattern that reflects a ‘scientific’ case required for legislative protection is not generally able to be made. This, however, reflects taphonomic issues rather than necessarily an absence of *tikanga-ā-wāhi*. This is to say, *tikanga-ā-wāhi* may have been a factor in production, subsequent viewing and activity about other rock art but it cannot be archaeologically demonstrated in most cases. The variability that is evident in the distribution of the rock art and within the arrangements of particular motifs also limits the generalisation to other rock art localities of the few observations of *tikanga-ā-wāhi* that can be made. The results from the investigation of the two different settings at Opihi and Kakaho, two of the most extensive rock art areas in New Zealand, are equivocal because the investigative approach requires preservation at multiple scales. Based on the study areas, it appears that in New Zealand this will be hard to find. This suggests that beyond the existing observations, the subject cannot yet be widely approached through landscape analyses with an emphasis on Māori rock art.

This is a significant result when considered in relation to the question of whether the full potential of New Zealand’s legislated protection for archaeological heritage may be extended to a wider range of places, especially beyond the confines of *pā* and *kāinga*. As argued in Chapter 1, belief shaped by a Māori worldview is inherent in all range of Māori activity, so it should be considered an inherent aspect of the archaeological record. Belief should therefore influence evaluation of the archaeological significance at all sites. However, the investigations of Opihi and Kakaho show that the evidence of wider activity necessary to develop contextual associations and so see these beliefs in action is limited.

Rock art provides a particularly good case study for addressing this issue, partly because where it does survive it can be more readily identified than other indications of occupation beyond *pā* and
Discussion and Conclusions

kāinga. Without the surviving rock art, most shelters at Opihi and several at Kakaho would have little evidence of occupation, and their significance based on surviving archaeological deposit would therefore likely be minimal. However, the issue is really that there is limited preservation of the wider archaeological context and it is for this reason that the significance of the sites in relation to tikanga-ā-wāhi cannot be fully evaluated based on rock art sites alone. This illustrates a different basis for the tension in the archaeological assessment of Māori archaeological sites, than one based on a supposed incompatibility of Māori and ‘scientific’ approaches to the record.

11.5 Conclusion

11.5.1 Interpreting the Legislation

The legislation protecting New Zealand’s archaeological heritage requires balance between ontologically different perspectives which in turn leads to what is often perceived as a tension between traditional Māori and archaeological perspectives. As noted in Chapter 1, with regard to archaeological sites, the Māori Heritage Council intends “to ensure that knowledge of the whakapapa, kōrero, and mātauranga Māori surrounding such places sits alongside scientific assessments when heritage management decisions are being made” (NZHPT 2009:15). This suggests that Māori traditional knowledge of places is separate from and not within the scope of scientific evaluation. This dichotomises heritage perspectives, reflected in the view held by some archaeological practitioners (e.g., Pishief 2012:91, 102, 105). A different perspective may be that traditional Māori knowledge of the kind outlined above, much of which has a long history of scholastic scrutiny, provides an avenue to consider tikanga-ā-wāhi in the past. If so, it should form a relevant component of scientific assessments. Following the arguments of Insoll and others (Chapter 1), the whakapapa, kōrero, and mātauranga Māori reflect part of the conditions that gave rise to physical remains and are therefore not fundamentally separate from them.

At issue is whether the evaluation of traditional information in relation to Māori heritage places can be recognised as part of the ‘investigation by archaeological methods’. The HNZPT Act 2014 s6 (a) ii defines an archaeological site as a place that can provide evidence relating to New Zealand history through investigation by archaeological methods. There is however nothing in this definition that limits the kinds of archaeological methods that can be applied or that states such evidence must be of a physical nature. For example, archaeological evaluations of places that employ informed approaches by drawing on historic and cultural insights are within the scope of the Act.
Archaeological methods are not defined by the HNZPT Act 2014, but rather by Heritage New Zealand as the administering agency. This government body interprets ‘investigation by archaeological methods’ as:

… techniques used in the course of archaeological study to record, describe and investigate archaeological sites, such as manual and electronic surveys, visual inspections, site survey, mapping, surface collection, probing, augering, cleaning down existing exposed sections, test pitting, trenching, excavation and the removal of physical fabric and samples for laboratory analysis, post-exavation analysis and report writing.

(HNZPT 2015a:21)

This clarification of archaeological methods by which the Act is formally implemented limits archaeological methods to descriptive techniques that are very particular in focus. Although mapping and site survey might be applied at a broader scale, the remainder of the list clarifies that the evidence under consideration is perceived as discrete elements of physical matter.

Significantly, the historic and cultural evidence that may be relevant to developing the context of the physical evidence is seldom as geographically or temporally particular as the evidence to which the HNZ listed techniques apply. As shown in the rock art examples, the understandings derived from historic reference to traditional knowledge that have the potential to inform tikanga-ā-wāhi are generally not specific enough to correlate with the kinds of physical remains developed as ‘evidence’ through the application of the techniques listed by HNZ. This includes the kinds of information that the Māori Heritage Council indicates, reflecting the sentiments of Māori communities, should be considered alongside scientific assessments. Conversely, as noted in Chapter 1, HNZ considers that the assessments of Māori archaeological sites should be limited to the physical evidence, that which can be investigated through the kinds of techniques listed, and it states that authority conditions should be proportionate to this evidence. This situation is likely to further entrench the dichotomisation of the legislatively required Māori and archaeological contributions to the assessments of archaeological sites and so provide for ongoing tension between different expectations of what archaeological significance a place may have.

