

# Redcliffs Archaeological History and Material Culture

---

by

Georgia Kerby

A Thesis submitted for the degree of Master of Arts

at the University of Otago, 2017

# Abstract

Over 140 years of excavation events at the Redcliffs site complex on the edge of Ihutai, Canterbury, has resulted in a unique material culture collection in Canterbury Museum. The site complex's physical setting is located with easy access to a large range of resources, inland access routes, and shelter on Canterbury's east coast. However, it lay directly on the shores of a highly dynamic microtidal estuary, which was an open bay upon first Māori arrival to the area and has likely influenced past patterns of settlement and the preservation of the local archaeological record. This thesis has achieved two outcomes. The first was the organisation and synthesis of the archaeological history of the Redcliffs site complex, from 1865-2003, in order to recognise the state and availability of Redcliffs archaeological information for future studies. The second was the production of an artefact inventory and description of the Redcliffs site complex material culture collection based on records in Canterbury Museum.

This work supports that Redcliffs was the host of several temporary camps during winter spanning the mid to late 14<sup>th</sup> century AD to the early 16<sup>th</sup> century AD. Rather than Redcliffs being simply a 'Moa Hunter' camp, as it is often described, it was the locus of broad scale and opportunistic hunter gatherer practices, with a focus on fishing, shellfish collection, and fowling. Moncks Cave's material culture showed some distinctions to that of the rest of the site complex which, with what is previously known about its faunal record, reveals that large scale cultural changes were taking place between AD1400 to AD1500 in relation to the decline of moa and seal and likely local geomorphological fluctuations. While many more aspects of Redcliffs life need further investigation, particularly the site complex's chronology, the Redcliffs site complex's material culture and especially its organic artefacts have revealed a more detailed and realistic image of Māori everyday life during the earliest periods of settlement than previously seen in Aotearoa.

# Acknowledgements

The past year has been a wonderful journey through learning to research and write on such a large scale and in reconnecting myself to the Redcliffs suburb where I grew up. I firstly want to say a big thank you to my supervisor Richard Walter for guiding me through this project and answering late night emails. Your knowledge of Pacific archaeology and theory is inspiring and helped me to stay focused on the wider implications of this topic. It is great to see that we successfully achieved this despite each of us travelling so much!

Secondly, Roger Fyfe at Canterbury Museum has been a joy to learn from about all things museum and has been incredibly supportive of my work in Canterbury Museum. Thank you for your guidance through the many hours I spent looking at old Ethnology Registers and trying to read old archaeologist handwriting; it was much needed. I extend this thanks to all of the Canterbury Museum staff (particularly Hatesia, Sarah, and Nicolas), not simply for the granting of a Visiting Researcher position, but particularly for creating an inclusive and supportive work environment.

To Michael Trotter, Louise Furey, Dan Witter, Jeremy Habberfield-Short, and Tristan Wadsworth, thank you for your occasions of advice, especially on suggestions of grey literature and thesis writing. Also to Tim Jones from the Christchurch Public Art Gallery for your knowledge on finding works in the art gallery based on their subject's geographical location; this is a very cool tool. This research was enabled by funding from the Arrow International (NZ) Ltd and Mike Greer Homes Archaeology Scholarship and I am grateful for the opportunity to engage with such an amazing project.

A massive thank you to the Otago University's Anthropology Department, for maintaining their cool and still having some fun during the changes to the department. This includes my wonderful team of fellow postgraduates who are so supportive in and outside of university, I know you'll all do well. Lastly, thank you to my flatmates and family for not getting sick of "Redcliffs" and helping me to get through the year, especially to my Dad for proofreading the entire thesis the weekend before it was due! After all that, I hope that you all enjoy seeing how special Redcliffs really is and get excited for what more we will find out in the future.

# Table of Contents

Abstract.....	ii
Acknowledgements .....	iii
Table of Contents.....	iv
List of Figures .....	vi
List of Tables .....	x
Glossary.....	xi
Chapter One: Thesis Introduction.....	12
1.1    Introduction .....	12
1.2    Aotearoa Colonisation and Early Lifeways .....	14
1.3    Māori Cultural Phases.....	17
1.4    The Setting: Redcliffs and its Significance .....	20
1.5    Research Aims and Methods .....	21
1.6    Thesis Organisation.....	23
Chapter Two: Landscape and Geomorphological Context .....	24
2.1    Introduction .....	24
2.2    The Regional and Local Environments.....	26
2.3    Pre-1870s Study Area Geomorphology .....	30
2.4    Ihutai Archaeology.....	34
2.5    Chapter Conclusion.....	36
Chapter Three: Redcliffs Site Complex Synthesis .....	38
3.1    Introduction .....	38
3.2    Methods.....	41
3.3    A Synthesis of 140 Years of Archaeological Investigation of Redcliffs .....	43
3.4    Redcliffs Site Complex Synthesis and Initial Interpretations .....	93
3.5    Chapter Conclusion.....	99
Chapter 4: Redcliffs Site Complex Material Culture .....	101

4.1	Introduction .....	101
4.2	The Museum Collection .....	101
4.3	Material Culture Methodology .....	102
4.4	Characteristics of the Redcliffs Site Complex Material Culture .....	106
4.5	Personal Ornaments .....	107
4.6	Organic/Composite Materials.....	112
4.7	Bone Tools .....	128
4.8	Stone Tools .....	137
4.9	Lithic Other .....	146
4.10	Objects of Unidentified Material .....	151
4.11	Chapter Summary .....	152
4.12	Chapter Conclusion.....	157
Chapter 5: Discussion and Conclusion .....		158
5.1	Introduction .....	158
5.2	Summary of Redcliffs Site Complex Material Culture .....	158
5.3	Research Themes.....	159
5.4	Site Interpretation: Redcliffs, a ‘Moa-Hunter’ camp or something more? .....	166
5.5	Conclusion and Wider Context .....	167
References .....		171
Appendix A: Material Culture Types for Māori Culture Phases.....		A
Appendix B: Material Culture Class Tables .....		B
Appendix C: Redcliffs Site Complex Material Culture Inventory .....		C

# List of Figures

Figure 1.1 Location of Horomaka (Banks Peninsula), Ihutai (Avon-Heathcote Estuary) and Redcliffs. Map Data: 2016 Google, TerraMetrics. ....	12
Figure 2.1. Location of the Redcliffs site complex archaeological sites. Map data: 2016 Google, TerraMetrics. ....	25
Figure 2.2. Location of the Canterbury region and places mentioned in the text. Map data: 2016 Google, TerraMetrics. ....	25
Figure 2.3. Resources and environmental areas surrounding the Redcliffs site complex, Ihutai, Christchurch. Adapted from (Orchiston 1974 F.243-F.246). ....	29
Figure 2.4. Sumner showing Redcliffs, Clifton, Shag Rock and Estuary ca. 1904, from the north west. Canterbury Museum. 19XX.1.3483. ....	33
Figure 2.5 Map of Ihutai (Avon-Heathcote Estuary) with types of archaeological sites from Archsite 2016 (NZAA). Note that the 'Burial' sites were all recorded as being Māori but none have been dated and few had any associated material with which to infer a date. Map Data: 2016 Google, TerraMetrics. ....	35
Figure 3.1. View of the study area showing the archaeological sites of Sumner Burial Ground, Moa Bone Point Cave, Redcliffs Flat and Moncks Cave, The Redcliffs site complex, Christchurch. Map Data: 2016 Google. ....	43
Figure 3.2. Julius von Haast's cross section of Moa Bone Point Cave showing ceiling height and the extent of the sand in front in 1872. The distance from the high tide mark to the front of the cave as diagrammed is c. 86.9m. ....	44
Figure 3.3. Entrance to Moa Bone Point Cave, Redcliffs, in the late 1950s. W A Taylor collection, Canterbury Museum, 1968.213.3041 and 1968.213.3040. ....	44
Figure 3.4. Plan of Moa Bone Point Cave, Redcliffs, after Julius von Haast (1874) and Roger Duff (1963) with outline of posts and the proposed structure. The estimated locations of cross sections in Figure 3.2 are also shown. ....	46
Figure 3.5. Plan of Moa Bone Point Cave, Redcliffs, showing the estimated excavation layout for excavations made between 1957-60. The plan is a rough estimate from Rhys Griffith's (1958) sketch plan and will have inaccuracies as two sketch plans of parts of the excavation squares by Roger Duff (1955-1958; 1959a 44) show a slightly different alignment with square C7 positioned in the entrance to the Middle Cave. ....	47
Figure 3.6. Redcliffs Cave [Moa Bone Point Cave], public lecture by Roger Duff 22 March 1969. Anthony Thorpe photograph Christchurch City Architects Division Canterbury Museum, Canterbury Museum Archives. ....	49
Figure 3.7. Redcliffs Cave [Moa Bone Point Cave], public lecture by Roger Duff 22 March 1969. Anthony Thorpe photograph Christchurch City Architects Division Canterbury Museum, Canterbury Museum Archives. ....	49
Figure 3.8. Moa Bone Point Cave general cave cross-section. From (Haast 1874b). ....	54
Figure 3.9. Moa Bone Point Cave Section No. 3, southwest side, E-W. From (Haast 1874b). ....	54
Figure 3.10. Moa Bone Point Cave Section No. 4, southeast side near large rock, N-S. From (Haast 1874b). ....	54
Figure 3.11. Moa Bone Point Cave Section No. 5, southwest corner with a human burial (koiwi tangata), E-W. From (Haast 1874b). ....	55
Figure 3.12. Moa Bone Point Cave Section No. 6, near entrance, E-W. From (Haast 1874b). ....	55

Figure 3.13. Duff's (1963 12) section of Moa Bone Point Cave from 1958, near Haast's (1872) No. 2 section. ....	55
Figure 3.14. Estimated location of Julius von Haast's (1874, 76) excavations in the sand dunes in front of Moa Bone Point Cave near the sections 5 or 7 Main Road, Redcliffs, Christchurch. Map Data: 2016 Google.....	57
Figure 3.15. Section drawings of excavations in the sand dunes in front of Moa Bone Point Cave, Redcliffs, Christchurch From Haast's (1874a) Moa Bone Point Cave report. ....	58
Figure 3.16. Sections of Sumner Burial Ground, Redcliffs, Christchurch. From (Haast 1874, 86). ....	62
Figure 3.17. Map of archaeological sites in the Redcliffs suburb, Christchurch,, including those mentioned in the text. Adapted from Trotter (1975 191). The shell midden sites are listed on Archsite (NZAA) and may relate to the Redcliffs site complex. Map Data: 2016 Google. ....	66
Figure 3.18. Sketch map of south of Redcliffs Primary School adapted from 'South of Redcliffs Primary School', Canterbury Museum Archaeological Society Records Canterbury Museum, Canterbury Museum Archives. ....	67
Figure 3.19. Stratigraphic section of the south side of Selwyn Hovell's 1957 excavation of the SW Hamilton property midden, Redcliffs Flat. Used with permission from Trotter (1967 253) .....	69
Figure 3.20. Stratigraphic section of an oven on the Hamilton Property (No. 8), Redcliffs Flat, excavated by Selwyn Hovell and others under Roger Duff in 1958. Used with permission from Trotter (1975 194).....	70
Figure 3.21. North to south stratigraphic section of an oven on the Hines property (No. 10), Redcliffs Flat, excavated in 1959. Used with permission from Trotter (1975 195). ....	71
Figure 3.22. The stratigraphy of an oven (left) and a filled in pit (right) from the Main Road Sewer Trench (No. 14), Redcliffs, excavated by Michael Trotter in 1969. Used with permission from Trotter (1975) .....	72
Figure 3.23. Left: Plan of salvage excavation southwest of Redcliffs Primary (No. 16, Figure 3.11). The shaded circles are the contours of an oven pit at 500 mm, 1 m and 1.5 m below ground level. Section a-b is shown in Figure 3.19. Used with permission from Trotter (1975 200). Right: Redcliffs salvage, 1969, Canterbury Museum Archaeological Society, Canterbury Museum. 2004.40.427...	73
Figure 3.24. North to south (a-b in Figure 3.18) section of an oven pit southwest of Redcliffs Primary School (No. 16, Figure 3.11). Used with permission from Trotter (1975 201). ....	74
Figure 3.25. Outline of the building foundations at 27Main Road, Redcliffs, Christchurch. Numbers show the order of excavation. From (Jacomb 2009a 17).....	76
Figure 3.26. Section drawings of archaeological deposits excavated in the foundations of 27 Main Road, Redcliffs, by Chris Jacomb . From (Jacomb 2009a 19). ....	76
Figure 3.27. Radiocarbon dates from excavations of areas of Redcliffs Flat (Jacomb 2009a). Note that the moa bone sample above listed as NZ1111 is actually NZ1113.....	78
Figure 3.28. Location of excavated sites at Redcliffs Flat from which accepted radiocarbon dates were collected. The location of each dating sample estimated from descriptions (Jacomb 2009a; Trotter 1975) are marked as a red X. Map Data: 2016 Google.....	78
Figure 3.29. Michael Trotter's (red dotted line) estimated extent and a new (green dotted line) estimate of the Redcliffs Flat archaeological area near the estimated 1850s shoreline from (Trotter 1975 191). Red stars and circles relate to Figure 3.11 as archaeological sites and midden respectively. Map Data: 2016 Google.....	80
Figure 3.30. Plan of Moncks Cave in 1889. From Meeson (1889). ....	83
Figure 3.31 Left: Archaeological features at Moncks Cave, Redcliffs. Chris Jacomb Plan, Canterbury Museum Canterbury Museum Archives. Right: Proposed landscaping at Moncks Cave, Redcliffs. Chris Jacomb Plan Canterbury Museum. ....	85

Figure 3.32. Plan of squares excavated by Chris Jacomb at Moncks Cave, Redcliffs, in 1998. From (Jacomb 2008 48). .....	86
Figure 3.33. Laminated strata from a vertical section at Unit F13 within Moncks Cave, Redcliffs. The two dark layers contain charcoal and shell fragments. From (Jacomb 2008 50). .....	89
Figure 3.34. Radiocarbon dates from the sites of the Redcliffs site complex, Christchurch, excluding dates discarded by Anderson (1991) and Petchey (1999) except NZ511 from Moa Bone Point Cave. All of the Moncks Cave dates are from marine shell ( <i>Austrovenus stutchburyi</i> ). From Jacomb (2009a 24).....	91
Figure 4.1. Personal ornaments from the Redcliffs site complex, Canterbury. 'RF'= Redcliffs Flat, 'MC'=Moncks Cave, 'MBPC'= Moa Bone Point Cave. Row 1: Imitation whale tooth pendants: E.158.558 (RF), E.158.557 (RF), E.158.556 (RF), Sperm Whale Tooth pendant: E.163.724 (MBPC). Row 2: Cloak pin: E.161.69 (MBPC), nephrite pendant: E.161.92, fish bone pendant or toggle: (E.158.345 (MC). Row 3: <i>Dentalium sp.</i> necklace units or cut sections: E.161.105B (MBPC), E.158.43 (MBPC), E.161.105A (MBPC), E.162.148.....	109
Figure 4.2. Head Ornament Comb (E.72.49), Moa Bone Point Cave, Redcliffs, Christchurch. Image courtesy of Canterbury Museum.....	110
Figure 4.3. Canoe (waka) outrigger float (E.158.219), Moncks Cave, Sumner (Redcliffs site complex), Christchurch. Image courtesy of Canterbury Museum.....	113
Figure 4.4. Canoe (waka) paddle (hoe) (E.158.217), Moncks Cave, Sumner (Redcliffs site complex), Christchurch. Image courtesy of Canterbury Museum.....	114
Figure 4.5. Wooden artefacts from the Redcliffs site complex, Canterbury. 'MC'= Moncks Cave, 'MBPC'= Moa Bone Point Cave. Row 1: E.159.220 & E.158.78 (MBPC, composite fishhook shanks), E.162.181 (MBPC, worked wood, possibly an unfinished bird spear point), E.158.245 (MC, composite fishhook shank). Row 2: E.72.59 (MBPC, barracouta lure shank). Row 3: E.159.305 (MBPC, pounder handle). .....	116
Figure 4.6. Carved figure of Maori domestic dog, kuri, (E.158.356), Moncks Cave, Sumner (Redcliffs site complex), Christchurch. Image courtesy of Canterbury Museum.....	117
Figure 4.7. Flax sandals from Moa Bone Point Cave, Redcliffs site complex, Canterbury. Left hand sandal with toe missing: E.157.181. Right hand sandal half: E.158.177. ....	122
Figure 4.8. Organic and composite artefacts from Moa Bone Point Cave, Redcliffs site complex, Canterbury. Row 1: E. 162.463 (roll of stripped raupō), E.158.121 (knotted pieces of flax bedding). Row 2: E.159.306 (plaited textile). Row 3: E.157.223 (Paua shell with plugged holes holding a circle of cut flax tied in two places (E.157.223A)). .....	125
Figure 4.9. Bone artefacts from the Redcliffs site complex, Canterbury. 'RF'= Redcliffs Flat, 'MC'=Moncks Cave, 'SBG'= Sumner Burial Ground. Row 1: Moncks Cave bird spear points: E.158.247, E.158.262, E.158.256, E.158.273, bird spear point preform: E.158.258. Row 2: awls: E.158.947 (RF), E.158.550 (RF), E.158.547 (RF), E.158.287 (MC), E.158.281 (MC). Row 3: fishhooks and tabs: E.158.228 (MC), E.158.229 (MC), E.158.539 (RF), E.158.239 (MC), E.158.235 (MC), E.158.237 (MC). Row 4: a chisel: E.115.3.1 (SBG). Note that some artefacts are not included in the class Bone Tools, rather they are counted in Unidentified Material as they were not labelled as bone in the Ethnology Registers. ....	130
Figure 4.10. Bone artefacts from Moa Bone Point Cave, Redcliffs site complex, Canterbury. Row 1: E.72.95 (winkle picker), E.72.96 (winkle picker), E.72.37 (fish gouge), E.173.6 (bird pear point), E.157.155 (bird spear point), E.161.121 (bird spear point), E.72.36 (flax threader needle). Row 2: E.163.271 (needle), E.163.289 (worked bone), E.162.347 (fish gouge), E.162.149 (worked bone), E.158.68 (worked bone), E.158.66 (worked bone), E.160.122 (tattooing chisel). Row 3: E.165.659 (composite fishhook point), E.162.158 (composite fishhook point), E.158.216A (minnow lure point). .....	133
Figure 4.11. Stone tools from the Redcliffs site complex, Canterbury. 'MBPC'=Moa Bone Point Cave, 'SBG'= Sumner Burial Ground. Row 1: E.158.617 (MBPC, adze), E.72.52 (MBPC, adze), E.157.139	

(MBPC, adze). Row 2: E.158.130 (MBPC, chisel blade), E.109.17.5 (SBG, gouge). Row 3: E.115.3.4 (SBG, adze fragment), E.158.84 (MBPC, adze fragment), E.72.53 (MBPC, adze fragment).....	140
Figure 4.12. Stone tools from the Redcliffs site complex, Canterbury. 'MBPC'=Moa Bone Point Cave, 'RF'= Redcliffs Flat. Row 1: E.177.30 (MBPC, sinker), E.142.290 (RF, grindstone). Row 2: E.158.511 (RF, grindstone), E.161.109 (MBPC, knife). Row 3: E.142.285 (RF, cutter).....	141
Figure 4.13. Lithic Other and Stone Tool artefacts from Moa Bone Point Cave, Redcliffs site complex, Canterbury. Row 1: E.72.56.7 (core), E.72.56.10 (core), E.72.92E (flake), E.158.186 (core or hammerstone). Row 2: E.72.92 (flake), E.158.83 (adze fragment), E.72.99 (cutter), E.72.56.14 (core), E.72.56.4 (core). Row 3: E.72.92F (flake), E.72.89.4 (worked stone), E.72.89.7 (worked stone).....	149

# List of Tables

Table 2.1. A timeline of the discoveries and archaeological investigations of the Redcliffs site complex Christchurch, between 1851 and 2003.....	39
Table 2.2. Artefacts listed as being found in the Upper and Lower stratigraphic series of Moa Bone Point Cave by Julius von Haast (1874) and Alexander McKay (1874). Details can be found in Appendices B and C of Haast (1874b). .....	52
Table 3.3. Radiocarbon dates from excavations of Moa Bone Point Cave during the 1950's. From (Trotter 1975 203). .....	56
Table 2.4. A list of individual archaeological excavations of the Redcliffs site complex, Redcliffs, Christchurch, each with an arbitrary code to be assigned to artefact assemblages held in the Canterbury Museum in Chapter Four of this thesis. MBPC: Moa Bone Point Cave, SBG: Sumner Burial Ground, RF: Redcliffs Flat and MC: Moncks Cave. ....	94
Table 3.1. Data categories recorded for individual artefacts in an inventory of the Redcliffs site complex material culture. ....	103
Table 3.2. Total counts of artefacts from each site within each major artefact class from the Redcliffs site complex, Canterbury. MBPC: Moa Bone Point Cave, MC: Moncks Cave, RF: Redcliffs Flat, SBG: Sumner Burial Ground. MBPC or RF or SBG and MBPC? means that the artefacts may come from one of these sites but there is confusion in the Ethnology Store Room records. ....	106
Table A.1 Relatively abundant artefact types that class into the three recognised phases of Māori culture (Archaic East Polynesian, Transitional and Classic), particularly from northeast South Island archaeological sites (Golson 1959, Jacomb 1995). Note that several of the 'Common' artefacts can be further divided into early and late types based on specific morphology (such as coarse or fine needles, Jacomb 1995, 204) but they do generally appear at sites of each culture phase. ....	A

## Glossary

**Type:** Archaeological ‘types’ of artefacts that are labelled in typologies and are characteristic of sites or periods of time.

**type:** common use of ‘type’. In this thesis ‘type’ was used to describe different artefacts.

**BP:** uncalibrated years before the present

**cal. BP:** calibrated years before the present

**c.:** circa.

**Urupa:** burial area

**Taonga tūturu:** treasures

**Koiwi tangata:** human remains

Note that Te Reo Māori terms for artefacts are provided in brackets after the first mention of a word. For example: “adze (toki)”.

# Chapter One: Thesis Introduction

## 1.1 Introduction

Ihutai (Avon-Heathcote Estuary, Figure 1.1) on the northern boundary of Horomaka (Banks Peninsula), Canterbury, was an important location for early Māori settlement in Aotearoa (New Zealand). The archaeology of this area is important for understanding the early coastal lifeways of South Island Māori and the cultural transitions that took place over the first few centuries of settlement after Polynesian colonisation. On Ihutai's southeastern shoreline, four archaeological sites in Redcliffs provide concentrations of material evidence for the presence of Māori communities since the mid-14<sup>th</sup> century AD. These sites are Moa Bone Point Cave (Te Ana O Hine Raki, NZAA Site Recording Scheme Number: M36/25 or S84/77), Sumner Burial Ground (M36/22 or S84/69), Redcliffs Flat (Te Korero, M36/24 or S84/76) and Moncks Cave (M36/47 or S84/118).



Figure 1.1 Location of Horomaka (Banks Peninsula), Ihutai (Avon-Heathcote Estuary) and Redcliffs. Map Data: 2016 Google, TerraMetrics.

These archaeological sites are in close proximity spatially and with respect to their material and faunal records, so henceforth will be termed the Redcliffs site complex. By basing this research on a site complex this thesis acknowledges Redcliffs as a cohesive archaeological area and recognises that the archaeological sites were likely related, not only spatially, but through their use by people with similar cultural practices around the same time periods. This has not been explicitly acknowledged before. The many unique artefacts recovered (including taonga tūturu or Māori treasures), the presence of large ovens with moa and shellfish midden and the nearby urupa (human burials) are all well known in Aotearoa's archaeological community. In the past these have played a part in discussions over Māori origins and the role of moa in their lives.

Yet the artefacts have lain relatively abandoned since their acquisition by Canterbury Museum and discussions about South Island Māori and early Aotearoa culture history often exclude Redcliffs. This is largely the result of a long and complex archaeological history and the gradual destruction of the archaeological record by several factors, which will be outlined later. Therefore, while a few exceptional artefacts are well figured and described, the full extent and importance of the museum collection is unknown. Detailed analysis and interpretation of this collection has been stunted by the haze of its archaeological history and, thus, our perceptions of early life in Redcliffs have remained limited.