Part of the issue may result from the legislation directing the assessments to evaluate the ‘outward’ contribution the recoverable information or evidence makes to New Zealand history, rather than encouraging consideration of the broader range of contextual information that potentially contributes ‘into’ the archaeological evaluations of a place. Without that contextual information, and especially where the preservation of the physical fabric is limited, the scope to
see patterns of association is constrained. As shown in the case of historic research on Māori rock art compared to that of other Polynesian rock art, impoverished contextual information leaves archaeological assessments prone to competing assertions of rock art as the product of casual pastimes or ritual symbolism on one hand, and on the other constrains the correlation of data that may otherwise allow the role of tikanga-ā-wāhi in the formation of the physical fabric to be recognised.

Tension between perspectives based on Māori traditional knowledge and archaeology are widely seen as resulting from different cultural perspectives (Pishief 2012), but there is little written about how the evaluation of physical evidence impacts this issue. It is usefully brought into focus in recent public discussions surrounding the initial listing of some 3,600 sites of significance to Māori in Auckland Council planning documents. In the proposed Auckland Unitary Plan, the heritage value to local īwi of a listed site would be recognised and the impacts on that within a buffer zone around the site would require consideration when proposing land developments. Parts of the Auckland community expressed concern that this could cause extra costs, time delays and otherwise impinge on the scope of landowners looking to develop their private property (Democracy Action, November 2015; New Zealand Herald, July 2015). A focus of their critique was that the potential impact on landowners was unjustified in many cases as the continued ‘survival’ of the sites had not been proven in the listing process. The differences between these and īwi perspectives are particularly well illustrated in the proposed listing of a pā site on the Auckland waterfront, as reported by Cumming (2015) in the New Zealand Herald.

11.5.2 An Example of the Tension

On Onepu Whakatakataka (Hobson Point), local īwi listed the location of a pā associated with an important ancestor and battle in Ngāti Whātua history. The listed area covers part of Paritai Drive, Auckland’s premier real estate that overlooks the Waitematā Harbour. The modern residents argued the pā was ‘destroyed’, citing the NZAA site record form (N42/82), and quoting an archaeologist as saying the terraces had never been mapped and no features were recorded. The listing of the locality on the Council plan was argued by residents to therefore be inappropriate (Cumming 2015). It was also argued that if archaeological heritage does survive, provision for its protection was already in place under the HNZPT Act 2014 (Cumming 2015).

However, a counter view based on archaeological methods can also be argued. The general location of the pā is known and the hill on which it is situated remains. At Chippindale’s ‘kilometre scale’ the shape of the location and vistas of it from below or at sea may allow...
consideration of the monumentality of the pā or its strategic positioning, an ongoing discussion in the consideration of ritual in New Zealand archaeology (Rainbird 2011). View shed analysis and mapping of past resource areas may allow consideration of the location in relation to economic and social networks in the area. This could contribute to the further archaeological interpretation of the Tūpuna Maunga, Auckland’s volcanic cones among which Onepu Whakatakataka is situated. Indeed, the archaeology of the maunga as a group formed part of the argument that they should be collectively included in a World Heritage listing (Department of Conservation 2006). Viewed differently, the wider archaeological heritage of the Tūpuna Maunga may contribute contextual information to the assessment of Onepu Whakatakataka. The example of the pā and other ‘destroyed’ sites of significance to Māori listed by Auckland Council may be analogous to the dispersed obsidian flakes at Kakaho. Each was in secondary deposition and therefore individually of little interpretative significance. But collectively they contribute important contextual information supporting the assessment of a rare recorded ritual deposit in association with Māori rock art.

To be clear, this is a different argument from the varying sentiment Māori and other parts of the community may have for heritage places. Rather it is an example of how shifting the scale of investigation allows the physical fabric of a place to “provide, through investigation by archaeological methods, evidence relating to the history of New Zealand” (HNZPT Act 2014, s6 (a) ii). It remains within the scope of the Act’s definition of an archaeological site, but arguably not that of HNZ’s interpretation which relates to the particularistic argument of archaeologists and residents regarding whether the site was ‘destroyed’.

As with Te Weri Pā, the strategic positioning, surrounding resources and socio-political significance of a pā are the kinds of contextual information important to archaeological assessments that Māori traditional knowledge is likely to be able to contribute to. As with the lack of mention of rock art in named shelters in the Kakaho histories, the details of pits and terraces on a pā are not likely to be remembered. Yet these are the features that are afforded privileged protection if they survive, and their absence is used to determine that the place is destroyed within the local authorised heritage discourse (see Pishief 2012) surrounding archaeological assessment.

11.5.3 Identification of the Issue

On the surface, the Auckland example may reflect a tension between ontologically disparate perspectives of heritage sites by Māori as informed by traditional values and the wider community shaped by expectations from the authorised heritage discourse (e.g., Taipari, quoted
in Cumming 2015 and Anon. 2015). However, the issue is not only ontological. As shown by the investigations of rock art locations at Kakaho and Opihi, part of the problem is the preservation of the archaeological record. Without preservation across the scales of Chippindale’s framework, patterns of associations that are indicative of tikanga-ā-wāhi are difficult to demonstrate. It is not that Māori beliefs contributed little to the formation of the archaeological record, but rather that demonstrating how they contributed to the physical remains requires specific circumstances of preservation across multiple scales. If the Kakaho and Opihi study areas are typical, the investigations suggest that such circumstances may rarely exist. At such places a focus on the particularistic elements of archaeology alone at individual sites does not generally facilitate recognition of patterns of association that allow the actions of people in the past as influenced by belief to be archaeologically recognised.