It is time to return to Redcliffs and lay out the evidence clearly in order to support the future investigation of this site complex and the exceptional material culture and faunal collection. There is a large amount of information that can be teased out of the Canterbury Museum collection, much of which has important implications for understanding moa hunting activities, South Island coastal lifeways, early organic artefacts and the Transitional phase of Māori culture. This thesis will research, organise, and synthesise information regarding the archaeological investigation of the Redcliffs site complex and its Canterbury Museum material culture collection. By coordinating archaeological information that is currently spread between many different sources, with different states of detail and accessibility, this study will provide a crucial backdrop to the future research of Redcliffs. Further, through a synthesis of archaeological works, the production of an artefact inventory, and a description of major artefact classes, some conclusions can be drawn about the nature of 14<sup>th</sup> to 16<sup>th</sup> century AD Māori occupation at Ihutai. The faunal material from Redcliffs does not fit

within the scope of this project (the reasons for which will be discussed below). This research fits into wider work on early Aotearoa history carried out between Canterbury Museum and Southern Pacific Archaeological Research at the University of Otago and will draw on support from these groups.

This chapter will first briefly discuss past and current models of Aotearoa colonisation to give a background to its first inhabitants, who are likely related closely to the occupants of Redcliffs. The second part of this chapter will outline the temporal contexts that the archaeological sites of Ihutai could be situated in based on material culture Types, particularly the orthodox 'Archaic' phase and with mention of a more recently proposed Transitional phase. The last part of this chapter will more clearly outline the aims of this thesis, its research questions and chapter organisation.

## 1.2 Aotearoa Colonisation and Early Lifeways

The colonisation of Aotearoa, as the most southern archipelago in the Pacific Ocean, has been a controversial topic of primary interest to the country's archaeologists for nearly two centuries. The date of colonisation, the number and sequence of colonising parties, and their place of origin were the factors most of question. An understanding of the timing and nature of Aotearoa's colonisation holds importance for the cultural and chronological study of pre-European history, connections to East Polynesia, and for modern interpretations and understanding of Māori culture and history. It will be further helped by developing an understanding of the cultural patterns and lifeways that the early settlers of the Redcliffs area would have practised, being close tuhanga (descendants) of Aotearoa's colonising groups.

### ***Theories of Aotearoa Colonisation***

Aotearoa colonisation theories have ranged from Polynesian settlement around AD800, based on presence of widespread exchange systems and local artefact types in the 12<sup>th</sup> to 13<sup>th</sup> centuries AD (Davidson 1984 57; Duff 1963 14; Golson 1959 70; Green 1975 624; Groube 1968 73) to AD500 or earlier, based on a continued chronology for East Polynesian settlement of the Pacific (Kirch 1986; Sutton 1987). Many claims for such early settlement, however, were supported by suggested anthropological influence on radiocarbon-dated vegetation changes (Bulmer 1989; Sutton 1987) or on inference that the earliest settlements would be nearly invisible in the archaeological record

(Anderson 1991 768; Challis 1995 8; Lockerbie 1959 77), but no direct evidence associated with archaeological remains was dated to pre-AD1100. After the discard of potentially erroneous early dates, both Anderson (1991) and Higham and Hogg (1997) concluded that the sites offering acceptable calibrated dates dated to no earlier than the 12<sup>th</sup> century AD and that Aotearoa's prehistory was shorter, at c. 700 cal. BP, than had previously been theorised.

The last two decades have been formative in confirming the East Polynesian colonisation of Aotearoa as occurring at the end of the 13<sup>th</sup> century AD (Higham et al. 1999 425; Higham & Hogg 1997). The colonising parties travelled from a tropical East Polynesian homeland or Hawai'iiki (likely the Austral Islands, Society Islands and southern Cook Islands) in double-hulled sailing canoes to the large southern landmass of Aotearoa (Davidson 1994 210; Walter 1994). The founding population is suggested to have been small, say 400 people (Holdaway et al. 2014), and involved repeated return trips. Near Blenheim, the Wairau Bar burials and village site may possibly reflect a founding population dating to the end of the 13<sup>th</sup> century AD (Kinaston et al 2013, Higham et al 1999). Extensive material culture from Wairau Bar has been used to form definitions of Archaic East Polynesian material culture types and its location on a sand spit with multi-generational occupation has offered new ideas about early South Island coastal settlement. It is now understood that the first people of Aotearoa were trained in an Archaic East Polynesian tradition which changed rapidly within the first couple of generations in adaptation to Aotearoa's temperate resource range.

### **1.2.1 Early Settlement Patterns and Economies in Aotearoa**

The earliest dated archaeological sites in Aotearoa are scattered up the country's east coast and are often located in bays or near river mouths, including Houhora (Furey 2002), Tairua (Schmidt & Higham 1998), Wairau Bar (Brooks et al. 2009), Redcliffs Flat, Moa Bone Point Cave, Rakaia River Mouth (Jacomb et al. 2004), Shag River Mouth (Anderson et al. 1996), Pleasant River Mouth (Smith 1999), and Papatowai (Hamel 2001). These sites represent the settlements of the very first hapu (subtribe or clan) of Aotearoa which were clustered around the richest resource zones, particularly coastal moa (*Aves*, *Dinornithiformes*) and fur seal (*Arctocephalus forsteri*), with access to supplementary fish, eel, forest and sea birds, shellfish, and wild plants. Nationally, the early settlement system was one of highly mobile small groups travelling between

widespread temporary camps for local resource procurement (Anderson 1989a; Davidson 1984; Hamel 2001). East Polynesian maritime ancestry was retained in the form of large scale coastal transport for maritime resource procurement and social ventures. These procurement strategies and movement throughout the landscape were optimal for survival in a novel environment and emphasise the relationships that were developed with places that were returned to seasonally as places of landfall or homeland, such as Wairau Bar (Kinaston et al. 2013), or as reliable resource spots, such as Shag River Mouth (Anderson et al. 1996).

South Island Māori culture and economy differed from that of the North Island due to restricting colder temperatures and scarcer natural resources. Horticulture was less common, though this varied locally, while big game hunting dominated, until the decline of moa and fur seal caused greater reliance on shellfish gathering and small game hunting. A ‘transient village’ settlement model is suggested by Anderson and Smith (1996) as the main occupation type in the southeast, based on evidence at Shag River Mouth. These villages were sedentary and semi-permanent with defined zones for specific activities and were occupied for periods of a couple decades at a time in close proximity to a rich resource patch (Higham et al. 1999 425). Once this patch was depleted the village was moved to another while the first regenerated (Anderson & Smith 1996). From these, shorter-term settlements were used for specialised activities such as stone quarrying and manufacturing or for large scale shellfish and fish collection and processing. Long distance movement of resources, particularly good quality stone, was an important feature of this socio-economic system shown by the presence of material such as obsidian and argillite from hundreds of kilometres away at many archaeological sites (Sheppard 2004). Walter *et al.* (2006) suggest that this model can be pushed to the northern region as well, just with a lesser focus on big game hunting and more so on horticulture.

### **1.2.2 Changes in Subsistence and Settlement**

The rapid extinction of moa just after the first century of occupation (Holdaway & Jacomb 2000; Holdaway et al. 2014) and of the New Zealand Fur Seal in the north and its decline in the south within two centuries (Smith 2005) obviously would have affected subsistence systems and the availability of southern Aotearoa for viable occupation. Small game such as fish, shellfish, birds, and kuri (Polynesian dog) became

the main protein focus while kumara (*Ipomoea batatas*), in optimal northern zones, and tī (cabbage tree, *Cordyline australis*) and bracken fern (*Pteridium esculentum*) in the south, became essential carbohydrate sources (Walter et al. 2006).

The use of specialised sites and temporary villages continued, but there were two changes in the settlement system which are taken to reflect transition to the 'Classic' Māori period. These were the increase of inland settlement to an extent and, more notably, the building of pā. These fortified settlements were common in northern regions after AD1500 (Schmidt 1996) and were used similarly to the transient village model as a sedentary base with a variety of activities and for the wide ranging mobility of social and foraging groups who only occupied them for certain periods or seasons (Walter et al. 2006). Only a small area of the Redcliffs site complex was occupied during this later period. It is the archaeology of the earlier occupation periods that has crucial potential to further define these cultural developments in terms of what the artefacts can show about the settlement practices and economies of the people living in Redcliffs at the time and whether they are reflective of the rest of the South Island.

### 1.3 Māori Cultural Phases

Changing Māori settlement patterns, economies, and material culture have in the past been organised into two major temporal phases: Skinner's (1921) Northern and Southern Cultures, Duff's (1956) 'Moa Hunters' and Māori, and Golson's (1959) New Zealand 'Archaic' and 'Classic' Māori. The latter are often still used today as they reflect stages of change over a continuum of time which agrees with archaeological theory rather than separate cultural groups which the others denote. Such division originated in the desire to unitize associations of archaeological data into Types within temporal phases to better synthesise Aotearoa's culture history and to allow for the possibility that the distinctions seen in the material culture and subsistence patterns represented two separate groups of colonisers (Golson 1959 33). Despite the haziness of the 'intermediate' or 'proto-Māori' period separating these phases, the use of a binary organisation of Aotearoa's cultural data helped to focus research towards chronology and regional variation. The labels used to describe phases of Aotearoa's prehistory are still developing over time as archaeologists' understanding of regional and national developments increase.

### ***The 'Archaic' Phase***

Golson's (1959 36) 'Archaic' or 'New Zealand Eastern Polynesian Culture' labelled the earliest period of occupation spanning from the late-13<sup>th</sup> to 16<sup>th</sup> centuries AD. This was thought to transition to the 'Classic' Māori phase through a sort of Neolithic revolution. There are many aspects of early Māori society however that refute an evolutionary transition (such as large polished adzes (Anderson et al. 1996) and technically complicated double hulled canoes) and it is well recognised today that social and economic change did not occur in this way in Aotearoa.

Golson's (1959) 'Archaic' period has more recently been termed Archaic East Polynesian (AEP) to recognize an East Polynesian homeland for Aotearoa's colonisers (Kinaston et al. 2013). The common material culture items found at sites that date to the late 13<sup>th</sup> to early 14<sup>th</sup> centuries AD (Appendix A) include imitation whale tooth 'reel' necklaces, drilled shark teeth, one-piece stone fishhooks, minnow lures, large gripped quadrangular and triangular adzes, some orthoquartzite blades, long bird spear points with few barbs, and perforated moa eggs (Jacomb 1995; Walter 1994). The description of early Māori culture as AEP relates not only to similar material culture forms but more importantly to the continuity of AEP societal structures in a new home from which Māori customs developed (Walter 2004). For example, the transient village mobility strategy evident throughout Aotearoa's prehistory, among other cultural customs, is virtually the same as that practised on the Cook Islands where shifting coastal villages were occupied for decades at a time (Walter et al. 2006).

### ***The Transitional Phase or Middle Period***

Aotearoa's archaeologists still characterise material culture types into the 'Archaic' and 'Classic' phases though they recognise that these occurred within processes of seriation and fluid sequences of change over time (Golson 1955 132; Higham & Jones 2004 217). The artefact types associated with these phases (listed in Appendix A) are still useful for representing known changes within general time periods, but tend to represent the ends of a 700 year spectrum while ignoring the transition (Green & Shawcross 1962 212). Archaeological sites that have both 'Archaic' and 'Classic' artefact types, or neither, have been described as belonging to a Middle Group or the Transitional phase, defined by Chris Jacomb (1995) through the seriation of northeast

South Island artefacts. Jacomb (1995) set this period around AD1400-1500 while Aiden Challis (1995) placed it between AD1500-1600 and Atholl Anderson described it as AD1350-1550 (Anderson 1983 24). Archaeological sites belonging to the Middle Group include Tumbledown Bay, South Bay and Rakautara Cave. What these sites have in common is that they were each a small occupation in undefended sheltered bays, often in caves, with a broad variety of functions. Artefact types recognised as occurring at these archaeological sites include disc shaped shell ornaments, shell one-piece fishhooks, bone composite fishhooks, unilateral barbed and notched bird spear points, and barracouta lures (Jacomb 1995). Moa Bone Point and Moncks caves are positioned between the 'Archaic' and Middle Group in Jacomb's seriation (1995 218).

Large changes are known to have occurred around AD1400, after which no new populations arrived from East Polynesia (Walter 1994 221). At the end of the 14<sup>th</sup> century AD moa was nationally extinct (Holdaway & Jacomb 2000) and most major resource patches had been identified and thus utilised or taken under particular territories. Davidson (1984) recognises this through her three-phase prehistory model, with the stages of 'settlement', 'expansion and rapid change', and 'traditional'. This Transitional period therefore holds mostly unrecognised importance in Aotearoa's history and more work on the existence of Middle Group or Transitional sites is required in the future in order to draw Aotearoa's history into a continual synthesis rather than binary periods. Some of Chris Jacomb's (1995) work suggests that Redcliffs may hold important information on activities during this period of time and this will be considered in the thesis discussion.

### ***The 'Classic' Phase***

The 'Classic' phase is often dated from AD1500-AD1769, until European contact. A larger range of material culture items are acknowledged to represent this phase as they were recorded first hand by the first European ship crews to visit Aotearoa. These include small adzes, small nephrite chisels, gouges, adzes, ear ornaments and neck pendants, whale bone, needle-like or fishhook pendants, drilled human teeth, composite fishhooks, barracouta and kahawai lures, shell trumpets, patu, notched and barbed bird spear points, and stone cutters. Both the forms and style of these are quite distinct from East Polynesia. Few of these are expected to occur at Redcliffs as the main period of occupation was before AD1500 (Jacomb 2009a).

## ***Continuity***

While there have been major changes in subsistence focuses and material culture over the course of Aotearoa's prehistory there are several features of Māori culture that have remained fairly consistent. Cultural continuity from East Polynesia includes the settlement pattern of high residential and logistical mobility around more sedentary base camps, the focus on important protein resource patches, long distance trade of stone, and likely the maintenance of the importance of hapu relations and the role of chiefs, despite these being difficult to interpret from the archaeological record (Walter et al. 2006). These factors emphasise the difficulty of placing Aotearoa's prehistory and its associated material culture into two distinct periods as certain aspects vary regionally as well as temporally, while others remain similar. However, many of the features and artefact types termed as either 'Archaic' or 'Classic' are still relevant temporal denotations today in terms of comparing material culture and in use in theories of social organisation, subsistence and mobility patterns. This thesis, where possible, will discuss periods of occupation through expression of their radiocarbon dates and will use the terms AEP, Transitional and 'Classic' to describe phases of common material culture Types.

### **1.4 The Setting: Redcliffs and its Significance**

The setting of this study, Redcliffs, is the modern suburb between McCormacks and Moncks bays, with a flat sand dune area set between steep red faced cliffs (Te Rae Kura) and Ihutai's muddy shores (Figure 1.1). The landscape has undergone a series of natural and cultural transformations since human settlement and consequently has a different identity now than it would have had 500-700 years ago, especially as it is now swathed with residential and commercial buildings.

Radiocarbon dating (discussed further in Chapter Three) indicates that the settlement of the Redcliffs site complex began at least during the early-mid 14<sup>th</sup> century AD (Jacomb 2009a), which is soon after Aotearoa was colonised (Higham et al. 1999). Evidence of moa butchery and AEP artefact types are further evidence for this dating but there is also evidence of Transitional occupation at Moncks Cave (Jacomb 2008). These dates, combined with numerous moa remains, have defined the Redcliffs site complex simply as a 'Moa Hunter' camp. However, the full extent of the site complex, the relationships between the individual sites, and the major factor of its location being within a highly

dynamic coastal landscape in an area of average moa population have rarely been addressed. The dating of Moncks Cave to the mid-late 14<sup>th</sup> century to the early 16<sup>th</sup> century AD alongside the use of scavenged (not butchered) moa bone material, in close proximity to prominent ‘Moa Hunter’ camps, also significantly have been used to support a model of rapid moa extinction (Holdaway & Jacomb 2000).

Many of the problems that have stunted the analysis of such an interesting site complex, and have provided such an informal and piecemeal record, stem from a 14 decade-long history of unstandardized and unsystematic excavation methods, residential development, erosion, and decades of fossicking. The result is an important artefact collection in Canterbury Museum from sites with a paucity of dates (whether by relative or absolute dating methods), indefinite artefact and stratigraphic correlations, and a lack of clear identification and stratigraphic data, despite that the sites originally had clear, and sometimes deep, stratification (Meeson 1889).

The sites themselves are common types in Aotearoa, in being rockshelters, sand dunes, and an estuary location. But their apparent depth of stratigraphy, the artefact types, and set up as a flat dune area between two large caves are all unique. The natural sealing off of Moncks Cave over a large expanse of time provides another unique feature with the presence of undisturbed surface artefacts. The artefacts themselves are either of kinds already established as evidence for moa hunting (moa bone, moa eggshell, and quartzite knives) or are unique to sites dating to this period of prehistory (carved wooden artefacts, human and kuri hair, paua bowls and woven cord and matting). This trove of organic artefacts has implications for carving and painting practices, human and kuri phenotypes, animal skin preparation, weaving techniques, and for the further development of models of early coastal settlement patterns and economies.

## 1.5 Research Aims and Methods

### ***Research Aims***

The long period of archaeological investigation of the Redcliffs site complex has produced an extraordinary collection of Māori material culture that, while famous archaeologically, has been left in Canterbury Museum and has scarcely been analysed. The extent and nature of such a unique collection is important to comprehend so that that current and future research can use this collection to contribute to syntheses of

early Aotearoa life. But first, the Redcliffs archaeological records need to be organised and synthesised so the information is in an easily useable format. The overall objective of this project is to organise and combine the archaeological information from the Redcliffs site complex through three aims:

1. The first aim is to research, organise, and synthesise archaeological information from the Redcliffs site complex in order to clarify how much, what quality, and what type of information is available to future study and what the current interpretations about the site complex are.
2. The second aim is to collate records about the Redcliffs site complex material culture, held in Canterbury Museum, into a digital artefact inventory and provide an overall description of the material culture, organised into six artefact classes.
3. The third aim is to use the results of the first two aims to draw some preliminary interpretations about the site complex as a whole, organised into the themes of what resources were utilised, what activities took place, and what kind of settlement pattern is represented. These results will be considered in the contexts of the natural landscape c. 700 years ago and early South Island settlements.

Other aspects of the Redcliffs story, such as subsistence strategies and economies, cannot be discussed here as this thesis will not address faunal remains. Some inferences about these aspects may be able to be made from surviving equipment used for these practices and will add to the general picture of Redcliffs occupation. The exclusion of the faunal assemblage from this study is due to the project's scope and priorities. Both the history of Redcliffs archaeological investigation and the material culture collection are very large and a full presentation of what material has been recovered from the Redcliffs site complex and how the different site assemblages relate to each other has never been provided. In order to develop understandings of detailed aspects of early Redcliffs life and culture it is first necessary to understand the events that have led us to have access to the archaeological evidence and to see what it looks like. The organisation of this history and subsequent discussion of the material culture within the developed contexts will hopefully initiate new *kōrero* (discussions) about this area and its story and are crucial steps towards opening up future research into Aotearoa's 14<sup>th</sup> to 16<sup>th</sup> centuries AD. This project will conclude with a preliminary site interpretation and provide guides to future research topics.

## ***Methodology***

A common paper-based research methodology will be employed in this thesis and will rely heavily on secondary resources from Canterbury Museum. These will be outlined in greater detail in the relevant chapters: Chapter Three and Chapter Four. The Arrow International Ltd and Mike Greer Homes archaeology scholarship will provide funding for the undertaking of this project and the final report will be made available to the funding committee.

### **1.6 Thesis Organisation**

This chapter has provided an introduction to the Redcliffs site complex by considering Redcliffs' place in Aotearoa's colonisation and Māori culture phases. The significance of this research and its main aims and methodology were also outlined. Chapter Two will continue to develop a background to understanding Māori occupation in Redcliffs. It will achieve this by outlining the likely environmental nature of the area during the known period of occupation, especially the geomorphological landscape.

Chapter Three will provide a detailed methodology and produce a synthesis of the archaeological history and information about the Redcliffs site complex. The currently known material and faunal records, the radiocarbon date records, availability of archaeological information, and the current interpretations of the archaeological sites will be summarised.

Chapter Four addresses the Redcliffs site complex material culture museum collection. A more thorough methodology used for the material culture inventory and detailed descriptions of major material culture classes with photographs will be presented.

Chapter Five will summarise what was learnt through the research and draw together interpretations about the themes of resource use, activities, and settlement patterns. It will contextualise these interpretations within the local environment, consider implications in relation to similar sites in Aotearoa, and make suggestions for the direction of future investigation.

# Chapter Two: Landscape and Geomorphological Context

## 2.1 Introduction

Canterbury Museum houses a significant collection of material culture from early Māori settlement in Redcliffs that holds great potential for what it can show about life in Aotearoa's South Island within the first three centuries of human settlement. This thesis focuses specifically on material culture collected from the Redcliffs site complex, which consists of the archaeological sites of Moa Bone Point Cave, Sumner Burial Ground, Redcliffs Flat and Moncks Cave (Figure 2.1). The site complex is located on the southwest edge of Ihutai, which is a small microtidal estuary positioned just north of the Port Hills of Horomaka, Aotearoa (Figures 1.1, 2.2). The red cliffs of the Port Hills form the southwest border of the archaeological area which extends to the mud flats of the estuary shoreline. Redcliffs Flat is spread across what was an expanse of sand dunes across this area and the Moa Bone Point and Moncks caves are cavities in the volcanic Port Hills which were eroded out through wave action during ancient sea level fluctuations (Haast 1874b 55). Sumner Burial Ground is located slightly north around McCormacks Bay Road but still on the estuary edge (Figure 2.1). The sites are now virtually destroyed and archaeological research and interpretation of the earliest Redcliffs occupations remains limited despite that the area's cultural importance and potential for studies of early Aotearoa settlement are nationally well known.

This chapter will therefore begin the process of readdressing Redcliffs material culture by outlining its environmental context. It will briefly describe the wider regional environment and then focus on Ihutai's local environment, changing geomorphology, and archaeology. By understanding the primary physical context for the material culture of the Redcliffs site complex and the people that produced it, greater comprehension can be developed about why the area was settled, what life was like, and how the occupation fit into regional patterns of life. Future analysis of the faunal material from the site complex would be a crucial step in deepening any conclusions made here, particularly by bringing in the aspects of subsistence and economy.



Figure 2.1. Location of the Redcliffs site complex archaeological sites. Map data: 2016 Google, TerraMetrics.

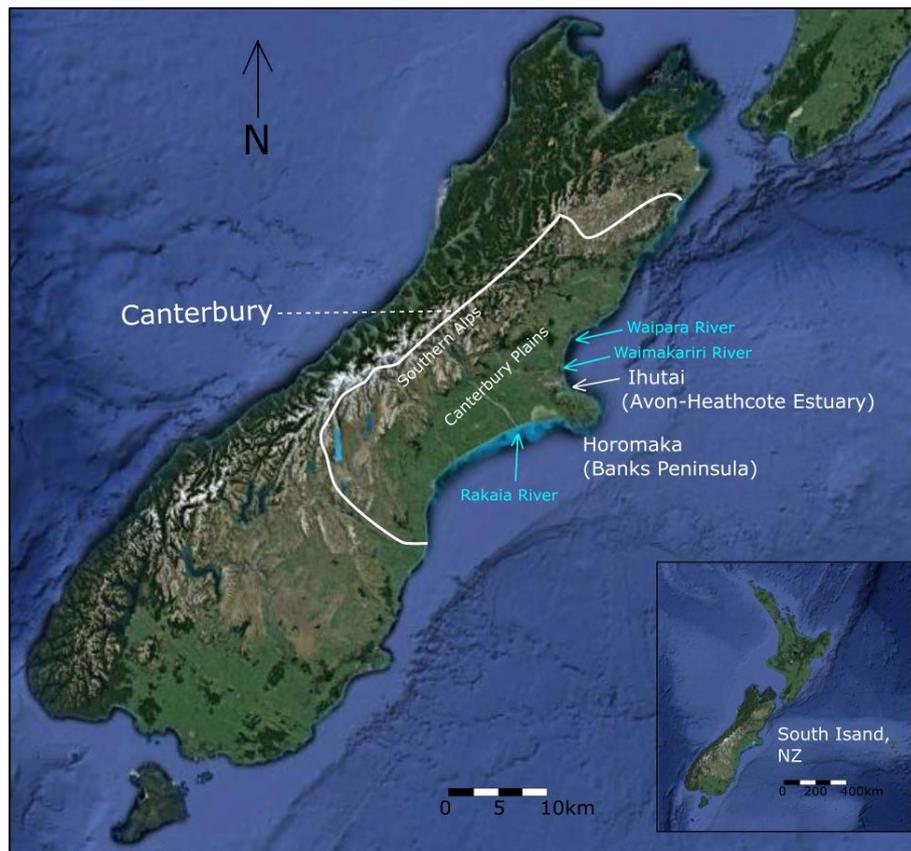


Figure 2.2. Location of the Canterbury region and places mentioned in the text. Map data: 2016 Google, TerraMetrics.