Based on observations in the study areas, rock art sites often appear to be isolated as a result of the limited understanding of what may have surrounded them. Applying Chippindale’s framework across a greater number of study areas may allow the recognition of more examples where tikanga-ā-wāhi can be recognised about rock art sites, and so further develop the contextual understanding of a range of Māori rock art localities. However, doing so requires a more extensive endeavour than that applied to the two areas of rock art investigated. Such an endeavour is not simply a case of drawing from the existing record. As discussed in Chapter 2, the information bases for Māori rock art are not yet developed to provide the kinds of detailed information to allow the contexts of different sites to be fully compared at the range of scales that are required.

Interpretations of tikanga-ā-wāhi that can be made are strengthened by drawing on understandings of the wider contexts in which the localities are situated. However, simply expanding views of landscapes to a point where Māori and the wider community perspectives of archaeological heritage may be accommodated in a unified interpretation is also unlikely to resolve the tension. As shown by the examples where tikanga-ā-wāhi might be indicated, and in one case demonstrated in relation to rock art, it is by combining insights from across the various spatial scales that the greatest scope for interpretation is provided. The building blocks at smaller spatial scales are important to substantiating the archaeological observations made at larger scales.

It is also particularly evident from the studies at Kakaho and Opihi that developing the contextual information is not simply a catalogue of features at different scales, but rather involves understanding the formational processes that allow recognition of what has given rise to
any patterning that may be observed. For example, the locations in the study areas show patterns of similar shelter floor characteristics regardless of the presence of rock art but those patterns are attributable to a combination of various processes reflecting different human and environmental interaction through time. Other examples include the localised intra-site positioning of the rock art in places that have subsequently been subject to differential weathering resulting in the retouching of figures to enhance photograph recording, umu placed in ground that is prone to erosion and stock trampling, and modern land use decisions masking surrounding cultural features at the kilometre scale.

Applying Chippindale’s framework brings attention to the different formational processes that result in the observable archaeological record and so clarifies the scope for and strength of interpretations that can be made from that record. This provides a basis for evaluating what is recognisable, what is not recognisable and why, and so what may be learned of the features individually and collectively. Insights drawn at one spatial scale may contribute to recognition of patterns at another, or make explicable the absence of patterns that might otherwise be expected. As demonstrated in the investigation of tikanga-ā-wāhi at rock art sites, this is particularly important for evaluating the contexts of smaller sites that are not part of larger settlement complexes. A refocusing on the formational processes to understand what may and may not be observable when working across the spatial scales may allow a clearer understanding of how the record formed and where different contextual information, including various insights from whakapapa, korero and mātauranga Māori might be relevant.

This may help the development of a better understanding of if and how tikanga-ā-wāhi can be factored into archaeological investigations, assessments and, importantly, the expectations regarding standards for the evidence required. However, the current implementation of the legislation focuses attention on individual sites as units based on the presence of discrete areas of physical evidence. Adherence to this interpretation of the legislation leaves the tension in the assessment of Māori archaeology unresolved and the recognition of past Māori belief as a part of the archaeological record under-recognised. That the tension should be resolved is clear. The amendments to the archaeological provisions in the revised HNZPT Act 2014 were aimed at strengthening the input of Māori in archaeological assessments and ensuring that decision making recognised the interest of property owners. The results from the application of Chippindale’s multi-scalar framework to the rock art at Kakaho and Opihi have allowed at least part of the basis of the tension to be better understood. With the problem better identified pathways to resolving the issue may be discussed in the service of Māori archaeological heritage.
Appendices

Appendix 1 - Kakaho Obsidian Artefacts, pXRF analysis

Element values are averages of two analyses. Prepared for Gerard O’Regan by Andrew McAlister, 2013.

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<td>62</td>
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</tr>
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<td>31</td>
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<td>112</td>
<td>42</td>
<td>184</td>
<td>23</td>
<td>Taupo?</td>
</tr>
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</table>

All values in parts-per-million (ppm); ± = estimated analytical uncertainty (ppm)
Discriminant function analysis of reference specimens and Kakaho obsidian artefacts, excluding #30 and ten small artefacts. Seven elements are used (Pb, Th, Rb, Sr, Y, Zr and Nb), all log10-transformed to help equalize group variances. Of the reference specimens 99.5% were classified correctly. One reference sample was misclassified, being a specimen from Hahei assigned to the
Rotorua group. Leave-out-one-cross-validation resulted in 98.4% of specimens being correctly classified, with two additional misclassifications being a specimen from Te Ahumata that was assigned to Awana, both on Great Barrier Island, and a specimen from Whangamata assigned to Huruiki. One artefact from Kakaho was assigned to Tuhua (Mayor Island), and the remainder to Taupo.
# Appendix 3 – Kakaho Obsidian Artefact List