## 2.2 The Regional and Local Environments

### ***Canterbury and Horomaka***

The Canterbury region is defined by large inland alluvial plains (Ka Pakihi Whakatekateka o Waitaha, Figure 2.2) that connect the Waimakariri-Ashley area and the southern Rakaia-Ashburton area (Haast 1874b 55). The western extent is bounded by the Southern Alps which feed large river beds that flow to the east coast, north and south of Horomaka. Like most of Aotearoa's east coast, Canterbury's coast had many rich resource zones that attracted settlement, particularly during AD1300-1400 when moa and fur seal populations were abundant (Challis 1995). These resources varied seasonally and between environmental patches such as rocky and sandy coast, estuaries, harbours, rivers, the open tussock, kanuka scrub and fern land of the Canterbury Plains, and the lowland and mountain podocarp forest around Horomaka. The overall resource range, including a few transplanted horticultural crops (mentioned below), was even more restricted than the North Island in comparison to tropical Polynesia. Hence, occupation strategies relied heavily on ecological availability, predictability, and abundance.

Horomaka is in a central coastal location within Canterbury and has always been a prominent location for human settlement (Figure 2.2). The peninsula itself consists of two extinct volcanoes with alluvial plains connecting Ihutai and Lake Ellesmere. It was favoured by early settlers due to its manageable slopes, river access (Waimakariri, Avon, Heathcote, and Rakaia rivers, Figure 2.2) and large range of harbours, bays, and estuaries, providing much kai moana (sea food). The hills were covered in the thick podocarp forest of matai, totara, and kahikatea and the drier shrubland of manuka, kanuka, pohuehue, and karamu, most of which was cleared before European arrival (Challis 1995 5). Grassland and swamps were also present on the plains, edging river beds, and around Ihutai and the wide band of coastal dunes between the Waimakariri River and Ihutai was covered in coastal scrub and grasses (Jacomb 2009b 3). Access to these resource zones was obviously an incentive to occupation within settlement practices that relied on high mobility for subsistence on moa, fur seal, water and forest birds, shellfish, and fish, all readily available in this area. Note that kuri (*Canis familiaris*) was brought from East Polynesia and kuri bones are commonly found in small quantities in coastal middens and evidently were eaten by Māori. However they

were more important to communities as hunting companions and many artefacts, especially ornaments, have been recovered of kuri teeth, skin, or bone and they are depicted in rock art and carvings such as the Moncks Cave kuri figurine (Skinner 1924; Trotter & McCulloch 1971 35).

Inland forests and stone outcrops could also be reached by waka down the rivers and there is evidence of the short term summer use of inland rockshelters, often which had previously been moa nesting sites (Orchiston 1974 3.38-3.43). The use of inland camps for subsistence hunting and gathering is not definitely supported by bone midden found at coastal camps and Aiden Challis (1995 46) suggests that groups instead travelled to specific rockshelters to engage in activities to do with “expressions of narrative and ancestry” such as represented by symbolic and anthropomorphic figures in cave art.

Rather than on Horomaka itself, moa hunting appears to have occurred predominantly in open grassy habitats on the edges of podocarp forest, particularly on the Canterbury Plains between Redcliffs and the Waimakariri River (Anderson 1989b). The eastern moa (*Emeus crassus*), from lowland shrub and forest, and the little bush moa (*Anomalopteryx didiformis*), from wet lowland bush, were the most common moa species found at Moa Bone Point Cave, though seal bone was more common. The eastern moa and the broad-billed moa (*Euryapteryx gravis*), also from lowland shrub and forest, were the most common from Redcliffs Flat (Anderson 1989b 128; Challis 1995 12, 13), although again seal bone was more prevalent in midden (Dawson & Yaldwyn 1975). Ovens with moa bone are dotted up and down the Canterbury coastline, with especially large amounts of moa bone found at Waitaki and Rakaia River Mouths and Wakanui (Anderson 1989b 132). These moa species were not just important for subsistence reasons but also for industrial material for manufacturing tools and ornaments.

### ***Horomaka as the Horticultural Margin***

Of the Polynesian crops that could grow in Aotearoa, only kūmara (*Ipomoea batatas*) was successful in the South Island due to climatic restrictions. Kūmara, alongside the endemic cabbage tree (tī kouka, *Cordyline australis*), was cultivated down the east coast just past Horomaka (known as the southern horticultural margin), enabled by developments in storage pits and altered soils (Beattie 1994; Brailsford 1981; Davidson

1984 193; Harrowfield 1969 98-100; Leach 1969; Walton 1985; Yen 1961 339). Tī kouka may have been more important than kūmara in Canterbury (Fankhauser 1986) and there is a peak in umu tī (large tī root ovens) at 600-700 cal. BP in south Canterbury (including some around Lake Forsyth, on the southern edge of Horomaka), which decreased over time (Fankhauser 1992).

There were however, many wild plants in the podocarp forest, swamp or tussock grassland that were utilised for their berries, flowers, or rhizomes. These include totara, fuchsia, ngaio, karaka, raupō, flax, ririwaka, aruhe (bracken fern), raupeti, karamu, papaii, and tutu (Leach 1969 33-35, 96). Karengo (seaweed) could also be collected from local bays (Reed 2002 71). Aruhe (*Pteridium esculentum*) was the most significant wild South Island food, growing well on cleared or open land (Davidson 1984 128). The tree karaka was utilised for its carbohydrate rich berries and deliberately planted south of its natural distribution at several sites in Canterbury and a couple on Horomaka (N36/14, N36/77); one in particular being Panau (N36/72), occupied from the 14<sup>th</sup> century AD (Jacomb 1995 104), and another (M36/67) in Sumner near to Moncks Cave (Challis 1995 32; Harrowfield 1969 98).

Umu tī, kūmara storage, and some arboriculture (karaka) show that some East Polynesian horticultural traditions continued in the South Island of Aotearoa, although wild food consumption was a higher priority. While there are many oven sites around Ihutai none of these have been identified as umu tī or raised-rim pits (Challis 1995 31), but they are still important to consider as they represent the wider subsistence, mobility, and resource procurement strategies that Redcliffs occupation was a part of.

### ***Ihutai***

Ihutai is a small, shallow microtidal estuary (Macpherson 1978; McFadgen & Goff 2005) that would have supported a large diversity of the above flora and fauna in the 14<sup>th</sup> to 16<sup>th</sup> centuries AD, many of which could be exploited for subsistence and craft. Its eastern and northern edges were bordered by bogs and swamp, leading later Māori inhabitants to be termed O-roto-repo or the ‘swamp dwellers’ (Taylor 1952 48). This catchment was fed by the Avon and Heathcote rivers and fringed by scrub and podocarp forest (Figure 2.3). The swamp supported a variety of waterfowl and useful wild plants until its drainage in the 1870’s (Hercus 1948). Bounding the eastern and

seaward side of the estuary was the Te Korero-karoro (South Shore or “Seagull’s Chatter” (Ogilvie 1978 62)) dune spit, which was partly covered in grasses (Macpherson 1978 8) and occasionally hosted beached whales. To the south are the sandy shores of Ihutai at the base of the Port Hills, which are composed of andesitic and basaltic-andesitic flows, red-weathering agglomerates and yellow loess (Macpherson 1978 5). Several freshwater gullies, one is Watson’s Creek (Taylor 1952 49), are known to have run down the southwestern Port Hills (Scott 1963; Trotter 1975 190) and the hills themselves would have been covered in podocarp forest with many fruit trees and forest birds (Leach 1969).

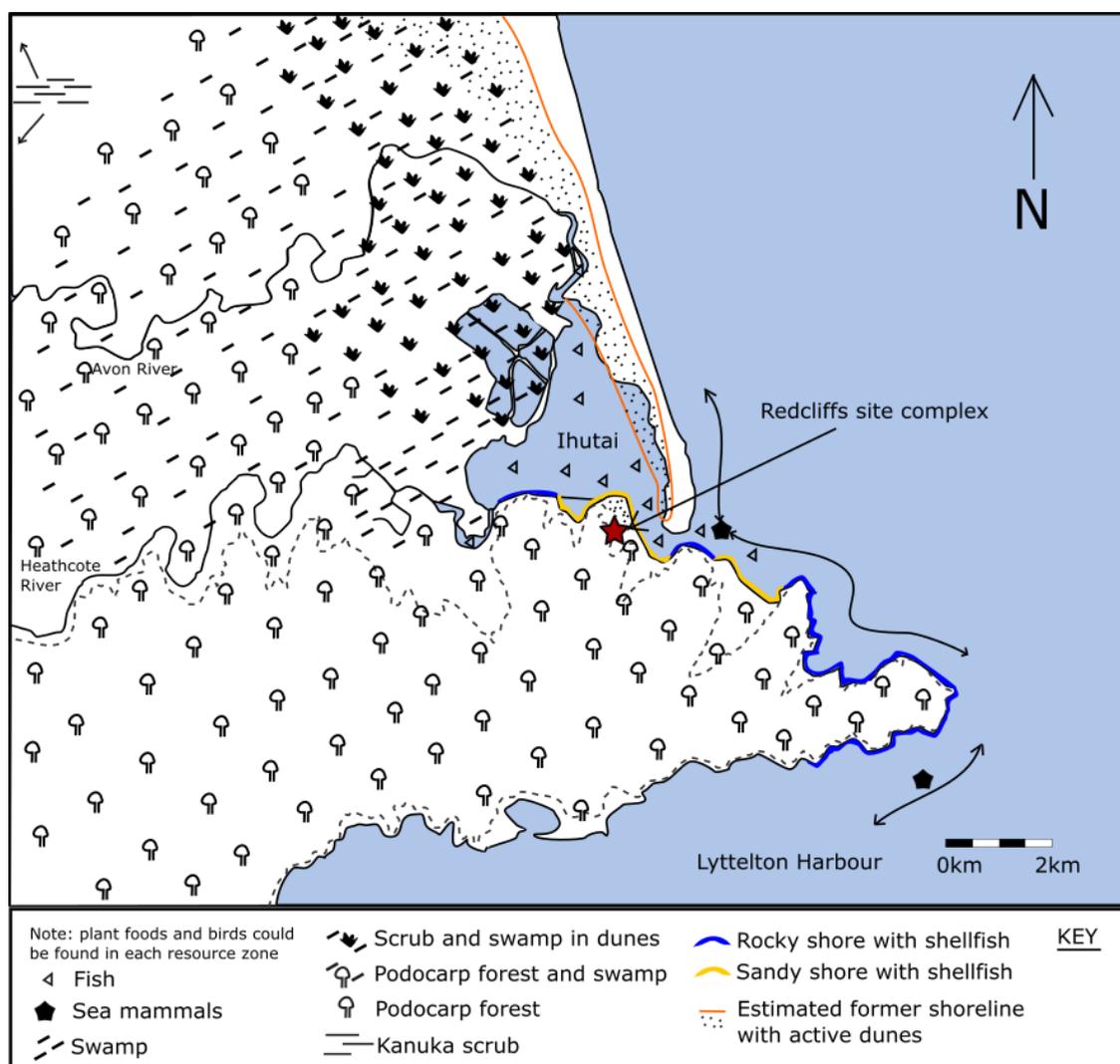


Figure 2.3. Resources and environmental areas surrounding the Redcliffs site complex, Ihutai, Christchurch. Adapted from (Orchiston 1974 F.243-F.246).

Many small caves, useful for shelter or storage, fringed the coast having been hollowed by wave action at a time when the estuary was an open bay and the hills were exposed (McFadgen & Goff 2005 228). The estuary itself was (and still is) a microclimate for

soft-shore shellfish, eels, fish, and estuary birds. The shoreline from Ihutai south around Horomaka varied between soft and rocky shore environments, which both supported shellfish and several sea mammals such as seals, sea leopards, and penguins. The southern Pacific Ocean and especially the Lyttelton and Akaroa harbours were prominent locations for dolphins, whales, and pelagic fish, such as hāpuku (groper). While this resource base has undergone some changes over time, and partly as a result of, human settlement, the local geomorphology has undergone more major changes.

### 2.3 Pre-1870s Study Area Geomorphology

The geomorphological composition and coastal location of Redcliffs and Ihutai mean that the local environment is susceptible to natural fluctuations in relation to water flow and sediment erosion and deposition (Macpherson 1978, 1979). While some features, such as the Avon and Heathcote catchments and Port Hills' composition, have stayed relatively stable over the last thousand years there are several events that have altered the landscape, especially the estuary inlet, and may have impacted on the locations and types of settlements and their preservation in the archaeological record. These can be divided into large and small scale changes in relation to their proximity to the Redcliffs site complex.

#### ***Large Scale Geomorphology: Wider Waimakariri Area and Ihutai Configuration***

Macpherson (1978 14) found that the amount of water flowing through Ihutai affects the configuration of the estuary inlet, particularly in the erosion and deposition of sediment. The volume of water entering Ihutai has remained relatively steady over time as the Heathcote and Avon Rivers have consistently drained into Ihutai from the southwest and northwest respectively. However two events at widespread time periods have largely affected the incoming water volume and thus altered the local shoreline, the estuary inlet shape, and the presence of Te Korero-karoro.

These dramatic changes were caused by temporary flows of the Waimakariri River near to Ihutai (Anderson 1989b 128; Cox & Mead 1963 31-32; Evison 1993 40; Haast 1874b 55; McFadgen 2007). McFadgen and Goff (2005) have developed a sequence describing four events, largely spaced over time since c. 4000 years ago, where Ihutai fluctuates between being an open bay and an estuary, relating to earthquakes that affected alluvial deposition from the Waimakariri River.

An event in this sequence that is relevant to the Redcliffs site complex is the flow of the Waimakariri River through the Avon and Heathcote River channels towards Ihutai and through the Selwyn River channel to Lake Ellesmere just before 700 cal. BP or AD1250 (McFadgen 2007 192; McFadgen & Goff 2005 233). There is a distribution of archaeological sites with evidence for moa hunting recorded north of Christchurch and scattered south towards Ihutai which likely followed this path (Anderson 1989b 128; Haast 1874b 56). This suggests that people inhabited the area around this time (which is earlier than our current Aotearoa colonisation model, in Chapter One, supports) and that at this time the Waimakariri catchment, along the coast of Pegasus Bay between Kaiapoi and Ihutai, was a focus for moa hunting rather than the Canterbury Plains or the Port Hills.

The change in water flow caused by this movement of the Waimakariri reduced the amount of sand drifting along Te Korero-karoro and the increased flow out of the inlet reduced the size of Te Korero-karoro, causing the formation of an open bay and the gradual change of Redcliffs and Moncks bays from a wetland coast to sand dunes. Remains of sandy shore shellfish species, such as tuatua (*Paphies subtriangulata*), rather than estuarine species were found in the marine sand layer of Moa Bone Point Cave that probably dates to this period (Haast 1874b). Some artefacts were recovered from the surface of the marine sand (see Chapter Three and Four for details) suggesting that people were coming to the area and using the caves near-when Ihutai was an open bay and before the bulk of the Redcliffs sand dunes had formed.

A subsequent movement of the Waimakariri River to its current northern channel allowed alluvium to drift south and form Te Korero-karoro again, closing Ihutai as an estuary (McFadgen & Goff 2005 234). This event is supposed to have occurred between AD1250-1500, which is the main period of occupation of the Redcliffs site complex (except Sumner Burial Ground which is undated). Numerous remains of estuarine shellfish species, such as cockle (*Austrovenus stutchburyi*), were found in the upper midden layers at Moa Bone Point Cave and Redcliffs Flat and in all midden layers in Moncks Cave around the middle-end of this time period (Holdaway & Jacomb 2000; Yaldwyn 1975). The timing (specifically mid-late AD1300 (McFadgen & Goff 2005 234)) of the reformation of an estuary environment coincides with the cease in occupation of Moa Bone Point Cave, Redcliffs Flat, and inside Moncks Cave (Trotter 1975) and the beginning of occupation outside Moncks Cave (Jacomb 2008).

Conversely McFadgen and Goff (2005 234) relate that occupation of Moa Bone Point Cave continued past this period and that the upper estuarine shell midden built up around AD1500. The current radiocarbon chronology does not agree with this, though there is only one accepted date from this site . Due to the closing of the estuary by the sand spit the water level rose and possibly was the cause for the abandonment of Redcliffs Flat and impetus for movement to Moncks Cave as the ground level was higher here. If the estuary formation was a cause of abandonment then it was not sudden, as the Redcliffs inhabitants clearly exploited the local estuary environment first. Perhaps this change, combined with the loss of moa and decline in fur seal populations, rendered the area unsuitable for any longer term settlement. Lastly, a short term flow of the Waimakariri River into Ihutai post AD1500 is inferred to have altered Te Korero-karoro to the inlet known today (McFadgen & Goff 2005 234).

It is challenging to relate these geomorphological events to Redcliffs archaeology due to the large time scales involved in this sequence in comparison to short term occupations in Redcliffs, especially when the radiocarbon dates from Redcliffs were taken over 50 years ago and many are not well provenanced. The chronologies of Moa Bone Point Cave and Sumner Burial Ground and their temporal relationships to the rest of the site complex are particularly not well documented. There is possibly still material with appropriate provenance information from Moa Bone Point Cave that would be suitable to consider for radiocarbon dating and it is important that this is investigated in the near future.

A second but more modern event further emphasizes the fragility of the local coastline to nearby changes in water flow and sand and alluvial deposition, although this was an effect of post-urban development through the drainage of Christchurch land from 1878 by the newly formed Christchurch Drainage Board (Hercus 1948). The result, over only 30 years, was the southwest growth of the tip of Te Korero-karoro, movement of the main subtidal flow further into Moncks Bay (the channel which can be seen in Figure 2.4), the reduction of Sumner Beach and extension of Clifton Beach (Macpherson 1978 12; 1979 26).

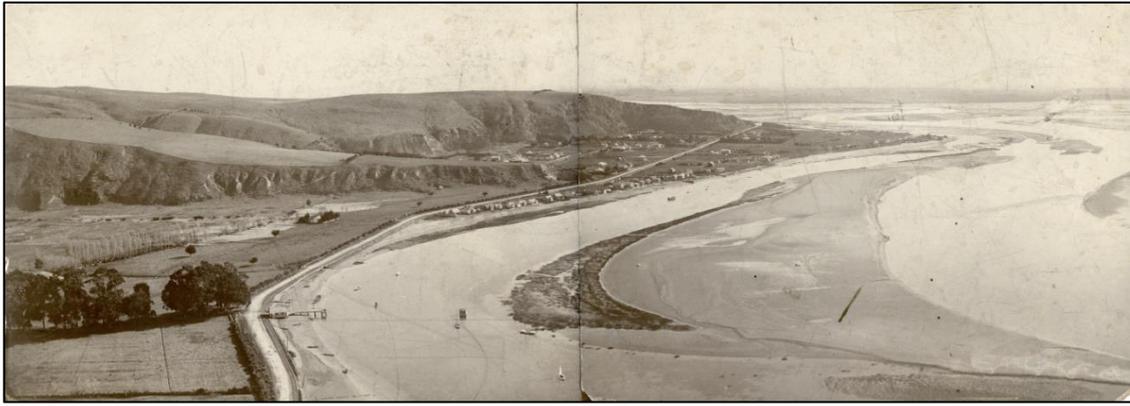


Figure 2.4. Sumner showing Redcliffs, Clifton, Shag Rock and Estuary ca. 1904, from the north west. Canterbury Museum. 19XX.1.3483.

### ***Smaller Scale Geomorphology: Ihutai Inlet***

During the above described sequence the inlet to Ihutai, in front of Redcliffs, changed largely in size and shape. The Redcliffs flat was first formed when Ihutai was an open bay (Haast 1874b; McFadgen & Goff 2005 232-234). Then a volcanic spur projected into the sea (of which Main Road now cuts through) and parts of it were broken by wave actions and carried in an eastern band fronting the Redcliffs and Moncks bays, over which sand dunes formed. The area became more sheltered with the reformation of Te Korero-karoro around the end period of Redcliffs occupation, but has always been susceptible to environmental and human induced fluctuations.

Human induced changes began since European arrival in Christchurch in the 1850s. Early maps and accounts of the Redcliffs shoreline show that the land directly in front of Redcliffs Flat projected further to the northeast and that a tidal mud flat extended into the northern edge of this land (Trotter 1975 190). The mud flat, named O Hika Paruparu or Fisherman's Flat, was used for spearing eels and gathering shellfish (Ogilvie 1978 62). This mud flat is now reclaimed and used as a recreational park and jetty area. The rest of the shoreline that used to fluctuate with the tide as a muddy swamp has been stabilised by rock and cement walls (Trotter 1975).

Such large scale geomorphological, and resulting ecological, changes as described above will have influenced human attraction to the area and likely their lifestyles and economic practices. These, plus smaller scale human induced changes, will also have altered the coastline in close proximity to the Redcliffs site complex possibly resulting in the loss of occupation or cultural evidence. While this cannot be recovered, it is

important to keep such a dynamic environment in mind throughout the rest of this study. Several other archaeological sites in close proximity to the estuary edge also give evidence for the attraction of Ihutai and especially give an impression that some of this material so close to a fluctuating water body is likely to have been lost over time.

## 2.4 Ihutai Archaeology

As discussed above, the South Island's east coast was a hub for human settlement resulting in a cluster of archaeological sites, such as gardening sites and shell middens, between the Rakaia and Waipara rivers (Challis 1995 3). Most of these, including those on Horomaka, were identified and recorded throughout the 1950s to late 1980s (Challis 1992 1; Harrowfield 1969; Jones 1962; Trotter 1967, 1975). Several sites with occupation dating to the AEP or Transitional phases are dotted around the inlets of Horomaka, including Tumbledown Bay, Panau, Birdlings Flat, Lake Ellesmere, Takamatua (Akaroa), Purau, and Pigeon Bay (Challis 1995; Duff 1977; Trotter 1982). There are also many ovens, middens, pits (most frequently raised rim and round), terraces, and pā sites, occurring in a greater density near Birdlings Flat, the coastal side of Lake Ellesmere, and along the banks of the Waimakariri River. There are fewer on the alluvial plains between Ihutai and Lake Ellesmere where fresh water and coastal access were more distant.

Julius von Haast (1871, 1874a, b) and Michael Trotter (1967, 1975, 1982) were influential in their range of surveys and excavations surrounding Ihutai with the resulting discussions adding to debates about the origins and lifestyle of the 'Moa-Hunters' and their descendants, and the date of moa extinction, which was of particular import to Roger Duff's (1956) work around this time. In addition to the Redcliffs site complex, there are many smaller archaeological sites around Ihutai (Figure 2.5). Most of these sites are simply occupational deposits or middens reflecting short, food related stays and many are likely to have been occupied during similar time periods to the site complex and perhaps by the same hapu. Several rockshelters on the Port Hills were also used for this purpose. There is however one site, Bromley (M35/295 or S84/73), that is significant in being an urupa with AEP artefact types near several midden deposits (Wilkes 1965). Clearly the area was a locus for short term, subsistence-focused visits but also had an aspect of greater cultural importance with the internment of koiwi tangata (human remains) and taonga tūturu (treasures).