*Prepared with the assistance of Rebecca Phillipps.*

<table>
<thead>
<tr>
<th>#</th>
<th>T17/--</th>
<th>Location Comment</th>
<th>Stone Description</th>
<th>Category</th>
<th>Artefact Description</th>
<th>Retouch or use wear</th>
<th>Maximum Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>T17/66</td>
<td>Track surface</td>
<td>Black (grey at edge), spherelites</td>
<td>core</td>
<td>Multiple core; 1-50% cortex; flaked from various angles.</td>
<td>N</td>
<td>79.4 x38.2x32.1</td>
</tr>
<tr>
<td>02</td>
<td>T17/66</td>
<td>Top at 8cm below surface, in front of rock art</td>
<td>Black (grey at edge), spherelites</td>
<td>core</td>
<td>See separate description below.</td>
<td>Y</td>
<td>59.4x44.5x30.6</td>
</tr>
<tr>
<td>03</td>
<td>T17/66</td>
<td>Top at 7cm below surface, in front of rock art</td>
<td>Black (grey at edge), spherelites</td>
<td>tool</td>
<td>See separate description below.</td>
<td>Y</td>
<td>47x39.7x23.7</td>
</tr>
<tr>
<td>04</td>
<td>T17/66</td>
<td>Surface of shelter floor</td>
<td>Grey banded</td>
<td>flake</td>
<td>Distal flake; hinge termination; weathered surface one edge.</td>
<td>N</td>
<td>35.5x23.3x5.3</td>
</tr>
<tr>
<td>05</td>
<td>T17/66</td>
<td>Sq1, layer 1, sieve find</td>
<td>Grey banded</td>
<td>flake</td>
<td>Complete flake; very small; 1-50% cortex.</td>
<td>N</td>
<td>14.7x9.5x2.5</td>
</tr>
<tr>
<td>06</td>
<td>T17/66</td>
<td>Sq2, surface, sieve find</td>
<td>Grey</td>
<td>flake</td>
<td>Angular fragment.</td>
<td>N</td>
<td>14.9x8.5x2.2</td>
</tr>
<tr>
<td>07</td>
<td>T17/66</td>
<td>Sq2, 3cm below surface</td>
<td>Grey banded</td>
<td>flake</td>
<td>Angular fragment; possible wear one edge; 1-50% cortex.</td>
<td>Y?</td>
<td>23.2x14.5x6.1</td>
</tr>
<tr>
<td>08</td>
<td>T17/66</td>
<td>Sq4, deposit 6-12cm below surface, sieve find</td>
<td>Black (grey at edge)</td>
<td>flake</td>
<td>Angular fragment; possible retouch/use wear one edge.</td>
<td>Y?</td>
<td>27.2x13.9x3.3</td>
</tr>
<tr>
<td>09</td>
<td>T17/57</td>
<td>3.5cm below surface</td>
<td>Grey</td>
<td>flake</td>
<td>Complete split; old platforms indicate core rotation.</td>
<td>N</td>
<td>15.9x11.9x6.3</td>
</tr>
<tr>
<td>10</td>
<td>T17/57</td>
<td>Layer 2 sieve find</td>
<td>Grey</td>
<td>flake</td>
<td>Distal flake; small; no cortex.</td>
<td>N</td>
<td>16.9x6.8x3.9</td>
</tr>
<tr>
<td>11</td>
<td>T17/57</td>
<td>Layer 2</td>
<td>Grey banded</td>
<td>tool</td>
<td>Complete flake; trimming scars on platform; wear/post-depositional damage on convex edge; retouched along a lateral margin; adjoining retouch on corner of platform possibly shaping to a point.</td>
<td>Y</td>
<td>50.9x32.7x11.2</td>
</tr>
<tr>
<td></td>
<td>T17/--</td>
<td>Location Comment</td>
<td>Stone Description</td>
<td>Category</td>
<td>Artefact Description</td>
<td>Retouch or use wear</td>
<td>Maximum Dimensions (mm)</td>
</tr>
<tr>
<td>---</td>
<td>--------</td>
<td>-----------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>12</td>
<td>T17/57</td>
<td>Layer 2</td>
<td>Black (grey at edge)</td>
<td>tool</td>
<td>Scraper (probable); distal flake with hinge termination; steep but irregular retouch.</td>
<td>Y</td>
<td>23.5x20.2x4.7</td>
</tr>
<tr>
<td>13</td>
<td>T17/57</td>
<td>From soil sample in lab</td>
<td>Black (grey at edge)</td>
<td>tool</td>
<td>Scraper; flake/reduced core; ridges both sides; very steep retouch on two edges.</td>
<td>Y</td>
<td>25.4x21.4x10.3</td>
</tr>
<tr>
<td>14</td>
<td>T17/57</td>
<td>From soil sample in lab</td>
<td>Black (green at edge)</td>
<td>flake</td>
<td>Angular fragment; use wear on three edges; possible re-sharpening on one edge.</td>
<td>Y</td>
<td>26.4x17x4.5</td>
</tr>
<tr>
<td>15</td>
<td>T17/57</td>
<td>Layer 2 sieve find</td>
<td>Black (grey at edge)</td>
<td>core</td>
<td>Multiple core; multiple platform directions indicate rotation; 1-50% cortex.</td>
<td>N</td>
<td>25.9x16.6x11</td>
</tr>
<tr>
<td>16</td>
<td>T17/54</td>
<td>Surface collection, outside dripline</td>
<td>Grey</td>
<td>flake</td>
<td>Angular fragment; proximal, distal and one lateral edge broken off; no cortex.</td>
<td>N</td>
<td>22x9x3.1</td>
</tr>
<tr>
<td>17</td>
<td>T17/54</td>
<td>Surface collection, inside dripline</td>
<td>Grey, spherelites</td>
<td>flake</td>
<td>Complete split; dorsal flakes scars.</td>
<td>N</td>
<td>19x10.4x3.4</td>
</tr>
<tr>
<td>18</td>
<td>T17/54</td>
<td>5-7cm below surface</td>
<td>Grey</td>
<td>flake</td>