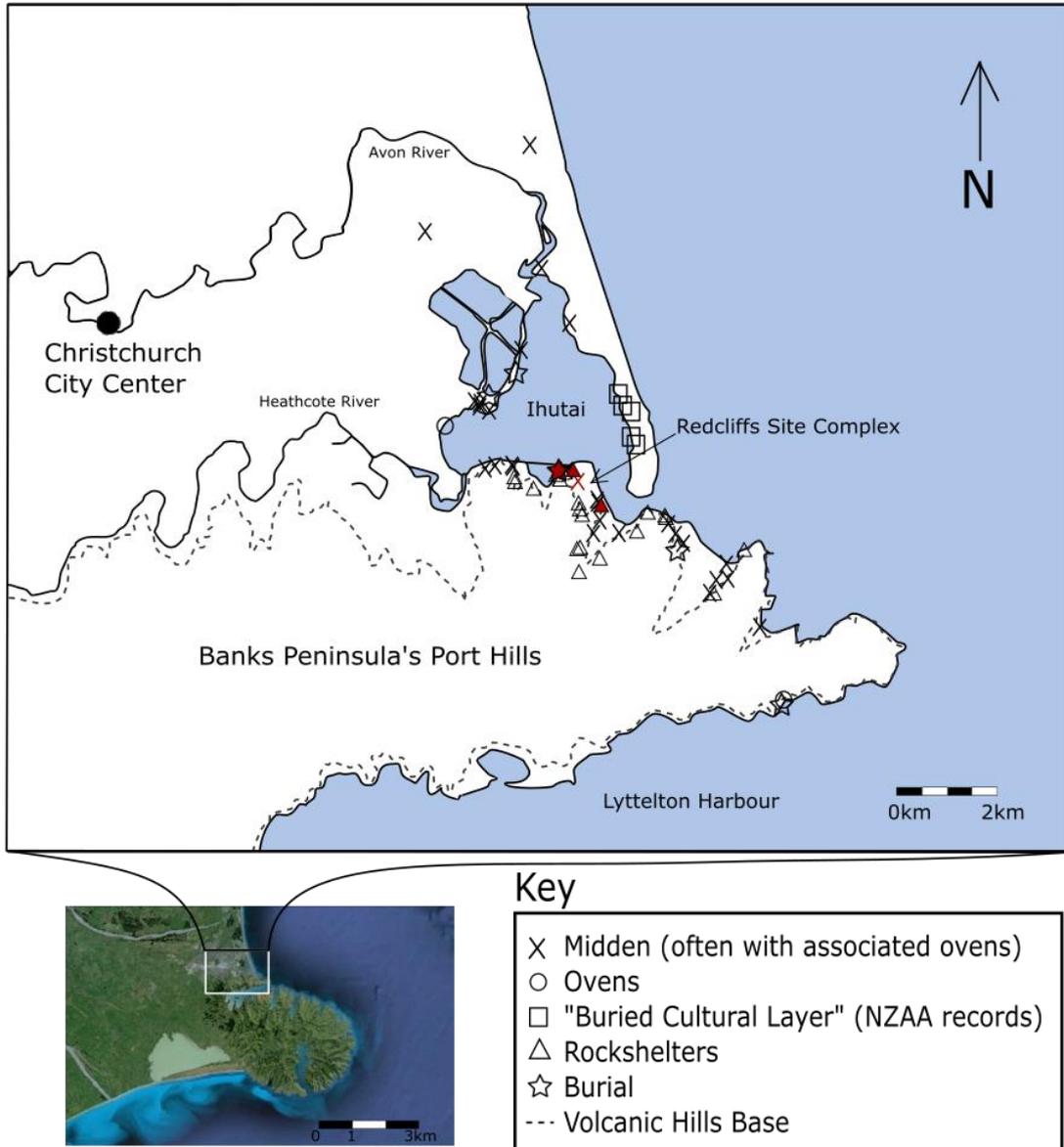


Figure 2.5 Map of Ihutai (Avon-Heathcote Estuary) with types of archaeological sites from Archsite 2016 (NZAA). Note that the 'Burial' sites were all recorded as being Māori but none have been dated and few had any associated material with which to infer a date. Map Data: 2016 Google, TerraMetrics.

### ***Where does Redcliffs fit in?***

The Redcliffs site complex sits as one of the many camp sites around Ihutai, but is notably larger and with deeper stratigraphy and more notable material culture than nearby sites. The Redcliffs and Sumner bays sit in a hub of the environmental zones discussed above providing access to most resources of importance to South Island Māori life. Redcliffs and Moncks Bay evidently were of a different nature during their first settlement. Their particular advantages were the natural shelter of the large caves and proximity to the coast and freshwater gullies. The formation of sand dunes in these bays would have made the area more suitable for the settlement of a large group of

people. This chapter has outlined the range of floral and faunal resources available for subsistence and industry during occupation of Redcliffs as well as in the wide scale surrounding landscape. These can be tied into the discussion of early South Island settlement and subsistence systems in Chapter One. In summary, a camp at Redcliffs would have had access to all the things that would facilitate a busy but comfortable everyday life, even in winter:

- Fresh water
- Large range of food, proteins, and plants
- Timber
- Flax and raupō as textile materials
- Large bone material from moa and seal
- Lithic material for local tool production and oven stones
- Locations to land and store waka
- Dry sheltered locations for camping
- Easily accessed routes inland, especially via the Waimakariri and Opihi rivers, and up the coast

It is likely that the area was well known and valued for its abundance and variety of resources in proximity to a suitable camping locality. It is likely that the physical characteristics of the Redcliffs area resulted in its selection over Sumner and other locations around Ihutai. The end period of occupation here occurred around the timing of several large changes including the national loss of moa species, reduction of seals, and the local geomorphological changes of Ihutai which too will have affected the local ecology, particularly in the change from coastal to estuarine species. At some stage Ihutai is also likely to have been a tapu area, or place for communities to return to with reverence for the nearby urupa at Sumner Burial Ground and Bromley. But, while Redcliffs was physically suitable to a large sized settlement, long term settlement was likely restricted by the site's proximity to a highly changeable coastline and the timing of occupation in relation to nationwide ecological changes.

## 2.5 Chapter Conclusion

Redcliffs, and the surrounding Ihutai area, represent a hub of resources attractive to hapu practicing a highly mobile and seasonally fluid settlement and subsistence system

during the first few centuries of settlement in Aotearoa. This chapter has offered some insights into the dynamic nature of the local coastal landscape and how it may have influenced both Māori settlement around Ihutai and the preservation of archaeological remains. The suggestion that people may have been at Redcliffs when Ihutai was an open bay probably will not alter interpretations of the material culture as the area still presented a very similar range of resources and a similar seascape for people to use. However, the possibility that hapu were living at the Redcliffs site complex during the subsequent growth of the Te Korero-karoro spit and creation of the estuary environment reveals Redcliffs as a vibrant and variable stage for the activities and settlement of mobile communities with close ties to the seascape and coastal landscape. The changes to the environment and subsequently to settlement at the end of Redcliffs occupation tie in with discussions of turmoil and rapid change in the Transitional phase (Davidson 1984; Holdaway & Jacomb 2000; Jacomb 1995; Walter 1994). Future research on the Redcliffs site complex will require much tighter control over chronology in order to make any direct ties to local landscape and geomorphological changes.

It is also important to consider the proximity of the Redcliffs Flat archaeological site and other more recently discovered middens (see Chapter Three) to the estuary edge in light of the highly fluctuating coastal environment. It is reasonable to consider that areas extending from or opposite the Redcliffs sand dunes may have been used for short term camps, cooking locations, or for midden refuse and are now lost. This comment is important to keep in mind throughout the current research project as it widens the scope of the site complex extent as well as in addressing the interpretations within a dynamic seascape, not just a landscape.

# Chapter Three: Redcliffs Site Complex Synthesis

## 3.1 Introduction

This chapter aims to bring clarity to the history of archaeological investigation of the Redcliffs site complex, Ihutai, Canterbury (Figure 1.1), through a review and synthesis of archaeological records. The main period of work at Moa Bone Point Cave, Redcliffs Flat, Moncks Cave and Sumner Burial Ground occurred between 1865 and 2003, mostly by researchers in the Canterbury Museum Archaeological Society (CMAS) and the New Zealand Archaeological Association (NZAA) with local volunteers. The known archaeological excavations during this period are outlined here in order to trace how these sites have been treated over time and what resulting information is available on the excavations and the resulting artefacts. The synthesis of archaeological information focuses on details regarding the locations of various excavations, their archaeological features, artefacts, stratigraphic records, dated material, and general interpretations made by the researchers. It is organised by site and then by excavation event, in order to identify each excavation as a separate event with which archaeological material in the Canterbury Museum can be associated.

By synthesising the diverse archaeological history and records of the Redcliffs site complex into a single resource this chapter will build a greater understanding of the quality and type of information available for use in analysis of the site complex, its material remains and, in particular, the provenance of important artefacts and evidence for changing occupation over time. Currently, this information is confused and vaguely presented in much of the published literature. This work will set up a strong background for the organisation and analysis of artefacts from the Redcliffs site complex, held in the Canterbury Museum, and for the development of models of the area's chronologies, site relationships, and use within this thesis.

### ***An Introduction to Redcliffs Archaeology***

The presence of interesting archaeology in Redcliffs has been recorded from the mid-1800s (Hansard 1849; Torlesse 1851) and since has been well known nationally, especially for its recovered wooden artefacts and textiles (Table 3.1).

**Table 3.1. A timeline of the discoveries and archaeological investigations of the Redcliffs site complex Christchurch, between 1851 and 2003.**

<b>Period</b>	<b>Date</b>	<b>Event</b>	<b>Publication</b>
1850	1851	Discovery of moa bone at Redcliffs and removal of some bone by men on the “Acheron” in 1849.	Torlesse 1851; Hansard 1849
1860			
	1865	Julius von Haast excavates ovens outside Moa Bone Point Cave.	(Haast 1874b)
1870	1872	R. Lowman and A. McKay excavate Moa Bone Point Cave under the employ of Julius von Haast.	Haast 1874b; McKay 1874; Skinner 1923
	1873	Discovery of Sumner Burial Ground (“The Cutting”).	Haast 1874a
1880			
	1889	Discovery of Moncks Cave and excavation by H. Forbes and J. Meeson.	Meeson 1889; Forbes 1890; Skinner 1924
1890		Probably years of fossicking by the public as the caves are known but left open until further investigation.	
1900			
1910			
1920			
1930			
	1938		Roger Duff excavates nearby rockshelters on Balmoral Lane and midden on the Hamilton property, Redcliffs Flat.
1940	1946-8	E. Dawson, S. Hovell and J. Yaldwyn excavate the same Hamilton midden, Redcliffs Flat.	Dawson and Yaldwyn 1975
1950			
	1957-9	Main excavations of Redcliffs Flat (Nos 6-12, Figure 3.11) by the CMAS and NZAA team.	Trotter 1975, 192
	1958	Excavation of Moa Bone Point Cave by the CMAS and NZAA team and local volunteers continue this until 1968.	Trotter 1975, 193
	1958	Workers discover a new part of Sumner Burial Ground and the CMAS excavate it.	Fomison 1964
1960			
	1966	M. Trotter and S. Hovell reopen a section of Redcliffs Flat previously excavated by Hovell and Duff in 1957.	Trotter 1975
	1969	M. Trotter excavates Main Road sewer main trench, Redcliffs Flat.	Trotter 1975
	1969	M. Trotter excavates part of the Hamilton Property bought by the Canterbury Education Board for Redcliffs School.	Trotter 1975
1970			
1980			
1990			
	1998	Further excavation of Moncks Cave by Chris Jacomb.	Jacomb 2008
2000	2003	Excavation of 27 Main Road, Redcliffs Flat, by Chris Jacomb.	Jacomb 2009

Unfortunately this has meant that before formal investigation was carried out, and even during excavation, the archaeological sites were frequently depleted by fossickers. The sites have also been damaged by historical use, particularly Moa Bone Point Cave due to its size and location. Moncks Cave was rendered inaccessible by a landslip since the last group of Māori occupants left, leaving an undisturbed surface scatter of artefacts “just as it had been left on the morning when the Māori who used it went off on that fishing, hunting, or marauding excursion from which he seems to never have returned” (Meeson 1889 65). Before the archaeological discovery of Moa Bone Point Cave and after that of both caves they were used for shelter by both Māori and European parties such as fishermen, lime-burners (who utilised the shell midden), picnic groups, and for holding stock and even circus animals (Haast 1874b) Major residential developments have also altered the original Redcliffs landscape by levelling the sand dunes, laying roads, drains and service pipes, and building houses over archaeological sites.

### ***The Excavation Context***

Archaeological investigations in Redcliffs occurred in places where surface midden or artefacts were reported or discovered by test probe, and in areas showing particular archaeological potential such as the large caves. Often, sites of interest were discovered by property owners and local curio-hunters. Much of the labour of excavation was undertaken by local volunteers and school children, such as the Redcliffs Junior Archaeological Club with Selwyn Hovell in the 1950s (subsequently the Canterbury Museum Archaeological Club) and the Canterbury Workers Educational Association (CWEA) (Burrage & Norris 2007).

In between such scattered informal efforts, formal excavations led by trained archaeologists were sponsored by Canterbury Museum. They were principally led by archaeologists during significant developments in Aotearoa’s archaeological discipline, including Julius von Haast in the late 19<sup>th</sup> century, Roger Duff in the early-mid 20<sup>th</sup> century, Michael Trotter in the mid-late 20<sup>th</sup> century, and Chris Jacomb at the turn of the 21<sup>st</sup> century. The mix of untrained and trained excavators led to controversy throughout the 1960s. Disputes over the rights of the excavator and the ownership of archaeological material arose due to the formalisation of the Canterbury Museum Archaeological Society (CMAS, previously the Canterbury Museum Archaeological Club) with a code of conduct for the ethical excavation, protection, and public

ownership of Aotearoa's archaeological sites. At the same time the New Zealand Youth, Historic, Scientific and Recording Society was formed, with Selwyn Hovell as a member, and became the disputing party as it advocated for curio-hunting values where the excavator was seen as the owner (Burrage & Norris 2007; Duff 1960-62 14).

The CMAS code of conduct resulted in greater protection of material culture from previous and future excavations with more material being sent to Canterbury Museum. Many of the names seen in relation to Redcliffs excavations belonged to the CMAS, including Roger Duff, Tony Fomison, Owen Wilkes, Michael Trotter, A. Eyels, J. Freeborn, and Sally Burrage.

It was not until after the major period of investigation in Redcliffs that the 1975 Historic Places Amendment Bill and Antiquities Act was passed to enforce greater protection on archaeological sites, such as the requirement of permits for excavation, which the previous excavations had really needed. Only Chris Jacomb's excavations and modern post-2011 earthquake investigations have benefitted from the restrictions and protection imposed by Heritage New Zealand (previously the New Zealand Historic Places Trust). Such variation in preservation, modification, and protection of the site complex has resulted in inconsistencies in the quality of the archaeological work and recording carried out at each site, resulting in a disconnection between much of the material, published and unpublished, and particularly in discussions of how the sites relate to each other. The methodology has been developed to identify and synchronise this information.

### 3.2 Methods

There have been many reviews of areas of archaeology in Aotearoa (Barber 1995; Challis 1992, 1995; Leach 1972) but few have targeted specific archaeological sites (Brooks et al. 2011) due to sites often having short periods of investigation, being investigated by the same research team over time or having been subsequently destroyed. The Redcliffs site complex is a group of sites that have a confused and irregular history of investigation. Similarly to Wairau Bar (Brooks et al. 2011), Redcliffs has been subject to decades of archaeological work, yet this has been completed in a less organised way and by a wide range of parties.

It is therefore crucial that details from the history of investigation of the Redcliffs site complex are recovered, outlined and systematically synchronised before the material culture collection is examined. This work will inform a realistic approach to the material culture analysis and will be achieved by building a basic outline of the excavations of each site using published excavation reports (Haast 1874a, b; Jacomb 2008, 2009a; McKay 1874; Meeson 1889; Trotter 1967, 1975) and associated literature (Duff 1963; Holdaway & Jacomb 2000; Skinner 1923; Skinner 1924). This will then be supplemented by details obtained from excavation field books, Canterbury Museum Archaeological Associated Material, and CMAS Records. Field books by Julius von Haast and Alexander McKay are not available, but several by Roger Duff, Michael Trotter and two by Chris Jacomb are stored in the Canterbury Museum records and archaeological associated material.

The specific aim of this work is to correlate data from the available secondary sources to make clear the why, when, where, how, and what of each excavation event and to analyse the factors that have resulted in the material culture collection that we are left with today. The information sought from the combination of published and unpublished resources includes:

- Reason for excavation and limitations
- Who excavated and association with CMAS and NZAA
- Physical location of the excavations
- Extent and location of excavation squares
- Basic description of artefacts
- Basic description of fauna
- Radiocarbon dating samples and determinations
- Where information on artefacts and midden is available
- Stratigraphic records
- Presence and extent of disturbance

- Features such as ovens, human burials, structures, and midden deposits
- Provenance information for artefacts, features, and fauna

### 3.3 A Synthesis of 140 Years of Archaeological Investigation of Redcliffs



Figure 3.1. View of the study area showing the archaeological sites of Sumner Burial Ground, Moa Bone Point Cave, Redcliffs Flat and Moncks Cave, The Redcliffs site complex, Christchurch. Map Data: 2016 Google.

#### ***Moa Bone Point Cave (M36/25)***

Moa Bone Point Cave is a ground level cave in a volcanic spur at 8b Main Road (previously Sumner Road; Figure 3.1). The cave has one massive chamber and two much smaller ones. The cave floor slopes down towards the back and the ceiling is particularly low in the middle chamber which makes access difficult (Figure 3.2). The

cave entrance faces northeast and is partly blocked by rock fall from the cave ceiling. One rock is especially large and restricts light from entering the cave (Figures 3.2, 3.3).

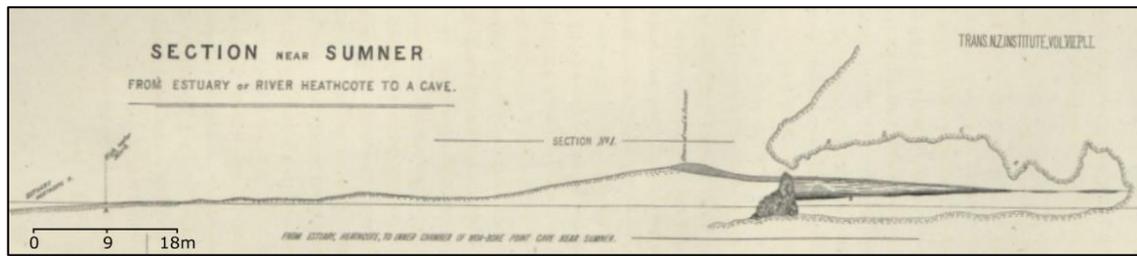


Figure 3.2. Julius von Haast's cross section of Moa Bone Point Cave showing ceiling height and the extent of the sand in front in 1872. The distance from the high tide mark to the front of the cave as diagrammed is c. 86.9m.

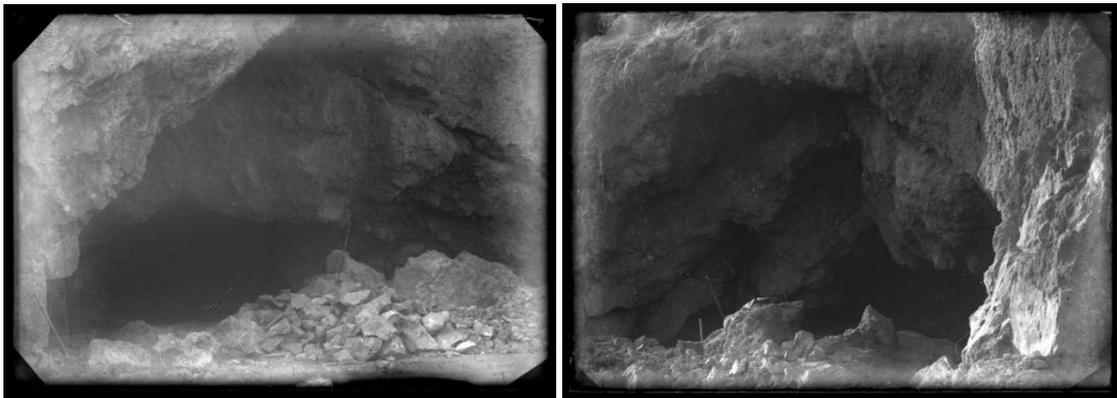


Figure 3.3. Entrance to Moa Bone Point Cave, Redcliffs, in the late 1950s. W A Taylor collection, Canterbury Museum, 1968.213.3041 and 1968.213.3040.

**1872:** The first excavation was one of the more theoretically motivated projects at the time, being directed by Julius von Haast, the then current Canterbury Museum Director (Furey 2004 30). Funded by the Philosophical Institute of Canterbury, Haast employed two workers, Alexander McKay and R. Lowman, to carry out, often unsupervised, the seven week excavation (Haast 1874b; Trotter 1975). The aim was to determine the period of moa extinction. Two cross trenches were excavated in the main chamber followed by irregular excavation of the surrounding areas (Figure 3.4). There is no record of the exact location and extent of excavation. From findings in 1957 (discussed below), it appears that the area between the western wall and Trench No. 1 was not excavated. Moa Bone Point Cave's stratigraphy was deeper than many comparative South Island 'Moa Hunter' sites (such as Shag and Rakaia River Mouths), with cultural material being deepest near the cave entry, at c. 2.4 m (Duff 1977 255; Haast 1874b 58).

The main findings were of large shell middens in the main chamber that covered most of the floor below European debris and gradually thinned out towards the middle

chamber (c. 1.9 m to c. 600-900 mm deep) above layers of ashy-dirt and non-shell midden. Both midden types contained sea mammal, small bird, and kuri bones, with a tiny number of fish bones in the shell midden. The excavated area was scattered with a large number of wooden, stone, bone, and textile artefacts. Three posts of a structure, three ovens (dimensions unknown), and a grave with a complete skeleton (koiwi tangata) were the major features identified (Haast 1874b).

One of the earliest archaeological controversies in Aotearoa arose from this excavation when Alexander McKay's report (1874) was read to the Wellington Philosophical Society in 1874 before Julius von Haast had presented and published his own report to the Philosophical Institute of Canterbury. Details of the controversy, with discussions of the expectations of paid workers and employers, have been presented by Anderson (1989b 102-104), Haast's son, Heinrich F. von Haast (1948 729-740), and Yaldwyn, Dawson, and Davidson (2006) thus will not be discussed further here.

**1957:** Though much of the cave had been excavated and its stratigraphy disturbed by Haast's excavations, Selwyn Hovell identified an unexcavated area by the western cave wall and, alone, excavated a series of 2.4 m<sup>2</sup> squares in 1957 (Figure 3.5). Roger Duff discovered and stopped Hovell's work as he had uncovered artefacts, an oven (Figure 3.4), and intact stratigraphy that may have helped to resolve controversy over Haast's distinct cultural layers (Duff 1956-1958; Griffiths 1958). Duff describes Hovell's excavation as "the usual burrowing" so that artefact provenance was lost and the stratigraphy was disturbed but not recorded. Most of the artefacts were found in crevices in the rock wall and appear to be of the same kind as already excavated by Haast (Duff 1956-1958 43).

**1958-1968:** The second major excavation of Moa Bone Point Cave was organised by Roger Duff, following Hovell's finds, and began in January 1958 (Trotter 2004 218). This was the first national project sponsored by the New Zealand Archaeological Association (NZAA) after its formation in 1957 (Burrage & Norris 2007). The excavation was led by NZAA and CMAS members, including Roger Duff, Selwyn Hovell, Tony Fomison, John Yaldwyn, Jack Golson, and Michael Trotter with up to 15 local volunteers, including school students in the Junior Archaeological Club (Junior Digest 1958). Local volunteers carried on the work intermittently until 1968 as part of the CMAS (Duff 1959-60 17; 1960-62, 1962-63; 1963-64 18; 1965-66 29; 1966-67 40).