<td>Angular fragment; section of a distal flake; very thin.</td>
<td>N</td>
<td>14.4x10.4x1.5</td>
</tr>
<tr>
<td>19</td>
<td>T17/54</td>
<td>5-7cm below surface</td>
<td>Grey</td>
<td>flake</td>
<td>Distal flake.</td>
<td>N</td>
<td>14.9x9.9x5.8</td>
</tr>
<tr>
<td>20</td>
<td>T17/54</td>
<td>5-7cm below surface</td>
<td>Grey</td>
<td>flake</td>
<td>Complete flake; very small; crushed platform from manufacture.</td>
<td>N</td>
<td>5.7x5.2x0.8</td>
</tr>
<tr>
<td>21</td>
<td>T17/54</td>
<td>15-25cm below surface, sieve find</td>
<td>Grey</td>
<td>flake</td>
<td>Proximal flake; crushed platform; very thin so missing distal end could be post-depositional or use.</td>
<td>N</td>
<td>10.6x7.6x0.7</td>
</tr>
<tr>
<td>22</td>
<td>T17/23</td>
<td>Turf</td>
<td>Black, banded (grey at edge)</td>
<td>tool</td>
<td>Scraper; broken flake (complete split) with steep retouch and use wear.</td>
<td>Y</td>
<td>25.4x15.7x5.1</td>
</tr>
<tr>
<td>23</td>
<td>T17/23</td>
<td>Layer 1</td>
<td>Grey</td>
<td>flake</td>
<td>Complete flake; very thin; edge of distal termination broken but most of flake present.</td>
<td>N</td>
<td>13.6x11.6x1.9</td>
</tr>
<tr>
<td>24</td>
<td>T17/23</td>
<td>Layer 1</td>
<td>Grey</td>
<td>flake</td>
<td>Complete split; 1-50% cortex</td>
<td>N</td>
<td>13.6x12.9x10.9</td>
</tr>
<tr>
<td></td>
<td>T17/---</td>
<td>Location Comment</td>
<td>Stone Description</td>
<td>Category</td>
<td>Artefact Description</td>
<td>Retouch or use wear</td>
<td>Maximum Dimensions (mm)</td>
</tr>
<tr>
<td>---</td>
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<td>----------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<td>-------------------------</td>
</tr>
<tr>
<td>25</td>
<td>T17/23</td>
<td>Layer 5</td>
<td>Black (grey at edge)</td>
<td>tool</td>
<td>Scraper; complete flake; one side steep retouch as a scraper; another edge gentle retouch possibly bluntening for grip or attempted sharpening; distal end steep scraper retouch; no cortex.</td>
<td>Y</td>
<td>25.9x20.3x7.1</td>
</tr>
<tr>
<td>26</td>
<td>T17/23</td>
<td>Layer 5</td>
<td>Black (grey at edge)</td>
<td>core</td>
<td>Multiple core; 1-50% cortex (note cortex is weathered flaked surface).</td>
<td>N</td>
<td>27.2x19.8x18.2</td>
</tr>
<tr>
<td>27</td>
<td>T17/23</td>
<td>Layer 5</td>
<td>Black (grey at edge)</td>
<td>flake</td>
<td>Distal flake; very small; 1-50% cortex.</td>
<td>N</td>
<td>9.4x3.8x3.3</td>
</tr>
<tr>
<td>28</td>
<td>T17/23</td>
<td>Layer 5</td>
<td>Grey</td>
<td>flake</td>
<td>Complete; very small; chip from bottom; no cortex.</td>
<td>N</td>
<td>10.8x5.1x1.3</td>
</tr>
<tr>
<td>29</td>
<td>T17/23</td>
<td>Layer 5</td>
<td>Grey</td>
<td>flake</td>
<td>Angular fragment; possible edge damage one edge.</td>
<td>Y?</td>
<td>33x30.9x9.2</td>
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<tr>
<td>30</td>
<td>T17/23</td>
<td>Surface find</td>
<td>Black, spherelites</td>
<td>flake</td>
<td>Angular fragment; split medial section; considerable cortex on dorsal surface; 50-99% cortex.</td>
<td>N</td>
<td>18.2x16.6x12.8</td>
</tr>
<tr>
<td>31</td>
<td>T17/23</td>
<td>Layer 5</td>
<td>Grey</td>
<td>flake</td>
<td>Distal flake; very small; no cortex.</td>
<td>N</td>
<td>8.9x6.5x1.9</td>
</tr>
<tr>
<td>32</td>
<td>T17/53</td>
<td>3.5cm below surface</td>
<td>Black (grey at edge)</td>
<td>tool</td>
<td>Proximal flake; edge wear just below platform and at broken distal end; old platform on dorsal surface.</td>
<td>Y</td>
<td>24.1x19.8x10.5</td>
</tr>
<tr>
<td>33</td>
<td>T17/53</td>
<td>Surface find (historic)</td>
<td>Black, banded (grey at edge), spherelites</td>
<td>tool</td>
<td>Complete flake; use wear on distal edge; 1-50% cortex.</td>
<td>Y</td>
<td>33.9x32.3x16</td>
</tr>
<tr>
<td>34</td>
<td>T17/53</td>
<td>Surface find (historic)</td>
<td>Dark grey (grey at edge)</td>
<td>tool</td>
<td>Complete flake; use wear and possible retouch on platform and one lateral margin; use wear-retouch on other concave lateral margin.</td>
<td>Y</td>
<td>31.3x20.7x6.9</td>
</tr>
<tr>
<td>35</td>
<td>T17/66</td>
<td>From soil sample Layer 1 in lab</td>
<td>Dark grey</td>
<td>flake</td>
<td>Very small</td>
<td>N</td>
<td>4.8x5.3x1.3</td>
</tr>
<tr>
<td>36</td>
<td>T17/66</td>
<td>From soil sample 4.5-6cm below surface in lab</td>
<td>Light grey (translucent)</td>
<td>flake</td>
<td>Very small</td>
<td>N</td>
<td>7.3x5.3x0.6</td>
</tr>
</tbody>
</table>
Description of Artefact 02