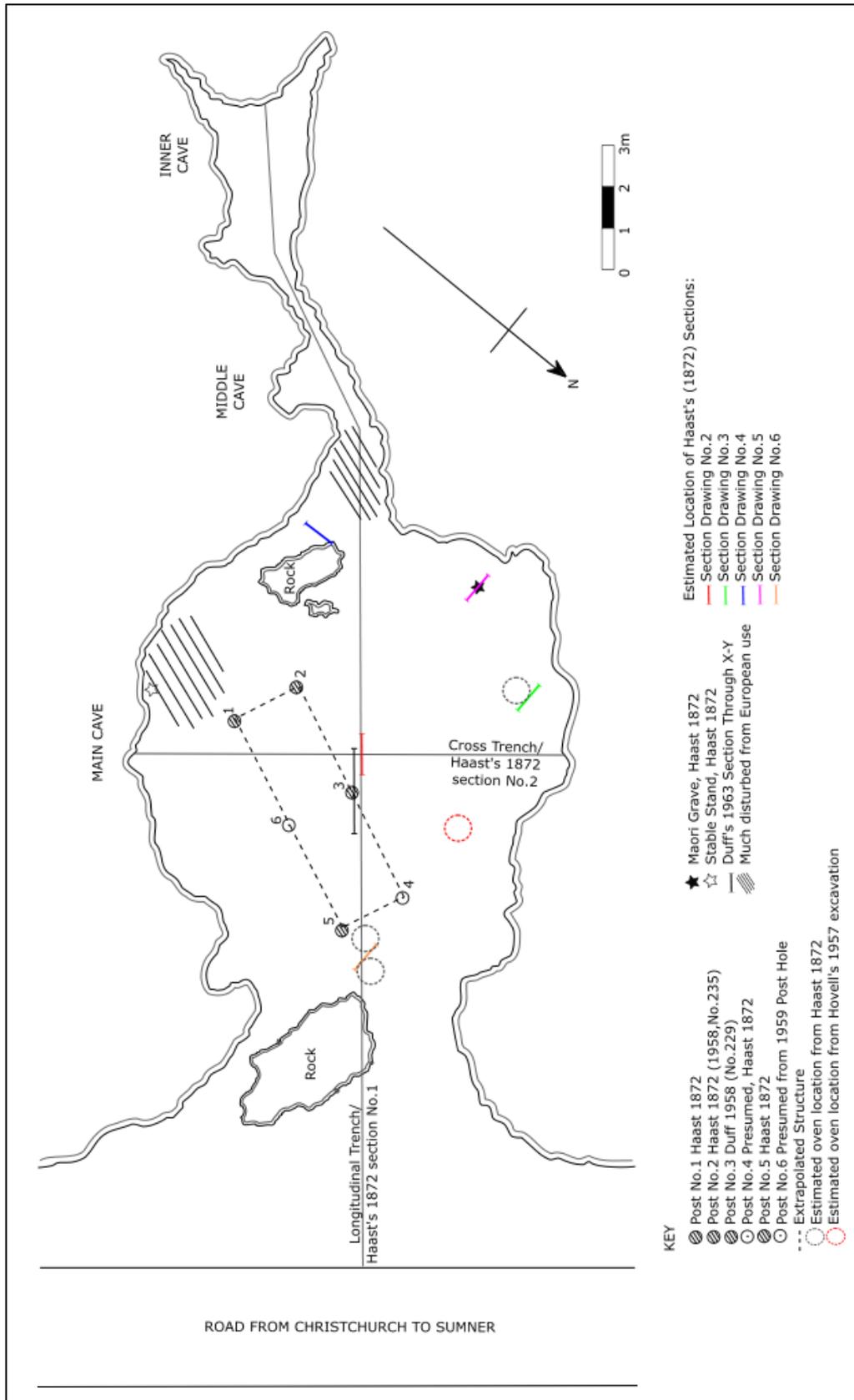
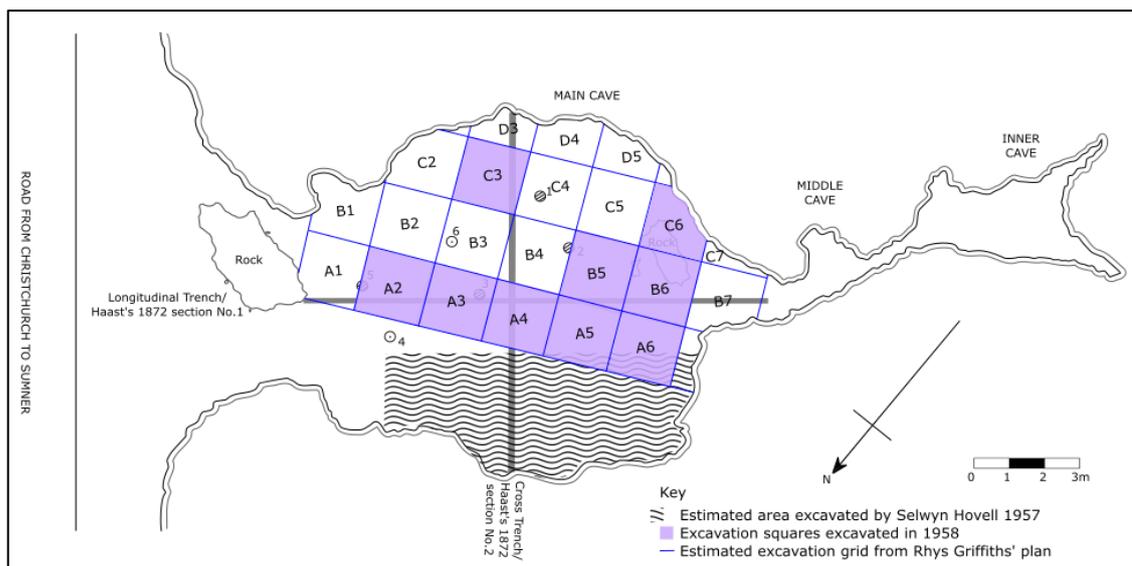


Figure 3.4. Plan of Moa Bone Point Cave, Redcliffs, after Julius von Haast (1874) and Roger Duff (1963) with outline of posts and the proposed structure. The estimated locations of cross sections in Figure 3.2 are also shown.

These excavations were never formally written up, though they have been mentioned in CMAS newsletters and in literature by Roger Duff (1956, 1977) and Michel Trotter (1975).

The team excavated a trench along Hovell's spoil to salvage anything he had missed (Duff 1958a). Many artefacts and some moa bones were recovered but could not be associated with stratigraphy or the oven. An excavation of 21 4 m<sup>2</sup> squares (A1-D7) was set across the majority of the cave floor to be excavated over the next decade. It is not clearly recorded where these squares were located, though a rough estimate (Figure 3.4) was determined from sketch plans by Roger Duff (Duff 1959a 44) and Rhys Griffiths (1958), although they did not align together. A separate grid was used for later excavations as the Canterbury Museum Ethnology Registers have records of excavation squares T-Y (1961).



**Figure 3.5. Plan of Moa Bone Point Cave, Redcliffs, showing the estimated excavation layout for excavations made between 1957-60. The plan is a rough estimate from Rhys Griffith's (1958) sketch plan and will have inaccuracies as two sketch plans of parts of the excavation squares by Roger Duff (1955-1958; 1959a 44) show a slightly different alignment with square C7 positioned in the entrance to the Middle Cave.**

Much of the area had already been excavated by Haast's team, meaning that the 1958 team found areas of highly disturbed stratigraphy and rediscovered both post No. 3 and the grave. As his speciality, Jack Golson was in charge of recording stratigraphy (although it is unknown where his records are) and promoted the then new concept of excavating by stratigraphic layers (Trotter 2004 219). In 1958 Griffiths (1958) emphasized the extent of disturbance to the site by describing "a glorious mixture of broken bottle glass, pieces of fencing wire, elephant dung, Indian grass, clay pipes,

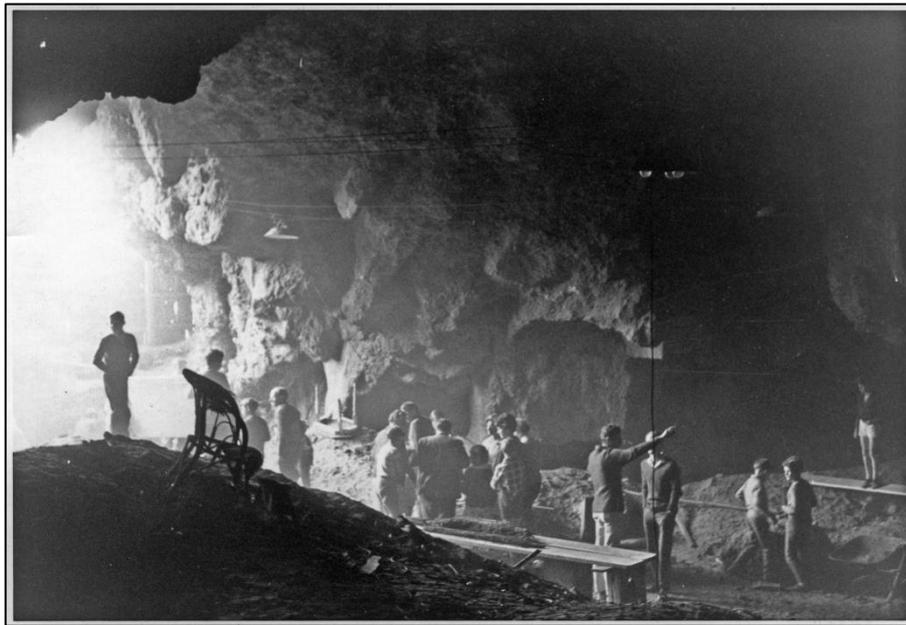
Māori artefacts, and countless shells, that the resolving of cultural sequence from the present area dug is quite hopeless”. Although several experienced archaeologists of the time (Duff, Golson, and Trotter) were present throughout the excavation, the difficult state of the strata in being highly disturbed and previously dug over with the assistance of many volunteers meant that any sense that could have been made of the remaining stratigraphy and artefact provenance was lost. In his field notes, Duff mentions that proper trowelling techniques were discarded due to the already disturbed nature of the stratigraphy and that mistakes were made by untrained volunteers, highlighting the “orderly disorder” of an excavation made by a team fluctuating in numbers and experience (Duff 1958a). Despite issues with the scientific quality of excavation, this period of work was one that encouraged public engagement with archaeology and remained widely open to the community through volunteers and public lectures (Figure 3.6, 3.7).

Overall, another post butt (Figure 3.4), shell midden, moa eggshell and many wooden, textile, stone and bone artefacts were recovered (Duff 1958a, 1959a; Griffiths 1958). Many artefacts were recovered from areas that appeared to have previously been dug, whether in 1872 or other unrecorded digging (Griffiths 1958). During these excavations, occasional artefacts that had been fossicked from the area many years ago, including a ground basalt adze, were returned to museum staff on site. To prevent further fossicking the cave was fenced off between excavation seasons (Duff 1958a). The excavation of squares B1-D7 to the eastern wall and just into the channel to the second chamber was carried out by a “motley and overlarge team” on alternative Saturdays until 1960 (Duff 1959a 40; 1959-1960 9). They found similar material culture to the rest of the cave and noted that their contexts were particularly disturbed having been excavated in 1872. The southeast corner (along line D) of the cave was suggested to have been used at an early stage for the collection of driftwood as it was very dark and revealed a deposit of uniformly placed charred logs on top of barren sand with few artefacts (Duff 1959-1960 21-25).

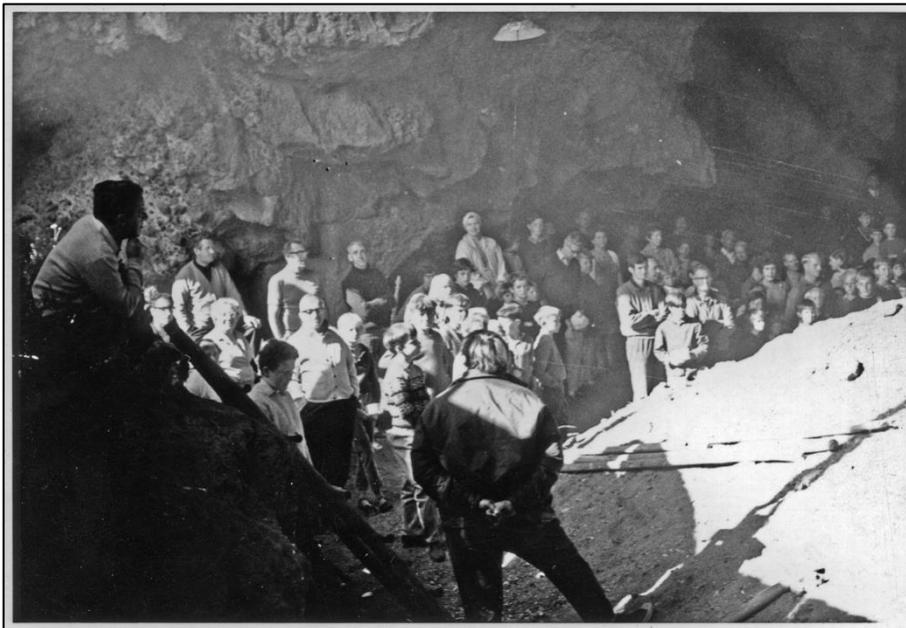
A number of radiocarbon dates were obtained from these excavations and are outlined below. The fence across the cave entrance was removed and the cave opened to the public in 1972 (Freeborn 1972). The majority of the material from both excavation periods is held in the Canterbury Museum and some artefacts are figured in Skinner (1923) and Trotter (1975). John Yaldwyn also published a small report on the faunal

remains from this excavation as an appendix to Michael Trotter's Redcliffs report (Yaldwyn 1975).

Nearby, Bill's Cave was excavated by McFadgen and Goff (2005). The aim was to use intact sedimentary layers as a correlation for the disturbed stratigraphy of Moa Bone Point Cave and Moncks Caves. No archaeological material was recovered.



**Figure 3.6. Redcliffs Cave [Moa Bone Point Cave], public lecture by Roger Duff 22 March 1969. Anthony Thorpe photograph Christchurch City Architects Division Canterbury Museum, Canterbury Museum Archives.**



**Figure 3.7. Redcliffs Cave [Moa Bone Point Cave], public lecture by Roger Duff 22 March 1969. Anthony Thorpe photograph Christchurch City Architects Division Canterbury Museum, Canterbury Museum Archives.**

## **Features**

Ovens: three ovens were identified in 1872 in the lower layers of the main chamber, below shellfish midden. The ovens had been filled in with ashy dirt, moa bone and charcoal after use. Two were positioned between the structure and the cave entrance (Figure 3.12) and the third in the southwest corner (Figure 3.4). The oven nearest to the cave entrance was in a spot with no agglomerate layer (McKay 1874). Some of the agglomerate had been removed from the second northern oven though some were used as oven stones. The southwest oven had a c. 80 mm layer of oven fill with cracked oven stones below a 152 mm agglomerate layer (Haast 1874b 62). Near to this oven two fire sticks and several pieces of moa eggshell were found. No ovens were filled with or located near shell midden.

Wharau (Canoe House) Posts: five wooden post butts and one post hole (Figure 3.4) were discovered in the main chamber (Trotter 1975 203). The original posts were dug into the marine sand layer and burnt down at some point as most are burnt. McKay and Lowman found three posts in 1872 (No.s 1, 2, and 5, Figure 3.4) and probably removed two of them, the third (No. 235) being rediscovered in square B4 in 1958 (Duff 1958a). Two are identified as burnt rimu wood with the bark scraped off and are 203 mm in diameter. The fourth post was excavated in 1958 from excavation square A3 (Post No. 229, No. 3 in Figure 3.4) and was held in by two boulders and a large *Euryapteryx* moa tibia (Duff 1958a). This post was identified as uncharred totara with some bark remaining and measured 146 mm high by 229 mm in diameter (Duff 1963). The top had been chopped off, possibly by McKay, to sit flush with the marine sand. A post hole was excavated in 1959 in square B3 which was interpreted to be from post No. 6 (Figure 3.4), which may also have been removed by McKay (Duff 1959b 9). A fifth post butt, 127 mm in diameter, was excavated from barren sand below a midden layer between the southeast rock and the channel to the second chamber and does not relate to the structure inferred by the other posts (Duff 1959-1960 12).

In the area within the post butts there was no agglomerate layer below the shell and ash layers, which was suggested by Haast (1874b 67) to have been removed before construction of the structure. From the inferred location of these post butts there appears to be the outline of a long rectangular structure facing the cave entrance,

1.2 m by 3.7 m, and is the only evidence of a structure in the Redcliffs area. Haast originally interpreted this as a store house (Haast 1874a; b 90) but Duff (1963) and Trotter (1975 193) later support it to be a small wharau (canoe house). The evidence for a wharau is the removed agglomerate and its length and angle towards the entryway, which would have allowed a long waka to be dragged in around the large rock.

Human Remains (Koiwi Tangata): The only complete skeleton from Redcliffs other than at Sumner Burial Ground was interred in the southwest corner of the main chamber of Moa Bone Point Cave (Figure 3.4). The grave had been dug through shell, ashy dirt, and agglomerate layers into marine sand (Haast 1874b 67). The skeleton was in a crouched position facing the southwestern cave wall and tied with flax. Some ligaments and head hair were preserved on the body and the left ulna was broken. The cave had been occupied after this burial, resulting in the deposition of shell midden above it. Other koiwi tangata were found in the cave in 1872 and 1958-9. The right ramus of a lower jaw and a heel bone were found in the marine sands in the west side of the cave, below part of a fur seal skeleton, both of which Haast (1874b 74; McKay 1874 99) interpreted as having drifted in with the sea, though McKay described this as an undisturbed location below the sand surface. Two male pelvic bones and a ninth dorsal vertebra were also found in the upper shell midden, though their location within the cave is not specified. A large part of a human jaw was found in 1958 in the entrance to the middle chamber, while parts of a femur and a cranium were excavated elsewhere in the cave. All Redcliffs koiwi tangata are held in the Canterbury Museum Wahi Tapu (Duff 1958a).

### ***Artefacts***

The midden layers and many artefacts of a range of materials were discovered during Julius von Haast's excavations and listed in his report (Haast 1874a). Haast made no mention of Māori surface artefacts and divided his stratigraphy into Upper and Lower Series (Table 3.2) which he interpreted as being the different occupations of the 'Moa Hunters' and later Māori, demarcated by a blown sand layer. Haast does occasionally refer to artefacts coming from specific layers within these series but is not specific about where in the cave they were positioned nor is this consistent enough to show stratigraphic changes. The Upper Series was recorded to have less stone artefacts

compared to the Lower Series, though this may be a result of archaeological collection patterns. The destruction of stratigraphy meant that the later excavations could not check this. Most of the artefacts were retrieved from the main chamber as the floors of the two smaller caves were more mixed with European artefacts (Haast 1874a 68).

**Table 3.2. Artefacts listed as being found in the Upper and Lower stratigraphic series of Moa Bone Point Cave by Julius von Haast (1874) and Alexander McKay (1874). Details can be found in Appendices B and C of Haast (1874b).**

<b>Upper Series</b>	
Midden	Shell, spotted shag, blue penguin, harrier, nelly (petrel), white crane, moa (at bottom), fur seal, sea leopard, kuri, and hāpuku bone.
Organics	Paua vessels, wooden spear fragments, a dish, fishhooks, canoe fragments, canoe pins, fern root beaters, flax plaits, and textiles. Also bird feathers (kakapo and shag) and a pile of drift wood.
Lithics	A stone chisel and adzes.
<b>Lower Series</b>	
Midden	Spotted shag, blue penguin, grey duck, gulls, terns, moa (large number), fur seal, kuri, whale, moa eggshell, and a few freshwater mussels. Small amount of shell midden in Southeast corner of cave.
Organics	Fire sticks, worked timber, spear and canoe fragments and bird feathers (shag).
Lithics	Oven stones and obsidian, flint, sandstone, and dolerite tools, and chips.
Bone Artefacts	Pierced canine tooth and a needle and bodkin.
Features	Ovens.

Many more artefacts of the same kind were collected in the second excavation period starting in 1957 (Duff 1958a). These included bird bone spear points, wooden fragments and artefacts, plaited textile, human hair, bird feathers, necklace pieces, fishhooks, and stone tools (Duff 1958a). Trotter (1975 205) interpreted occupation as intermittent, or potentially continuous, as many artefacts were of early or ‘Moa Hunter’ Types while some were more similar to later period Types, such as pieces of scarf cut nephrite. The conservation of artefacts is rarely mentioned or recorded. In one instance, flax plaiting is described as being wrapped in tinfoil and in another, a ‘god stick’ portion was slightly crushed as it was wrapped in plastic and placed in a jar upon first

removal and then a chip was dislodged during a public re-enactment of its discovery (Duff 1958a).

### ***Stratigraphy***

Haast's (1874b) team excavated six stratigraphic sections in the cave (Figure 3.4) labelled 1-6 (Figures 3.8-3.12). The general location and orientation of these were described in the excavation report but their exact locations are unknown. Haast (1874b) organised the stratigraphic layers into Upper and Lower Series based on their orientation above or below the blown sand layer. Looking at the sections, the layers that are continuous throughout the cave are:

#### *Upper Series*

- Layer 1. Surface layer with sand and breccia from the cave roof (or "agglomerate") with European artefacts.
- Layer 2. Shell midden (often multiple layers alternating with dirt/ash).
- Layer 3. Dirt layer with ash, sometimes with moa bone, charred wood and plant remains.
- Layer 4. Blown sands.

#### *Lower Series*

- Layer 5. Dirt layer with ash, sometimes with assorted non-shell midden.
- Layer 6. Rocky agglomerate layer with breccia from the cave roof.
- Layer 7. Barren marine sand, with post butts.
- Layer 8. Cave bedrock (only reached in one instance).

It is important to note that in the Upper Series the shell midden and dirt/ash layers alternate in number between different sections of the cave. In one section only (section No. 3, Figure 3.9) there is an extra layer of ash below the agglomerate layer. For measurements of specific layers refer to the excavation report (Haast 1874b). The overall depth to marine sands ranged between 1 m to 2.5 m with the area near the entry being the deepest. Roger Duff (1958a) gives a tentative description of stratigraphy (not his strong point) in squares A3-5 in the west corner as:

- Layer 1. Top soil and rubble, above a slight zone of disturbed broken shell.
- Layer 2. Narrow zone of lime and charcoal (attributed to shell burners) above a narrow layer of animal dung.
- Layer 3. Shell midden.
- Layer 4. Charcoal and wood ash.
- Layer 5. Scoria rubble.
- Layer 6. Marine sand.

This stratigraphy has the same shell midden overlaying a charcoal dirt layer, scoria, and marine sand as Haast's layers 2, 3, 6 and 7 but lacks the blown sand and lower midden layers. However, Duff (1963 12) later provides the only available stratigraphic section recorded from the CMAS excavations (Figure 3.12), which interestingly includes a blown sand layer.

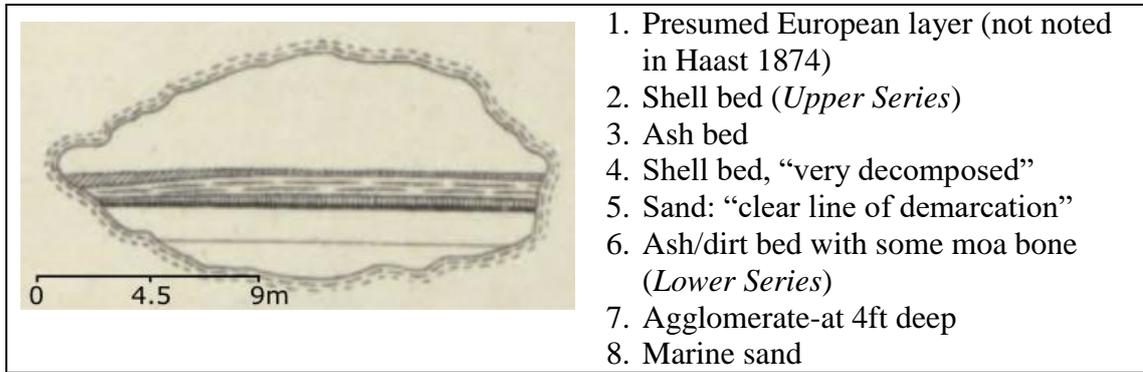


Figure 3.8. Moa Bone Point Cave general cave cross-section. From (Haast 1874b).

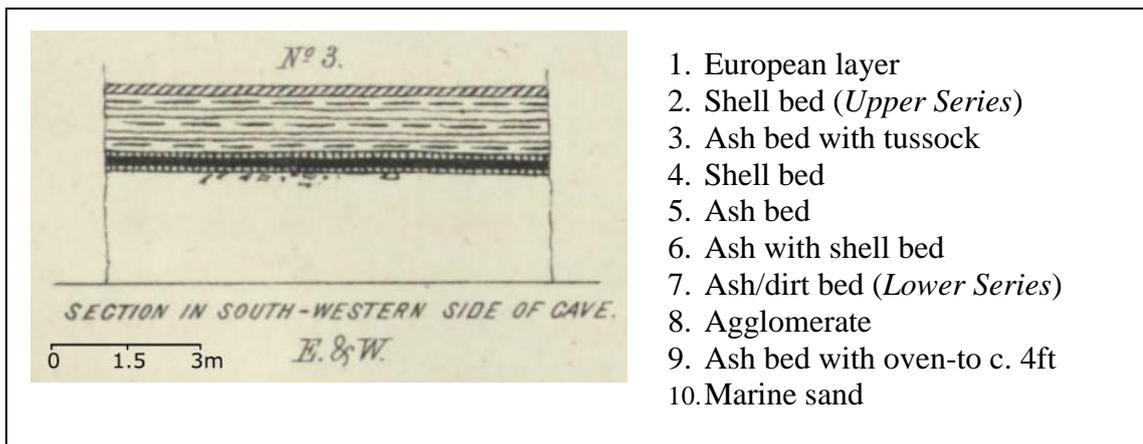


Figure 3.9. Moa Bone Point Cave Section No. 3, southwest side, E-W. From (Haast 1874b).

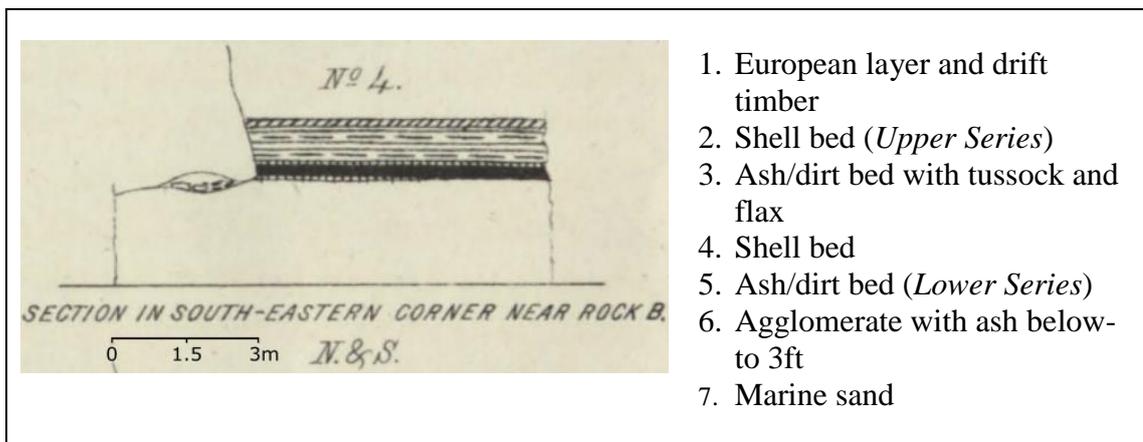


Figure 3.10. Moa Bone Point Cave Section No. 4, southeast side near large rock, N-S. From (Haast 1874b).

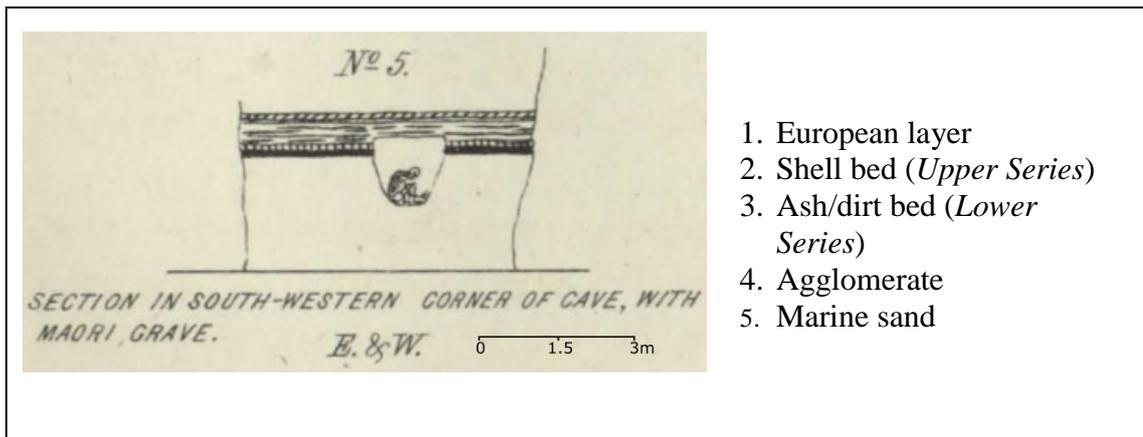


Figure 3.11. Moa Bone Point Cave Section No. 5, southwest corner with a human burial (koiwi tangata), E-W. From (Haast 1874b).

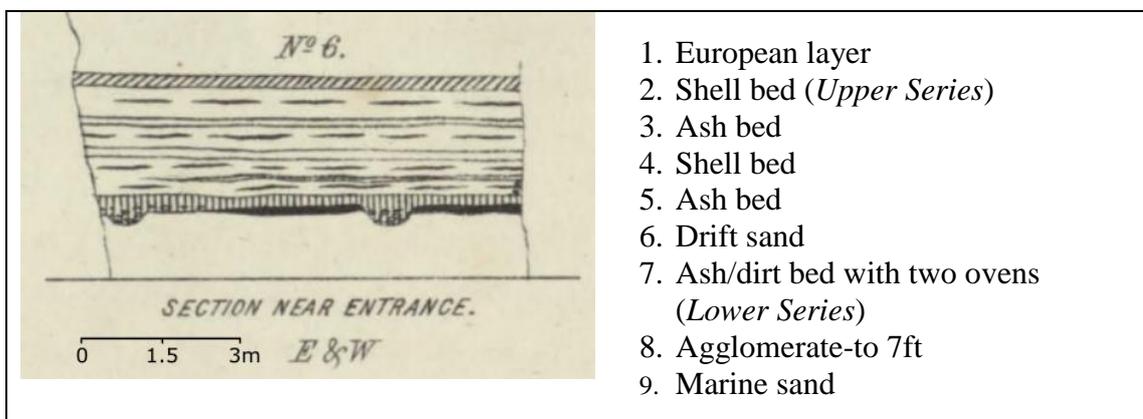


Figure 3.12. Moa Bone Point Cave Section No. 6, near entrance, E-W. From (Haast 1874b).

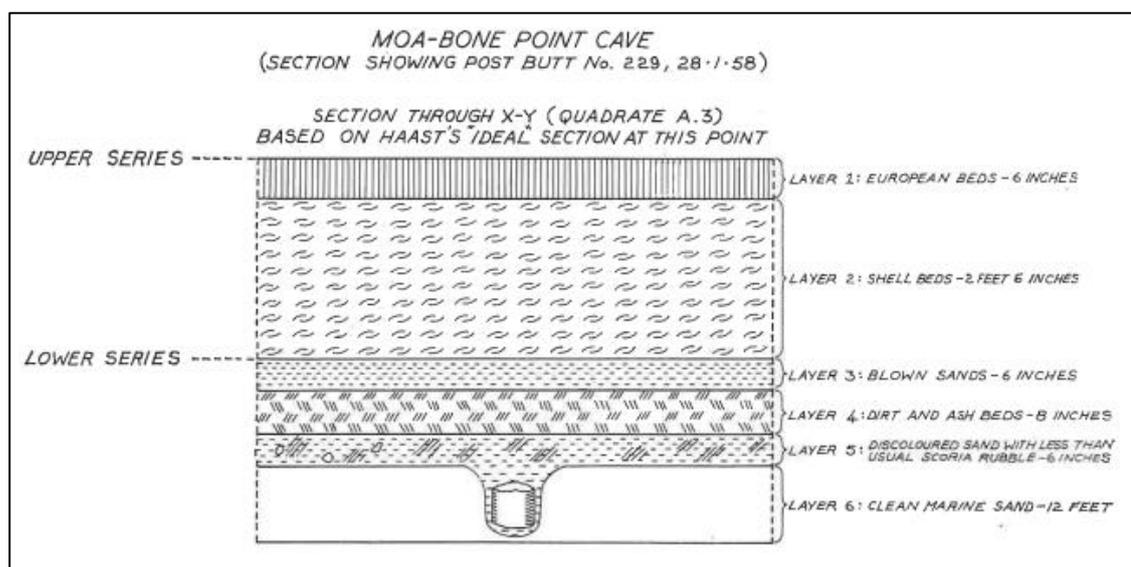


Figure 3.13. Duff's (1963 12) section of Moa Bone Point Cave from 1958, near Haast's (1872) No. 2 section.

Haast and McKay both describe a “clear demarcation” between the Upper and Lower Series by the blown sand layer, which was 305 mm thick at the cave entrance and gradually thinned out towards the interior. However blown sands were only mentioned in Section No. 6 near the cave entrance (Figure 3.12). This demarcation alongside the

large number of moa bones in the lower layers and the lack of moa bone in the upper layers with large shell middens were interpreted by Haast (1874b 81) and McKay (1874 101) as distinct ‘Moa Hunter’ and Māori occupations, separated by a hiatus. Now that it is accepted that ‘Moa Hunters’ and Māori are the same groups along a continuum of cultural change, the stratigraphy of this site is better described as representative of different occupation events. The Lower Series is noticeably of a smaller thickness than the Upper Series (though this is based on Haast’s (1874b) separation of these units). These patterns may have been influenced by Haast’s aim to find evidence of a neolithic revolution, but his finding of polished stone tools in the Upper Series disproved this theory. The second period of excavations did not find evidence for two distinct deposits (contrary to Duff’s (1963 12) section), but this was assigned to the extent of disturbance to the site (Trotter 1975 205) and it is likely that that a hiatus in occupation in Redcliffs did allow some sand to build up, but this did not necessarily have to be a long pause as Haast (1874b 81) claims due to the coastal environment.

### **Dating**

Five radiocarbon dates were obtained from the CMAS excavations of Moa Bone Point Cave (Table 3.3). These were mostly of charcoal from portions of post butts 3 (NZ437) and 5 (NZ511, NZ512) with the median occupation being around 600 BP associated with moa hunting (Trotter 1975 203).

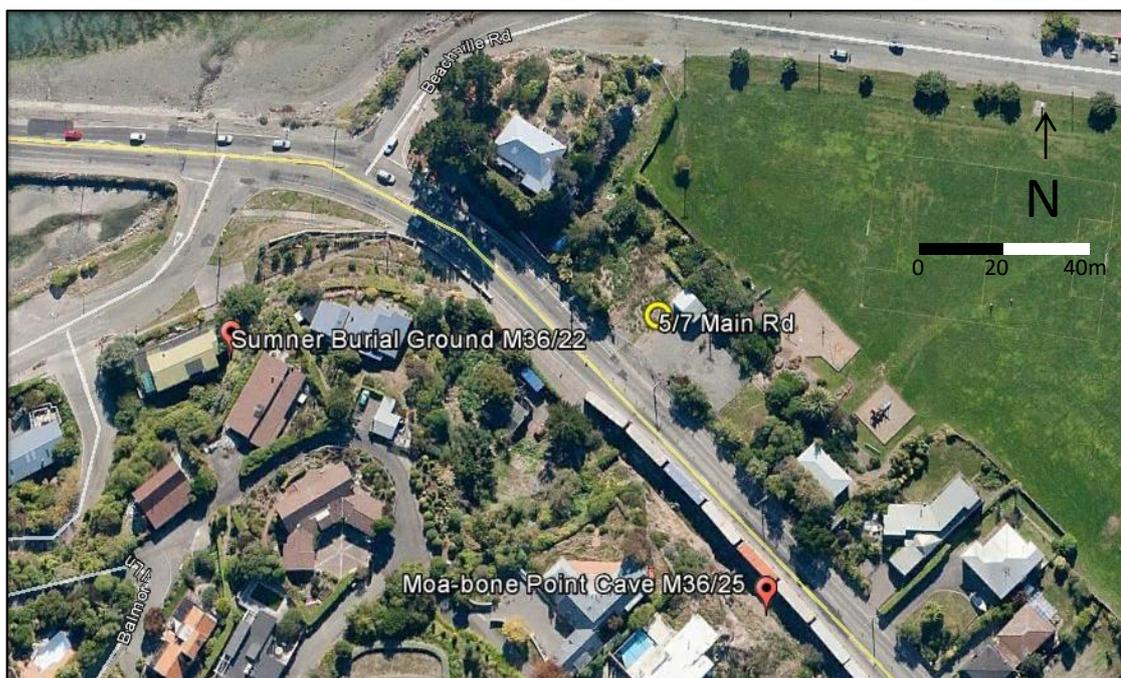
Anderson (1991) and Petchey (1999) rejected this set of dates due to the possible inbuilt age of the wood and possible pre-treatment, condition and contamination issues of bone samples. Jacomb (Jacomb 2009a 23) re-accepted NZ511 as a reliable date for the occupation of Moa Bone Point Cave due to the unlikelihood of inbuilt age in the outer bark layer of a post (Jacomb 2009a 24). This therefore remains as the only accepted radiocarbon date for the whole occupation of Moa Bone Point Cave and is calibrated at  $2\sigma$  AD1305-1365 and AD1375-1410 (Jacomb 2009a 24).

**Table 3.3. Radiocarbon dates from excavations of Moa Bone Point Cave during the 1950’s. From (Trotter 1975 203).**

<b>Lab No.</b>	<b>Sample</b>	<b>Conventional Age</b>
NZ 437	Post butt	646 $\pm$ 62 BP
NZ 461	Red ash	490 $\pm$ 90 BP
<b>NZ 511</b>	<b>Outer portion of post butt</b>	<b>640 <math>\pm</math> 25 BP</b>
NZ 512	Inner portion of same butt	712 $\pm$ 69 BP
NZ 514	Moa bone carbonate	573 $\pm$ 60 BP

### ***“Excavations amongst the Sand Hills outside the Cave”***

In Julius von Haast’s excavation report on Moa Bone Point Cave (Haast 1874b 75) he describes investigations of the sand dunes in front of the cave from 1865. There is no record of the exact timing and location of these investigations, though a general location has been estimated from the excavation report (Figure 3.14). The directions Haast provides as to the location of these ovens is that Section No. 7 was taken at about 80.5 m (in unknown direction) from the entrance of Moa Bone Point Cave and 20.12 m north of Main Road. An archaeological site (NZAA: M36/370) with shell middens and an oven is recorded at 5 Main Road and is recorded to potentially be continuous onto neighbouring properties. There are no other recorded sites in the immediate area opposite Moa Bone Point Cave, suggesting that this is the most likely location for Haast’s excavations.



**Figure 3.14.** Estimated location of Julius von Haast’s (1874, 76) excavations in the sand dunes in front of Moa Bone Point Cave near the sections 5 or 7 Main Road, Redcliffs, Christchurch. Map Data: 2016 Google.

A stratigraphic section of the “sandhills” also showed two distinct layers separated by 610 mm of sand (No. 7, Figure 3.15). Haast took this to be further evidence of separate ‘Moa Hunter’ and “shell-fish eater” occupations (Haast 1874b 76). The upper layer was shell midden, of the same species as in Moa Bone Point Cave. The lower layers of this section contained an oven with oven stones and charcoal in it, overlain and surrounded

by midden that contained moa, small bird (mostly spotted shag, but also crested penguin, kiwi and grey duck), dog, seal, and whale bone.

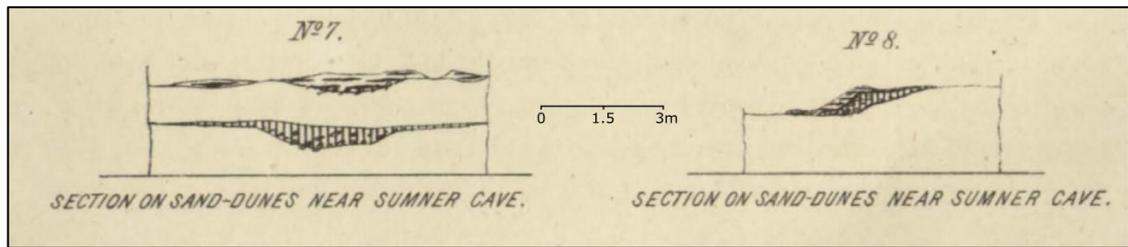


Figure 3.15. Section drawings of excavations in the sand dunes in front of Moa Bone Point Cave, Redcliffs, Christchurch From Haast's (1874a) Moa Bone Point Cave report.

Comparatively, the layers of the second section (No. 8, Figure 3.15) were somewhat mixed from sand dune movement and had no sand layer intervening the deposits. Haast (1874b 76) interpreted the lower midden layer as having been formed before the movement of the dunes and that an upper midden layer was created by a group of people using the same spot and throwing their waste into the hollow formed by the dune subsidence. However, from the section drawing it is not clear what sequence of events caused this layering and it could as easily be built up over time and then slumped with the dune. No details about midden contents are given other than they contained oven stones and had no shells except a few freshwater mussels in the lower layers.

The surrounding area near Main Road is recorded as having been littered with many ovens, moa bones, fur seal bones, and broken moa eggshell on the surface (Haast 1874b 77). Stone tools and debris and worked bird bone were also collected.

### ***Summary and Interpretations***

Due to the unsystematic excavation and recording process used during the first excavation and the resulting limitations on the second excavation period, it is difficult, Duff (1963 10) says “impossible”, to build up a chronology of cave use over time from the stratigraphic layers. The stratigraphy throughout the cave suggests that there were several occupations or ‘uses’ of the cave, perhaps as small intermittent occasions, such as evidenced by the many individual ashy dirt and shell midden layers in and outside the cave.

There is large variation in the number of stratigraphic layers between areas within the main chamber, particularly the ashy dirt and shell midden layers. Both the entrance to

the cave and the southwest corner had greater numbers of ash and shell layers than the southeast and northeast corners. This may reflect that these areas had the greatest light and floor space either side of the wharau thus where more hearths and meals were located resulting in these layers. From the thinness of the Lower Series, Duff (1963 9) suggested that the cave was only occasionally used for feasting during occupation of the Ihutai area, particularly during the earliest period, which may have related to a tapu placed on the cave by the burial. Haast (1874b 78) suggested that the main occupations were in the sand dunes outside the cave due to the number of middens there. A couple of “undisturbed” stratigraphic sections from inside the main chamber were discovered and drawn by Jack Golson but it is not known where these records are. It is unlikely that distinct occupation events can ever be established due to the 1872 near-destruction of the site, the lack of provenance recorded for artefacts, and lack of radiocarbon dates.

Artefact provenance is virtually non-existent for the artefacts from the excavations in and outside Moa Bone Point Cave. The exact location of excavated squares was not recorded in 1874 and is not figured or described exactly from the CMAS excavations either. Artefact provenance for CMAS excavations was recorded as measurements from pegs (at the corners of excavation squares) in the Canterbury Museum’s Ethnology Registers, occasionally with the name of the excavator. These records are of not much use as there is no exact record of peg locations and much of the area was already disturbed so the recorded provenance may not reflect the artefact’s original location. There are also no accurate or to-scale excavation plans, depicting the extent excavated or location of excavation squares and features. Estimate excavation plans have been determined above based on descriptions and sketches in field books (Figure 3.5).

The archaeological investigations described above have a close relationship to Canterbury Museum and are reflective of developments of its relationship to Aotearoa’s archaeology. Clearly the two series of excavations of Moa Bone Point Cave recovered a large amount of important material culture and faunal material. Some of these have no archaeological comparison in Aotearoa, notably the woven and some of the wooden artefacts.

### ***Sumner Burial Ground (M36/22)***

The area northwest of Moa Bone Point Cave has been altered by developments of Main Road, Bay View Road, and Beachville Road. In 1863 a cutting was made through the volcanic talus separating McCormacks Bay from Redcliffs for Main Road to pass through (Duff 1938-1941 43a). Later, when Main Road was being widened before the cutting, workers uncovered an urupa (burial site) at 156 McCormacks Bay Road (Figure 3.1). Since the site was excavated (see below) it has been destroyed by building on the property (Fomison 1964).

**1873:** The first excavation of this site was carried out by workmen (one listed as Thomas Sutton), supervised on and off by Julius von Haast. The site was on a downhill slope, near the base of the cliff at the back of the property. The excavation revealed several human skeletons overlain by shell, fish, seal, and “mammal” midden deposits, each 50 mm to 1 m thick, with some artefacts.

**1958 Rediscovery:** Two more human skeletons with associated artefacts below shell midden were located by workmen further up the slope towards the cliff base and excavated by the CMAS in 1958 (Wadsworth 2015). Fomison (1964) notes that the house on the property at this time extended over the area of Haast’s 1873 excavations but that this urupa likely related to the same period as the 1873 site, while the midden layer likely belonged to the same later occupation reflected by the 1873 midden layers (Haast 1874a).

### ***Features***

Human Remains (Koiwi Tangata): It is unclear exactly how many individual skeletons were discovered at Sumner Burial Ground in 1873. Haast mentioned that at least six were uncovered in crouch position with associated artefacts (Haast 1874a 88), but seven or eight is stated elsewhere (Harrowfield 1969 101; Trotter 1975 192). They seem to have all been complete. One of the skeletons was interred alone in the western end of the site in the upper surface of a natural loamy layer (Layer 3) over which shellfish middens (Layer 1) had built up. The grave was shallow with a small and very fragile skeleton lying on its front lengthwise, with no associated artefacts (Haast 1874a 87). The six to eight other skeletons were buried in sandy Layer 2 in the eastern portion of the slope, below shell midden layers.

In 1958 two more complete skeletons were discovered interred in an earth layer alongside a crevice in the rock wall below a layer of rock fall and shellfish and fish midden (Fomison 1964). Several other burnt human bones were found in the midden layer, though it is unclear whether these were part of the midden or were part of the urupa and accidentally burnt.

Oven: One “large” oven was located “a little higher up” ([the hill]?) from the eastern koiwi, with oven stones sitting on the surface of natural loamy Layer 3 (Haast 1874a 88). No measurements are given. The oven was filled with tuatua shell midden.

### ***Artefacts***

Haast’s workmen reported that each human skeleton in Layer 2 had around three “polished stone implements” buried with them (Haast 1874a 88). Several chert and schist adzes, gouges, and chisels are described in Haast’s excavation report. Three of these reached Haast and Canterbury Museum but the rest, of the same form and material, disappeared “notwithstanding that I offered to the workmen a fair price for them” (Haast 1874a 89). The 1958 excavation uncovered quite different artefacts from Haast’s workmen. A “concentration of dentalium necklace units” was found around the cervical vertebrae of one skeleton and a few of the same around the foot bones of another skeleton, possibly as an anklet (Fomison 1964). These were later “misaid”. A barbed composite fishhook point was found within midden, which is housed in Canterbury Museum along with a midden sample (Fomison 1964).

### ***Stratigraphy***

The lower layers in which the human skeletons were discovered were separated into east and west areas by a shallow volcanic spur (seen in section No. 1, Figure 3.11). All but one skeleton were located on the eastern side. Shell midden was the most built up on the western side, which is more sheltered with a few small caves (Haast 1874a 87). The stratigraphic layers are described as:

- Layer 1. Sand, soil and “slope deposits”, from 457-610 mm thick on the eastern side, 300 mm in the center and 1.5 m on the western side. Non-moa midden was layered throughout this deposit. One large oven was present just above the skeleton in Layer 3.
- Layer 2. Sand about 910 mm deep extending from the eastern end to the center of the section and thinned out to the west, with streaks of dark soil. In some eastern

spots this was replaced by sandy clay. All but one skeleton were interred in this layer.

- Layer 3. "Slope deposit" of loam with fragmentary volcanic rock from the upper hills, from 1.4 m on the east side to 2.1 m on the west side. Contained some moa bone (which Haast assigns to the natural deposition of one bird) and a single human skeleton where very top of this layer met Layer 1 (Figure 3.16).
- Layer 4. Marine sand with fragmentary shell and water rolled seal bones, 1.2-2.1 m thick.
- Layer 5. Volcanic rock base.

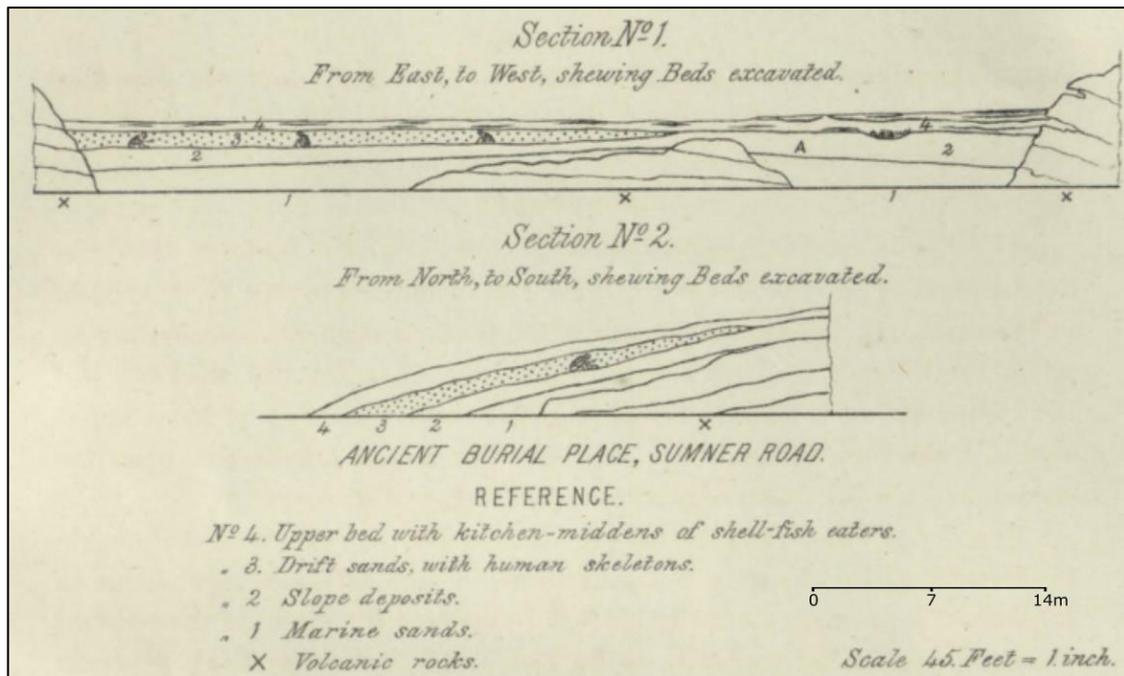


Figure 3.16. Sections of Sumner Burial Ground, Redcliffs, Christchurch. From (Haast 1874, 86).