A large flake (78.5g); the original platform has become a new flaking platform with small flakes removed from the ventral surface; a large flake removed from the distal portion of the right lateral margin; edge damage at distal end is micro flaking/trimming more consistent with core preparation rather than use wear; ochre on cortical surface but not on any flaked surface suggests flaking is subsequent to ochre colouring; 1-50% cortical.

Description of Artefact 03

A large flake (41.9g); the bulb of percussion and platform removed by flaking shown by a hinge termination on the ventral surface that itself appears to have been micro flaked, possibly intended to remove a sharp edge; flakes scars on dorsal surface could be from previous flaking of the parent core or subsequent flake removal; distal edge damage is very steep, rugged and crushed suggesting use as a scarper; 1-50% cortical; ochre covered cortical surface, with ochre in the distal edge damage suggests tool use prior to further flake removal; the only other ochre on a flake surface is a speck (<1mm) on central flat of the now proximal end.
Appendices

Appendix 4 - Radiocarbon Dates

Prepared with the assistance of Fiona Petchy.

<table>
<thead>
<tr>
<th>Site</th>
<th>Material</th>
<th>Source</th>
<th>Waikato No.</th>
<th>$\delta^{13}C$</th>
<th>$F^{14}C%$</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP21-3</td>
<td>bracken root</td>
<td>fire feature</td>
<td>37506</td>
<td>-23.3 +/- 0.2</td>
<td>95.4 +/- 0.2</td>
<td>382 +/- 20 BP</td>
</tr>
<tr>
<td>SP21-3</td>
<td>kānuka charcoal</td>
<td>colluvium</td>
<td>37507</td>
<td>-24.1 +/- 0.2</td>
<td>91.0 +/- 0.2</td>
<td>761 +/- 20 BP</td>
</tr>
<tr>
<td>SP21-3</td>
<td>long lived plant</td>
<td>fire feature</td>
<td>37508</td>
<td>-24.5 +/- 0.2</td>
<td>89.5 +/- 0.3</td>
<td>891 +/- 28 BP</td>
</tr>
<tr>
<td>SP21-4</td>
<td>kānuka charcoal</td>
<td>colluvium</td>
<td>37510</td>
<td>-24.5 +/- 0.2</td>
<td>82.6 +/- 0.2</td>
<td>1538 +/- 20 BP</td>
</tr>
<tr>
<td>SP21-4</td>
<td>moa eggshell</td>
<td>colluvium</td>
<td>37511</td>
<td>-14.4 +/- 0.2</td>
<td>27.8 +/- 0.2</td>
<td>10,282 +/- 45 BP</td>
</tr>
<tr>
<td>SP21-8</td>
<td>hebe charcoal</td>
<td>fire feature</td>
<td>37509</td>
<td>-26.0 +/- 0.2</td>
<td>97.8 +/- 0.3</td>
<td>180 +/- 22 BP</td>
</tr>
<tr>
<td>SP21-8</td>
<td>hebe charcoal</td>
<td>fire feature</td>
<td>37523</td>
<td>-27.1 +/- 0.2</td>
<td>97.5 +/- 0.2</td>
<td>204 +/- 20 BP</td>
</tr>
<tr>
<td>SP21-8</td>
<td>black pigment</td>
<td>rock art</td>
<td>36523</td>
<td>-27.1 +/- 0.2</td>
<td>97.5 +/- 0.2</td>
<td>204 +/- 20 BP</td>
</tr>
<tr>
<td>SP21-8</td>
<td>black pigment</td>
<td>rock art</td>
<td>36524</td>
<td>nil</td>
<td>81.9 +/- 0.3</td>
<td>1601 +/- 28 BP</td>
</tr>
<tr>
<td>T17/23</td>
<td>seed case</td>
<td>eroded fire</td>
<td>37517</td>
<td>-25.7 +/- 0.2</td>
<td>97.7 +/- 0.2</td>
<td>186 +/- 20 BP</td>
</tr>
<tr>
<td>T17/53</td>
<td>matai charcoal</td>
<td>eroded fire</td>
<td>37515</td>
<td>-27.8 +/- 0.2</td>
<td>95.8 +/- 0.2</td>
<td>347 +/- 20 BP</td>
</tr>
<tr>
<td>T17/54</td>
<td>pittosporum</td>
<td>eroded fire</td>
<td>37516</td>
<td>-27.5 +/- 0.2</td>
<td>97.6 +/- 0.2</td>
<td>194 +/- 20 BP</td>
</tr>
<tr>
<td>T17/57</td>
<td>hebe charcoal</td>
<td>eroded fire</td>
<td>37524</td>
<td>-26.3 +/- 0.2</td>
<td>96.6 +/- 0.2</td>
<td>281 +/- 20 BP</td>
</tr>
<tr>
<td>T17/66</td>
<td>hyridella shell</td>
<td>pit fill</td>
<td>37512</td>
<td>1.3 +/- 0.2</td>
<td>92.8 +/- 0.3</td>
<td>598 +/- 22 BP</td>
</tr>
<tr>
<td>T17/66</td>
<td>pseudopanax</td>
<td>pit fill</td>
<td>37513</td>
<td>-24.9 +/- 0.2</td>
<td>97.4 +/- 0.2</td>
<td>213 +/- 20 BP</td>
</tr>
<tr>
<td>T17/66</td>
<td>kāmahi charcoal</td>
<td>shelter floor</td>
<td>37514</td>
<td>-31.2 +/- 0.2</td>
<td>97.8 +/- 0.2</td>
<td>182 +/- 20 BP</td>
</tr>
<tr>
<td>T18/25</td>
<td>flax fibre</td>
<td>rock cleft</td>
<td>37519</td>
<td>-24.2 +/- 0.2</td>
<td>97.8 +/- 0.3</td>
<td>183 +/- 21 BP</td>
</tr>
</tbody>
</table>
## Appendix 5 - Opihi Rock Art List - SIMRAP 21-4 (J38/76)