Similarly to Moa Bone Point Cave, Haast (Haast 1874a 89) assigned the burial and stone tools from Layers 2 and 3 to the 'Moa Hunters' and Layer 1 to a later occupation by "shellfish eaters" with no knowledge of the presence of human burials.

### Dating

No dates have been obtained from this site or material that could now be dated. It has been inferred to have been used during a period of early Māori occupation, similar to the lower levels of Moa Bone Point Cave due to the recognition of AEP material culture Types (Fomison 1964; Trotter 1975 204).

### Site Extent

The current area known as Sumner Burial Ground is throughout the property of 156 McCormacks Bay Road towards the cliff base. However, a record with a catalogued

Type 2A argillite adze (E.176.16) in the Canterbury Museum Ethnology room mentions the location of a small cave at the back of the neighbouring property 154 McCormacks Bay Road (Canterbury Museum 1973-1977 297-298). Duff and Hovell were aware of this cave during their visits to the site but did not investigate further. Since then, this adze was found by the property owner eroding out of cockle midden in this cave, suggesting that Māori occupation possibly relating to the urupa may have continued further along the base of these cliffs.

### ***Summary and Initial Interpretations***

Sumner Burial Ground is an archaeological site of extreme importance due to the koiwi tangata, AEP artefacts and in how it may relate to the rest of Redcliffs. Unfortunately, the early and unprofessional methods that were employed to excavate the site, particularly in the treatment of the koiwi tangata and the lack of supervision of workers, has resulted in a massive lack of detail regarding the site's contents and the disappearance of many, likely AEP Type, artefacts. The 1958 excavation did not improve on this as an artefact was also lost and an excavation report was not produced.

There is evidence for two occupation events represented by the two main stratigraphic layers (1 and 2) from both excavations, with the first reflecting use as an urupa for early inhabitants of the Ihutai area and the second as use for the cooking and refuse of large quantities of shellfish, birds, and mammals (likely kuri and rat) at an unknown date but likely after moa extinction due to the lack of moa bone. The single western skeleton from Haast's site provides a challenge to interpretation as it was interred very close to an oven and midden, had no associated material culture, and was buried in a different position and location to the other skeletons. This may represent a unique burial event at a different time from the others or that the buried person was different to the other group by age, gender, or cultural group.

Bone and shell midden, the presence of two main stratigraphic layers, and AEP artefact Types at Sumner Burial Ground are similar to what has been found at Moa Bone Point Cave, Redcliffs Flat, and Moncks Cave. It is not clear from this evidence exactly how these burials and midden relate to the rest of the site complex but it is likely that the people here were interred during the main period of use of Ihutai (Trotter 1975 204) and the Redcliffs area by people with similar cultural practices in their use of local bird

and shellfish species and of AEP stone tools, fishhooks, and ornaments. It is difficult to tell whether occupation extended over say 50 or 200 years or whether there was a hiatus between the lower and upper occupations. From the lack of material for new radiocarbon dating and the destruction of the site by residential work it will be impossible to determine. A general period might be possible to interpret from correlation of the shell midden and skeletons with AEP artefacts to dated layers of the other Redcliffs sites but this would remain speculation.

### ***Redcliffs Flat (M36/24)***

Redcliffs Flat comprises an extensive area of Māori archaeological remains on both sides of Main Road and across Redcliffs Primary School (Figure 3.11). Since the mid-1800s, midden and worked stone have been found on the surface and up to 1.5 m deep during gardening, pipe works, and archaeological test pits (1969; Trotter 1975). Surface moa bones near Sumner were first recorded by Torlesse (1851). These were scavenged as curio items by visitors to the area, such as crew from the *Acheron* in 1849 (Hansard 1849). From 1865 (1872 in (Dawson & Yaldwyn 1975)), Julius von Haast undertook the earliest archaeological investigations of ovens on Redcliffs Flat on “the sand hills outside” Moa Bone Point Cave, as discussed above (Haast 1874b 75-76). Scientific research in Redcliffs started again in the late 1930s. Michael Trotter has produced a comprehensive report on historic and his personal excavations, as a Field Supervisor of the CMAS, from which this section draws largely upon (Trotter 1975).

**1938-41, Rockshelters and Hamilton Midden:** Duff, Devonshire, Grey, and Allan excavated midden, three drilled human teeth, a pestle and mortar, argillite adze, grindstone, greenstone fragments, and a greenstone cutter (now in Canterbury Museum) that were eroding from three rockshelters at 4 Balmoral Lane (M36/21 or S84/68, No. 17, Figure 3.11) above Sumner Burial Ground (Fomison 1958; Watson 2003). In 1939 Duff then excavated a shell midden on Redcliffs Flat (No. 4, Figure 3.11). The midden was 203 mm deep and located next to the driveway of the Hamilton’s property (Trotter 1975 192). Moa and sea leopard bones were scattered in the midden and were suggested to have been broken for manufacture (Duff 1938-1941 41). Duff also excavated a small sand area next to the Hamilton’s house in 1941 (possibly sketched in Figure 3.18) and found a scatter of shell, moa and seal midden, bone artefacts, such as a

fishhook tab, and stone, such as polished basalt pieces and argillite, obsidian, and flint flakes (Duff 1938-1941 50).

By the 1940s it is likely that many archaeological features in Redcliffs had been damaged or destroyed as much of the area had been built over and laid with water, sewer, and electrical pipes. Duff (1938-1941 44) recorded that several adzes were shown to him having been fossicked from the central flat before it was cleared for Redcliffs School.

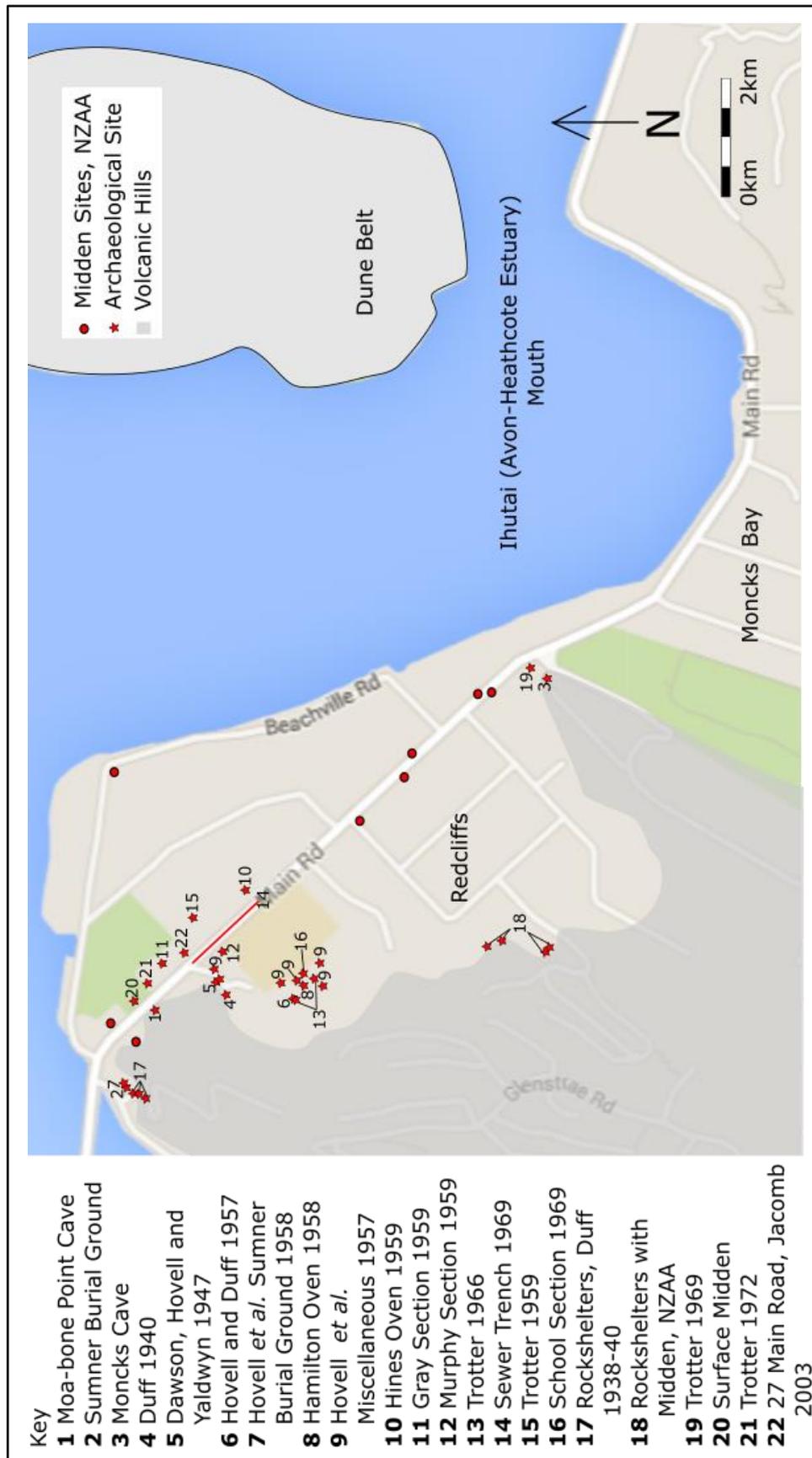


Figure 3.17. Map of archaeological sites in the Redcliffs suburb, Christchurch,, including those mentioned in the text. Adapted from Trotter (1975 191). The shell midden sites are listed on Archsite (NZAA) and may relate to the Redcliffs site complex. Map Data: 2016 Google.

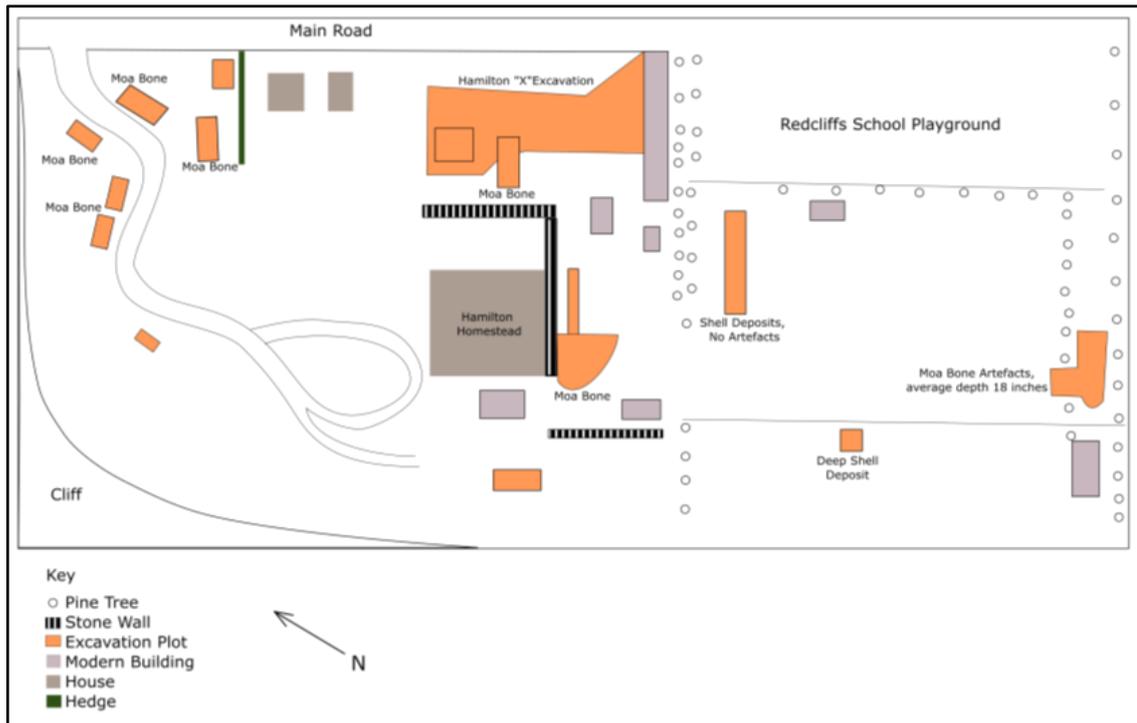


Figure 3.18. Sketch map of south of Redcliffs Primary School adapted from 'South of Redcliffs Primary School', Canterbury Museum Archaeological Society Records Canterbury Museum, Canterbury Museum Archives.

**1946-48, Hamilton Midden:** Elliot Dawson and Selwyn Hovell (Dawson & Yaldwyn 1975 214) further excavated the shell midden alongside the Hamilton driveway (No. 5, Figure 3.11). A report detailing these excavations was published as an appendix to Trotter's (1975) Redcliffs report (Dawson & Yaldwyn 1975). There were two c. 40 m long mounds of midden on either side of the driveway, consisting of shell, dog, fish, moa, small bird, seal, whale, and tuatara bone with stone flakes and cores (othoquartzite/sandstone, flint, argillite, obsidian and basalt) and oven stones (Dawson & Yaldwyn 1975 214). The northern mound was covered in a layer of rock fallen from the cliff while the southern mound was interrupted by large trees. The stratigraphy generally consisted of:

- Layer 1. Dark sandy loam, several centimeters thick.
- Layer 2. Shell midden in dark sand (50-200 mm thick) with greasy ash. The southern midden had less ash and bone but a thicker shell layer (600 mm thick).
- Layer 3. Barren sand.

The report concludes with details on the faunal remains and identification of possible stone material sources (Dawson & Yaldwyn 1975).

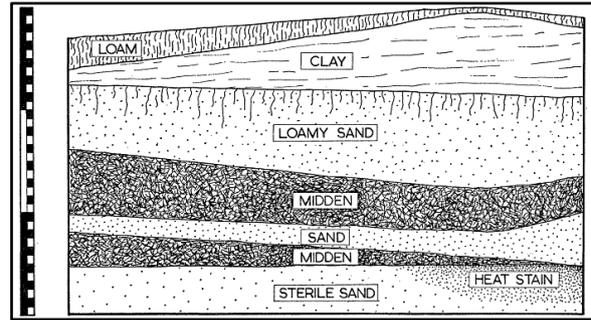
**1957, Miscellaneous Excavations:** 1957 marks the beginning of the main period of archaeological investigation of Redcliffs Flat, particularly by Selwyn Hovell, with help

from the Redcliffs Junior Archaeological Club (The Press 1957). This group excavated, often without permission from Canterbury Museum, and collected artefacts at several locations (Trotter 1975 193, 197). These are recorded by Duff as being on the properties of E. Hines, J. Hines, Rogers, Neilson, Hamilton, and Dennis families and some are located on Trotter's (1975 191) map (No. 9, Figure 3.11) and an unpublished sketch map (Figure 3.18). There are no records of their findings except for notes with individual artefacts in the Canterbury Museum Ethnology Registers.

**1957, SW Midden Deposit:** Hovell also excavated a midden deposit in the southwest corner of the Hamilton property (No. 6, Figure 3.11). Details are given in Michael Trotter's (1967 251-252) report. Roger Duff recorded the location of this excavation in relation to the Hamilton house alongside a very basic section drawing in his field book (Duff 1956-1958 18-19) and obtained charcoal and unburnt wood dating samples from the lowest layer (711 mm deep). There were two midden layers, separated by a band of charcoal and ashy sand, and each contained shell, animal bone (moa, small birds, dog, and seal), charcoal, and oven stones. The lower layer contained a moa bone minnow lure shank, orthoquartzite blades, and a Type 2A argillite adze butt (Trotter 1967 252).

**1966 SW Midden Re-excavation:** Due to a proposal to subdivide the Hamilton property in 1966 Michael Trotter investigated a couple of locations (No. 13, Figure 3.11) but found them to be highly disturbed by fossicking and gardening (Duff 1966-67 40; Trotter 1975 253). An area near Hovell and Duff's 1967 excavation had however been protected by a cover of hardened clay and therefore Trotter and Hovell reopened six squares (1.5 m<sup>2</sup>) over the previous excavation to obtain more dating samples (No. 13, Figure 3.11). No other occupation deposits were identified in the adjacent area (Trotter 1975 197). Trotter notes that the stratigraphy he recorded (Figure 3.19) matched that recorded by Duff (1956-1958). He retrieved bone and shell samples 600 mm from Duff's charcoal sample for radiocarbon dating (Trotter 1975 197). An argillite Type 4A (hog-backed) adze was found near Duff's minnow lure in the lower layer as well as seven orthoquartzite flakes and two green obsidian flakes across both layers. The stratigraphy was described by Michael Trotter as:

- Layer 1. Black loam surface layer.
- Layer 2. Compacted clay.
- Layer 3. Sandy loam (previous surface layer) with disturbed charcoal, shell fragments and a worked bowenite fragment.
- Layer 4. Midden.
- Layer 5. Sand darkened with ash and some charcoal pieces.
- Layer 6. Midden. Duff and Trotter's dating samples were from this layer.
- Layer 7. Sterile sand with some reddish-brown heat staining.



**Figure 3.19. Stratigraphic section of the south side of Selwyn Hovell's 1957 excavation of the SW Hamilton property midden, Redcliffs Flat. Used with permission from Trotter (1967 253)**

**1958-59 Team:** Whilst excavating Moa Bone Point Cave the CMAS and NZAA team excavated several localities (No.s 7-12, Figure 3.11) on Redcliffs Flat (Trotter 1967, 1975). The recording of stratigraphy and comparison between features at these locations was limited by their proximity to roads and houses.

**1958, Hamilton Oven:** An oven (No. 8, Figure 3.11) was located by test probe on the Hamilton property by Barry Eames and the Redcliffs Junior Club (Duff 1958b 46). Hovell and others excavated a trench across the oven, but their work and recordings were not carried out to Duff's standards as he was not notified of this work in time (a frequent occurrence, he notes, in his relationship with Selwyn Hovell) and could not be constantly there to supervise. An "archaeological crime" occurred when three men under R.G. Scarleth excavated or "razed" the oven without permission from Roger Duff and by deceiving Selwyn Hovell who was on site at the time (Duff 1958b 72).

Using a section drawing by Tony Fomison (redrawn by Trotter in Figure 3.20), Roger Duff's field book, and his personal observations, Trotter suggested that the oven was circular, 2.5 m in diameter by 1.3 m deep, lined with charcoal and local andesite stones (Trotter 1975 193). The oven was filled with shell, dog, and moa midden, including three articulated sea elephant vertebrae, overlain by a thin charcoal layer and 300 mm of topsoil with disturbed occupational material (Figure 3.20). Trotter interpreted this as a traditional Polynesian earth oven which cooked the food by heated stones (Trotter 1975).

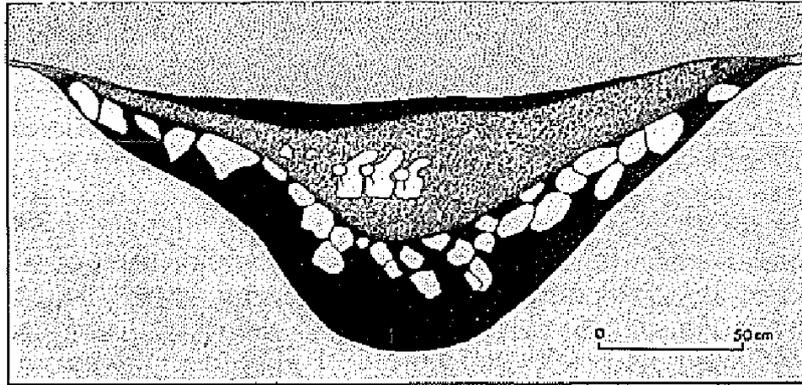


Figure 3.20. Stratigraphic section of an oven on the Hamilton Property (No. 8), Redcliffs Flat, excavated by Selwyn Hovell and others under Roger Duff in 1958. Used with permission from Trotter (1975 194).

The following week a grid (14.6m x 9.6m) of 3m<sup>2</sup> squares was excavated across the area surrounding the oven (Duff 1958b 50). Shell and moa bone midden extended here. In the oven and the surrounding area stone cores, knives, saws, adze fragments, flakes (orthoquartzite, flint, and obsidian) and bone fragments were found and recorded with their provenance (measurements within excavation square) in Trotter's (1958) field book. Hovell and his juniors found several posts to the east of the oven. These were removed and wrapped in tinfoil although Duff thought they were European fence posts (Duff 1958b 55).

**1959, Hines Oven:** A second large oven was uncovered by test probe in J. Hines backyard, 47 Main Road (No. 10, Figure 3.11; Figure 3.21), and excavated by Roger Duff with a small group (Duff 1958-1959 75). It resembled the Hamilton oven in size and also had locally sourced oven stones. Comparatively it had only moa bone midden, with no shell, dog, or sea mammal remains, and had many more layers. There is no record of the oven's exact dimensions beyond the section drawing (Figure 3.21) but if it was circular like the Hamilton oven then it would be slightly smaller in comparison. The oven had likely been fired four times, represented by four charcoal layers (Duff 1959a 5; Trotter 1975 194). Several oven stones remained in the lowest layer, suggesting that most were removed for later use. Obsidian, orthoquartzite, and basalt or argillite flakes, drill points, several adzes, a hammerstone, and a grindstone were collected with unknown provenances. The Hines oven stratigraphy was:

*Fourth firing:*

- Layer 1. Charcoal with many oven stones under scattered moa bones.

*Third firing:*

- Layer 2. Dark stained sand.
- Layer 3. Charcoal with oven stones.

*Second firing:*

- Layer 4. Dark stained sand.
- Layer 5. Charcoal.

*First firing:*

- Layer 6. Dark stained sand with oven stones bordering the lower layer.
- Layer 7. Charcoal with oven stones.

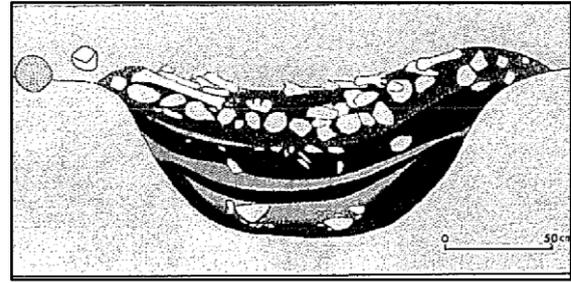


Figure 3.21. North to south stratigraphic section of an oven on the Hines property (No. 10), Redcliffs Flat, excavated in 1959. Used with permission from Trotter (1975 195).

Duff collected two samples, charcoal from the lowest layer and moa bone from the uppermost, for radiocarbon dating (Duff 1958-1959 76; Trotter 1967 253).

**1959, Gray and Murphy Sections:** A midden was discovered at the east end of Archie Gray's property (No. 11, Figure 3.11) and another on the Murphy property, 126 Main Road (No. 12, Figure 3.11). The extent that the Gray's midden was investigated is unknown, as after its discovery the property owner would not give permission for excavation (Duff 1959a 40). A piece of ground basalt, possibly a broken adze, was recovered from the Gray midden (Duff 1959a; Trotter 1975). A 16 square grid was excavated on the Murphy property between the house and Main Road (Duff 1959b 68). The midden, 102-305 mm deep below disturbed topsoil, was mostly shell with scatterings of dog, bird, moa bone, and moa eggshell. Artefacts included basalt adzes and quartzite, obsidian, limestone, and palla flakes (Duff 1959b 70).

**1969, Sewer Trench:** Michael Trotter excavated a 1 m wide trench dug for a sewer line through Main Road (No. 14, Figure 3.11), "at...six metres from the north-eastern boundary of the roadway" (Duff 1968-69 16, 17; Trotter 1975 197). The salvage excavation provided an opportunity to compare stratigraphy with Moa Bone Point Cave. Dark sand with midden layers was identified around 1.5 m deep for 150 m along the trench in variable thickness and density. This thinned out towards Moa Bone Point Cave and may have continued further southeast but was filled in before it could be

viewed (Trotter 1969a). Shell midden was generally found higher up than, and often overlying, moa bone but there was no “sharp line of demarcation” between them. Several pits, mostly ovens, were located below the original ground surface (Trotter 1975 197). One oven (1 m wide) was located in line with 37-39 Main Road and another (1.5 m wide at surface) near 41 Main Road (Trotter 1968-71).

The general stratigraphy along the trench was:

- Layer 1. Road tar seal.
- Layer 2. Road fill of rubble and clay.
- Layer 3. Heat stained sand as an old surface layer with occupational refuse trampled in.
- Layer 4. Sand, with pits and ovens.

Another oven, possibly circular in shape and 1.2 m across by 150-200 mm deep, had a basal charcoal layer, covered by oven stones and moa bone and then by stained sand (left in Figure 3.22). Duplicate moa bone samples (*Euryapteryx*, *Emeus* and *Anomalopteryx*) were collected to produce two radiocarbon dates (Trotter 1975 199).