<table>
<thead>
<tr>
<th>El. #</th>
<th>Description</th>
<th>Manufacture</th>
<th>Attribution</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>lineal fragment</td>
<td>black</td>
<td></td>
<td>Single line</td>
</tr>
<tr>
<td>2</td>
<td>lineal fragment</td>
<td>black</td>
<td></td>
<td>Jointed line</td>
</tr>
<tr>
<td>3</td>
<td>red stain</td>
<td>-</td>
<td>natural?</td>
<td>In hollow, not confirmed as cultural</td>
</tr>
<tr>
<td>4</td>
<td>lineal fragments</td>
<td>black</td>
<td></td>
<td>x2 disjointed lines</td>
</tr>
<tr>
<td>5</td>
<td>lineal figure</td>
<td>black</td>
<td></td>
<td>Residue of an outline figure</td>
</tr>
<tr>
<td>6</td>
<td>lineal fragments</td>
<td>black</td>
<td></td>
<td>Residual lines at the edge of a hollow</td>
</tr>
<tr>
<td>7</td>
<td>lineal fragment</td>
<td>black</td>
<td></td>
<td>Single curved line discontinued by exfoliation</td>
</tr>
<tr>
<td>8</td>
<td>infill</td>
<td>black</td>
<td></td>
<td>In-filled figure, subject not known</td>
</tr>
<tr>
<td>9</td>
<td>lineal fragment</td>
<td>black</td>
<td></td>
<td>Residue of black line at edge of hollow</td>
</tr>
<tr>
<td>10</td>
<td>lineal fragments</td>
<td>black</td>
<td></td>
<td>Residue of black lineal figure</td>
</tr>
<tr>
<td>11</td>
<td>lineal fragments</td>
<td>black</td>
<td></td>
<td>Area of fragments</td>
</tr>
<tr>
<td>12</td>
<td>residual figure</td>
<td>black</td>
<td></td>
<td>Residual lineal figure on flat surface, very weathered</td>
</tr>
<tr>
<td>13</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>HRE, unevenly weathered</td>
</tr>
<tr>
<td>14</td>
<td>graffiti</td>
<td>black</td>
<td>modern</td>
<td>Profile face, very fine line, possibly pencil</td>
</tr>
<tr>
<td>15</td>
<td>graffiti</td>
<td>black</td>
<td>modern</td>
<td>Group of crossing black lines, texture similar to adjacent face</td>
</tr>
<tr>
<td>16</td>
<td>graffiti</td>
<td>black</td>
<td>modern</td>
<td>Very faded, rough form compared to other Māori writing</td>
</tr>
<tr>
<td>17</td>
<td>figure</td>
<td>black, rubbed</td>
<td></td>
<td>Taniwha image, white rubbed infill, chalk outlined</td>
</tr>
<tr>
<td>18</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Te Reo, copper plate script &quot;e hoa, e teiopo...&quot;</td>
</tr>
<tr>
<td>19</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: WIREMU</td>
</tr>
<tr>
<td>20</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: PIWA, chalk outlined</td>
</tr>
<tr>
<td>21</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Fine writing (pencil?) encircled with link to Te Reo, &quot;[G]reetings.... [G]reat is... you&quot;.</td>
</tr>
<tr>
<td>22</td>
<td>lineal fragment</td>
<td>black</td>
<td></td>
<td>Pencil thickness black line between taniwha and &quot;PIWA&quot;</td>
</tr>
<tr>
<td>23</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: TAKAUMU</td>
</tr>
<tr>
<td>24</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: ENERIATA</td>
</tr>
<tr>
<td>25</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: KOTAMURAKI</td>
</tr>
<tr>
<td>26</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Cursive writing, thin black single line, possibly copper plate</td>
</tr>
<tr>
<td>27</td>
<td>lineal fragment</td>
<td>black</td>
<td></td>
<td>Residual single black line, jointed and curves</td>
</tr>
<tr>
<td>28</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: KU_A</td>
</tr>
<tr>
<td>29</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: WIRA 5</td>
</tr>
<tr>
<td>30</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: NANI</td>
</tr>
<tr>
<td>31</td>
<td>lineal fragments</td>
<td>black</td>
<td></td>
<td>Black lines at the end of NANI, but of different thickness to the name</td>
</tr>
<tr>
<td>32</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Te Reo, copper plate script &quot;tena ra koutou ...&quot;</td>
</tr>
<tr>
<td>33</td>
<td>writing</td>
<td>black</td>
<td></td>
<td>Māori name: TEIPO</td>
</tr>
</tbody>
</table>
### Appendices

<table>
<thead>
<tr>
<th>El. #</th>
<th>Description</th>
<th>Manufacture</th>
<th>Attribution</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>pā scene</td>
<td>scratched</td>
<td>modern</td>
<td>Scene of a pā on a hill - naïve art style, not expected of Māori</td>
</tr>
<tr>
<td>35</td>
<td>abstract</td>
<td>chalk</td>
<td>modern</td>
<td>Series of square and diamond shapes linked by dotted lines, unlike known Māori diamond patterns.</td>
</tr>
<tr>
<td>36</td>
<td>writing</td>
<td>scratched</td>
<td>modern</td>
<td>Scratched rather than incised: NED</td>
</tr>
<tr>
<td>37</td>
<td>graffiti</td>
<td>scratched</td>
<td>modern</td>
<td>Picture of antlered animal labelled &quot;moose&quot;</td>
</tr>
<tr>
<td>38</td>
<td>graffiti</td>
<td>scratched</td>
<td>modern</td>
<td>Picture of antlered animal</td>
</tr>
<tr>
<td>39</td>
<td>graffiti</td>
<td>scratched</td>
<td>modern</td>
<td>Scratched lines, possibly writing, overlaps black writing in part but not consistent with Māori form</td>
</tr>
<tr>
<td>40</td>
<td>graffiti</td>
<td>scratched</td>
<td>modern</td>
<td>Unknown subject, circles enclosed in rectangles</td>
</tr>
<tr>
<td>41</td>
<td>graffiti</td>
<td>scratched</td>
<td>modern</td>
<td>naïve imitation of Māori spiral patterns</td>
</tr>
<tr>
<td>42</td>
<td>graffiti</td>
<td>scratched</td>
<td>modern</td>
<td>Name: [R/K?]ORY, messy execution.</td>
</tr>
<tr>
<td>43</td>
<td>graffiti</td>
<td>scratched/chalk?</td>
<td>modern</td>
<td>Initials: S&amp;M, possibly with MT above it</td>
</tr>
</tbody>
</table>
References


References


References


References


References


References


References

Inter-island Comparison of the Context of Turtle Motifs on Natural and Anthropogenic

--------. 2006. Ritual and domestic architecture, sacred places, and images: Archaeology in the
Marquesas Archipelago, French Polynesia, in *Archaeology of Oceania: Australia and the
images within a Polynesian settlement landscape. *Proceedings of the Prehistoric Society*
70:107-27.

Molloy, B. P. J., C. J. Burrows, J. E. Cox, J. A. Johnston, and P. Wardle. 1963. Distribution of
subfossil forest remains, eastern South Island, New Zealand. *New Zealand Journal of
Botany* 1:68-77.

Potton Publishing.

Moore, P. R. 2011. The Taupo obsidian source, central North Island, New Zealand. *Journal of
the Royal Society of New Zealand* 41(2):205-15

Crows Nest NSW: Allen and Unwin.

Mulvaney, Ken. 2009. Dating the dreaming: Extinct fauna in the petroglyphs of the Pilbara
region, Western Australia. *Archaeology in Oceania* 44 Supplement:40-8.

Nash, G. and C. Chippindale. 2002. Images of enculturing landscapes: A European perspective,

National Institute of Water and Atmospheric Research. 2010. Waikato River Independent
Scoping Study. NIWA Client Report: HAM2010-032, National Institute of Water and
Atmospheric Research Ltd, Hamilton. Available 17/02/2014 at:
http://www.mfe.govt.nz/publications/treaty/waikato-river-scoping-study/wriss-final-
report.pdf


Native Land Court. 1897. Taupo Minute Book 11.

University Press.
University Press.


Places Trust Pouhere Taonga.


References


References


## Maps, Aerial Images and GIS Data


*Te Rūnanga o Ngāi Tahu*. Ngāi Tahu Cultural Mapping Project, Ōpihi to Te Ana Wai. GIS data file. Provided by Te Rūnanga o Ngāi Tahu, Christchurch.

## Maori Land Court Maps:

Plans sourced from Land Information New Zealand, provided by Quickmap NZ (www.quickmap.co.nz).

ML-5995-E. Untitled, n.d.

ML-6036-I-1. Plan of Taupo Nui Atia West, 1886.


ML-6076-3-I-1. Plan of Tihoi Block, Taupo Nui Atia West, 1885.

ML-6076-5-I-1. Plan of Tihoi, c.1892.

ML-6939-1-I-1. Plan of Tihoi Nos. 2a, 4a, 4b and 4c Blocks, 1903.

ML-16304-I-1. Plan of Tihoi, 1943.