One pit lacked evidence for use as an oven or hearth, but was filled in with charcoal and black stained sand (right in Figure 3.22). Evidence of firing may have been scraped out before the pit was filled in (Trotter 1975 197).

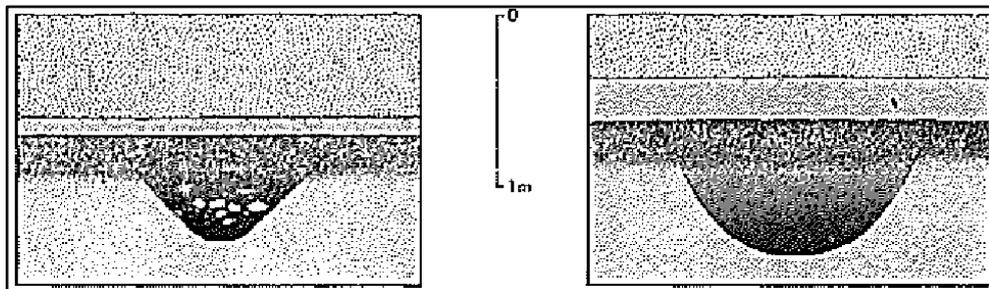
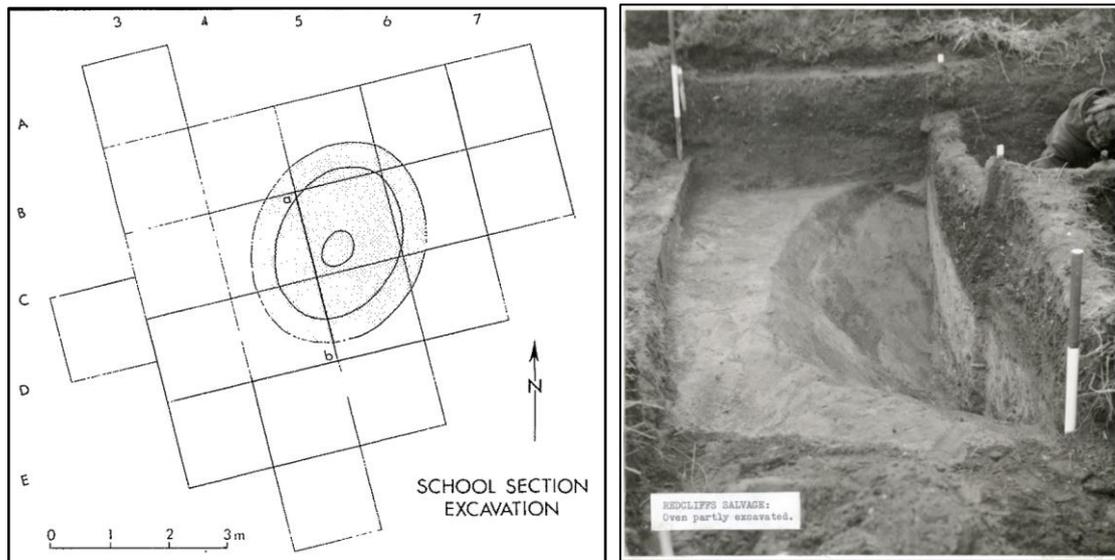


Figure 3.22. The stratigraphy of an oven (left) and a filled in pit (right) from the Main Road Sewer Trench (No. 14), Redcliffs, excavated by Michael Trotter in 1969. Used with permission from Trotter (1975)

Bird (moa, extinct kaka, rail, swan, and 17 extant species), dog, rat, seal, and shell midden, a human tooth, and moa eggshell with scattered stone and bone artefacts (described as AEP or ‘Moa Hunter’ Type) were recovered from the pits or the occupation layer (Trotter 1975 Appendix A). Some of the top layer was mixed with the road fill. Artefacts were often retrieved from the trench spoil without provenance (Trotter 1969b 2).

**1969, School Section:** One and a half acres of the remaining Hamilton property was bought by the Canterbury Education Board for the extension of the Redcliffs School field in 1969 (Burrage & Norris 2007; Trotter 1975). The developers invited the CMAS to excavate this area before it was levelled (Duff 1969-71 63; Trotter 1969b). A small team supervised by Trotter excavated twenty 1.5 m<sup>2</sup> units (No. 16, Figure 3.11, Figure 3.23) and discovered a large undisturbed oval shaped oven 1 m below the surface (3.5 m x 2.5 m across by 1.4 m deep).



**Figure 3.23.** Left: Plan of salvage excavation southwest of Redcliffs Primary (No. 16, Figure 3.11). The shaded circles are the contours of an oven pit at 500 mm, 1 m and 1.5 m below ground level. Section a-b is shown in Figure 3.19. Used with permission from Trotter (1975 200). Right: Redcliffs salvage, 1969, Canterbury Museum Archaeological Society, Canterbury Museum. 2004.40.427.

Trotter (1975 200) describes a sequential formation of the oven's stratigraphy from several firing events and suggested that after each firing the oven was scraped out and thus enlarged. During some uses of the oven some of the original ashy sand around the pit was moved, blown, or slipped back into the pit, mostly from the north side, forming continuous layers with the area outside the pit (Trotter 1975 200). Layer 3 was filled with midden (moa, small bird, dog, rat, seal, sea elephant, and human bone, Figure 3.24). Part of this was covered by sand from Layer 4 then by a thick deposit of shell and bone midden, likely at a similar time to the last use of the oven, and finally by sterile soil mixed with the lower midden by modern gardening activities (Trotter 1968-71 69). The stratigraphy was:

- Layer 1. Dark sandy loam with European and Māori remains disturbed by European gardening.
- Layer 2. Shell and bone midden.
- Layer 3. Black sand with artefacts and bone and shell midden, 50-300 mm deep.
- Layer 4. Ashy sand.
- Layer 5. Ashy sand with occasional fragments of large moa bone.
- Layer 6. Charcoal from local tree species and burnt oven stones above heat stained sand.

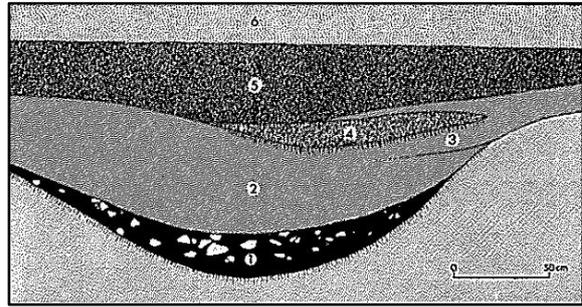


Figure 3.24. North to south (a-b in Figure 3.18) section of an oven pit southwest of Redcliffs Primary School (No. 16, Figure 3.11). Used with permission from Trotter (1975 201).

Again, shell midden was deposited above moa midden within Layer 2, but without the “demarcation” (Haast 1874b 81). The artefacts (2,646 items) recovered from this excavation were bagged with record of excavation square (Figure 3.23) and layer. These included pierced turret shells, bone fishhooks tabs, one piece fishhooks, cut bird bone, fossil *Dentalium*, stone drill points, flakes, adzes, and sinkers (Trotter 1969b; 1975 202). Trotter made a detailed analysis of the spatial patterning of this assemblage but found no significant results.

Trotter also noted that “pockets [of school section were] left undisturbed but not worth excavating” (Trotter 1968-71). The team also excavated test pits at 39 Main Rd and in a cave “south of Moa Bone Point Cave” but found no archaeological evidence (Trotter 1968-71). Numbers 15 and 20 in Figure 3.11 were also investigated by Michael Trotter from 1969-1972 but no details are given (Trotter 1975 191).

**1972:** The bulldozing of a house section opposite Moa Bone Point Cave revealed an oven that was then excavated by Michael Trotter (No. 21, Figure 3.11). The upper 25 mm was shell midden, above 75 mm of sand, above the oven which contained thick moa bone midden and charcoal, above heat stained sand. The oven had been disturbed as it contained some modern brick (Trotter 1971 59).

**2003, 27 Main Road:** The discovery of midden and a circular charcoal stain after the demolition of a house at 27 Main Road (Figure 3.25) provided an opportunity for a volunteer team supervised by Chris Jacomb to excavate 20 m<sup>2</sup> around the foundation

trenches (Jacomb 2009a, b). The aim was to recover any archaeological remains, record the stratigraphy, and collect dating samples in order to determine the date and extent of occupation. Details on the excavations with short discussions of the stratigraphic, lithic, and faunal records are provided in an unpublished and a published report (Jacomb 2009a, b). Provenance details were given for the artefacts as layer and distance along each trench (Jacomb 2009a). The site was greatly disturbed by historical use, dune levelling, and gardening, particularly in Trench 4 where sheep bone bordered midden and in Trenches 2, 3 and 8 which contained modern rubbish pits. The stratigraphy of each trench varied greatly (Figure 3.26), but generally consisted of:

- Layer 1. Clean sand with occasional pockets of 20<sup>th</sup> century midden and construction material (chicken and sheep bones, nails, and brick fragments), 250 mm deep.
- Layer 2. Up to three lenses of occupational deposit, sometimes with charcoal stained sand, oven stones, animal bone (moa, sea mammal, and fish), shell midden, and basalt flakes, 250-350 mm deep.
- Layer 3. Clean compacted sand, 350-500 mm deep.

Trenches 3, 5, 6, 7, 8, 9 and 10 did not have any artefacts or midden present, though most had lenses of charcoal stained sand, blown in from nearby fires (Jacomb 2009b 9). The surface charcoal stain was revealed to be an oven below a layer of charcoal stained sand (Figure 3.26). It was filled with charcoal fragments, oven stones, and moa eggshell, an unburnt sample of which was collected for radiocarbon dating (Jacomb 2009a 18). Small bird, sea mammal, dog, fish, and moa middens were located in Trenches 1 and 2, and two layers of shell midden were located in Trench 10, separated by 100 mm of clean sand. The artefacts (n=677) consisted wholly of lithic flakes and basalt, chert, obsidian, pumice, and silcrete fragments. Basalt waste flakes were the dominant artefact type indicating the presence of a flaking floor in Trench 2, with several polished adze fragments.



## **Dating**

Most dates for Redcliffs Flat come from the SW Hamilton midden (No. 6, Figure 3.11). The first date (NZ438) was on wood and charcoal, retrieved by Duff in 1957 from the lower midden layer (c. 700 mm deep) and calibrated to AD780  $\pm$  65, which was nationally the earliest date at the time (Duff 1963 9). Three more dates (NZ1111, NZ1112 and NZ1113) were determined from marine shell (*Chione*), moa bone carbonate, and moa bone collagen collected from the same midden layer by Michael Trotter in 1966. NZ1112 came back as modern so was discarded while the others were determined as 617  $\pm$  34 BP and 735  $\pm$  56 BP respectively (Trotter 1975 19 197).

In 1959 two dates (NZ459 and NZ460) were determined from moa (*Euryapteryx*) bone carbonate in the top layer and charcoal in the lower layer of the Hines oven (No. 10, Figure 3.11), calibrating as AD1163  $\pm$  82 and AD1460  $\pm$  90. Duff (1963 9) suggested a combined date of AD1300 for this oven. Two more dates on moa bone collagen (NZ1162 and NZ1376) were determined from moa bone samples collected from the base of an oven (c. 1.2m deep) from the Sewer Trench. These gave radiocarbon determinations of 615  $\pm$  40 BP and 581  $\pm$  40 BP (Trotter 1975 204). Lastly, a sample of moa eggshell (Wk23941) from the top few centimeters of the oven in Trench 11 at 27 Main Road gave a radiocarbon determination of 604  $\pm$  30 BP (Jacomb 2009a 20).

Five dates obtained from samples during an earlier stage in the archaeological investigation of Redcliffs (NZ438, NZ459, NZ460, NZ1162 and NZ1376) were declared unreliable in the 1990s due to errors related to the use of moa bone carbonate, provenance, inbuilt age, pre-treatment, condition and contamination (Petchey 1999 103). Upon reanalysis of these dates, Chris Jacomb (2009a 23) suggested that the two dates from Trotter's Sewer Trench oven (NZ1162 and NZ1376) could be validated as they come from a similar deposit and lie within a similar range to the three accepted dates. Their conventional ages were combined as they were duplicates of the same sample (Figure 3.27).

The calibrated age ranges from the five accepted radiocarbon dates (two are combined) for Redcliffs Flat (Figure 3.27) cover a period of just over a century, which is unsurprising considering they come from different stratigraphic layers from widespread excavations (Figure 3.28).

Provenience	Conventional Age	Calibrated Age	Lab. No.
<b>Redcliffs Flat</b>			
Marine shell in oven fill (Trotter 1975)	924 ± 42 BP	1σ AD 1350-1445 2σ AD 1310-1470	NZ1111
Moa bone collagen from same context as NZ1111 (Trotter 1975)	701 ± 60 BP	1σ AD 1280-1330 AD 1340-1390 2σ AD 1230-1250 AD 1260-1410	NZ1111
Moa bone collagen from Sewer Trench, duplicate of NZ1376 (Trotter 1975)	622 ± 44 BP	1σ AD 1315-1355 AD 1380-1410 2σ AD 1290-1430	NZ1162
Moa bone collagen from Sewer Trench, duplicate of NZ1162 (Trotter 1975)	537 ± 45 BP	1σ AD 1405-1445 2σ AD 1320-1350 AD 1380-1470	NZ1376
Moa eggshell from oven at 27 Main Rd (this paper)	604 ± 30 BP	1σ AD 1325-1345 AD 1390-1420 2σ AD 1310-1360 AD 1380-1430	Wk23941

Figure 3.27. Radiocarbon dates from excavations of areas of Redcliffs Flat (Jacomb 2009a). Note that the moa bone sample above listed as NZ1111 is actually NZ1113.

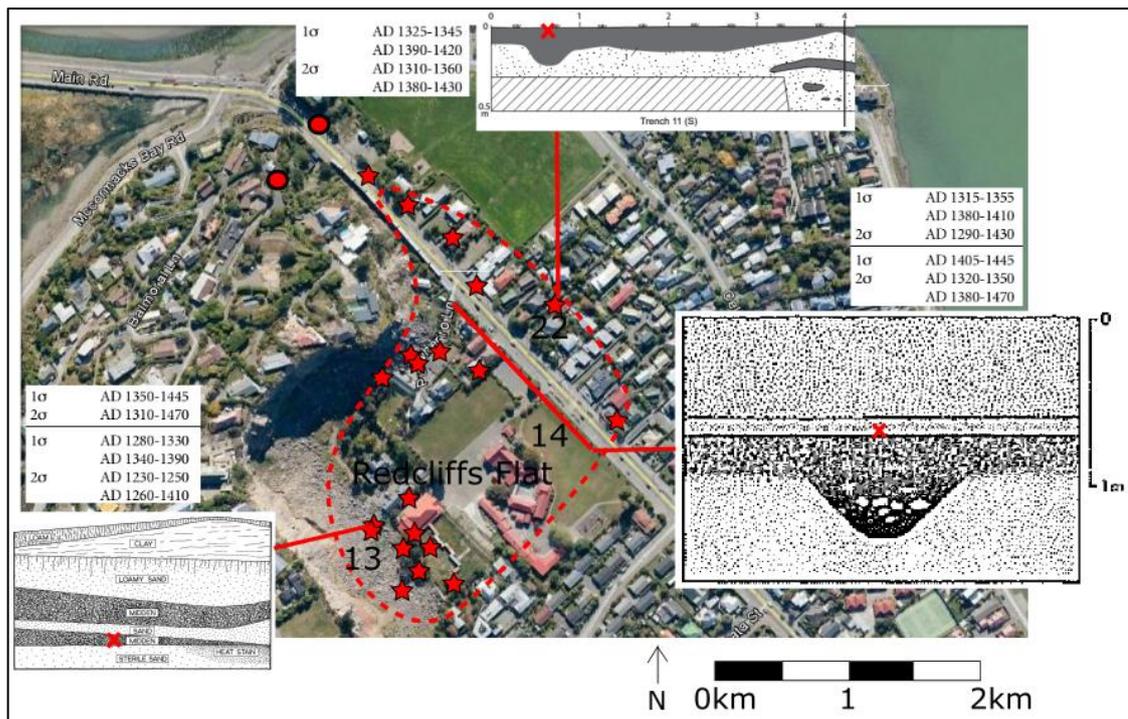


Figure 3.28. Location of excavated sites at Redcliffs Flat from which accepted radiocarbon dates were collected. The location of each dating sample estimated from descriptions (Jacomb 2009a; Trotter 1975) are marked as a red X. Map Data: 2016 Google.

Chris Jacomb estimated a relatively short period of occupation between AD1345-1390 for the entire flat from the overlapping date ranges at one sigma (Jacomb 2009b 11). Until further sites are uncovered and more radiocarbon samples with detailed provenance and stratigraphic information are able to be determined, a general

consensus is that locations in Redcliffs Flat, similarly to Moa Bone Point Cave, were occupied at least between the mid-14<sup>th</sup> century to the early 15<sup>th</sup> century AD.

### ***Estimated Site Area: the Extent of Redcliffs Flat***

Excluding 27 Main Road, Michael Trotter estimated that the archaeological sites represent a single occupation site, c. 40,000 m<sup>2</sup> in area (Trotter 1975 205), from the flat area of Redcliffs Primary School extending northwest to the area in front of Moa Bone Point Cave (Figure 3.29). Chris Jacomb's more recent excavation at 27 Main Road fits within this area and may even represent the north-eastern limit as no intact stratigraphy was found in the north-eastern half of the property and the one meter drop at the edge to the neighbouring field is likely to be where the shoreline met the original mudflat (red dotted line, Figure 3.29). This current site extent is therefore determined by the western limits of the cliffs and by the northern limit of the mudflat and estuary shoreline, but also by the limited area available for excavation. The southern and eastern extents may represent patterns in archaeological investigation rather than the original area used by Māori groups.

This thesis suggests a further extension of the estimated extent of the site (green dotted line, Figure 2.29) north to just south of the "Cutting" in order to include two midden sites recorded in the NZAA Site Recording Scheme and the estimated location of Haast's (1874b) sand hills in front of Moa Bone Point Cave. This brings the northernmost edge of Redcliffs Flat to the estimated 1850s shoreline where a tidal mudflat was often used for collecting shellfish in the 20<sup>th</sup> century (Ogilvie 1978 62). The extent of the site to the southeast is difficult to determine due to the complete destruction of the area through housing and roading. Potentially the entire flat area throughout the Redcliffs suburb down to Moncks Spur could have represented the site but the only evidence for this is the collection of middens found through salvage archaeology in the last decade down Main Road (NZAA Site Recording Scheme). For now this will be the accepted area of Redcliffs Flat, until any further evidence of early Māori occupation is uncovered nearby.

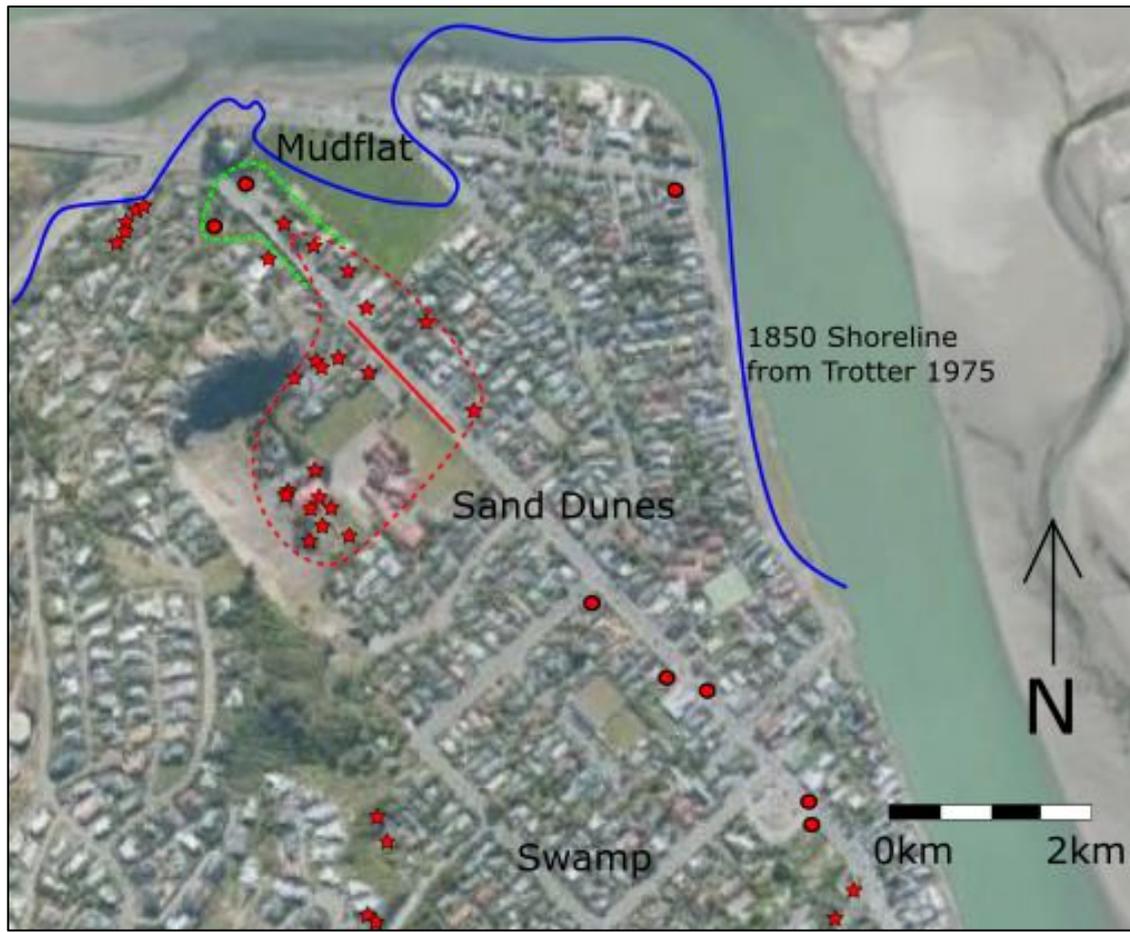


Figure 3.29. Michael Trotter's (red dotted line) estimated extent and a new (green dotted line) estimate of the Redcliffs Flat archaeological area near the estimated 1850s shoreline from (Trotter 1975 191). Red stars and circles relate to Figure 3.11 as archaeological sites and midden respectively. Map Data: 2016 Google.

### ***Summary and Interpretations***

Despite the destruction of the Redcliffs sand dunes by years of suburban development and the fossicking and disturbance of surface archaeology in residential gardens, several midden deposits and ovens of various sizes remained relatively undisturbed and have provided some record of stratigraphy, fauna, and stone and bone artefacts. Excavation at many localities throughout Redcliffs was carried out sporadically since 1865 and often lacked a specific purpose and a rigid archaeological methodology. The earliest excavations were exploratory set within a period of curio hunting, while the more recent excavations by Michael Trotter and Chris Jacomb were salvage excavations before further development destroyed the sites. It is likely that other unreported excavation took place by amateurs without the knowledge of Canterbury Museum, as exemplified by Roger Duff's outraged discovery of Selwyn Hovell excavating in Moa Bone Point Cave in 1957 (Duff 1956-1958 42-43).

Site Area: The excavated areas were mostly small in size due to restrictions imposed by residential buildings and disturbance. This has defined the main evidence for Redcliffs occupation as being small stratigraphic sections and oven pits. These are collated as a single archaeological site (M36/24) defined as Redcliffs Flat on the NZAA national site recording scheme (Archsite) without details of individual excavations. The most extensive excavations both in terms of the area excavated and the detail of recording were of the Sewer Trench and 27 Main Road, but the actual areas excavated and amount of material recovered were very small respective to Moncks and Moa Bone Point Caves.

Available Information: The published literature only provides a general overview of findings from Redcliffs Flat, occasionally supplemented by lists of faunal species and figures of selected representative artefacts. Personal field books for Julius von Haast and John Meeson are missing or were not written and only two are available from Chris Jacomb, providing scarcely more detail than his published reports (Jacomb 2008, 2009a). Michael Trotter's personal records of his Redcliffs excavations are scattered throughout five field books and also do not add much more detail to his published reports (Trotter 1967, 1975, 1982). Roger Duff, though most active in the 1940s and 50s, provided a much larger personal record of his Redcliffs excavations throughout seven field books, including descriptions of artefacts and when each area of the excavation grid was excavated.

As a result of the sporadic nature of archaeological work in Redcliffs, records of the exact locations of most excavation squares within historically named properties (for example the "Hamilton" family property) are missing from published reports or unclear in field notes. Inventories of the contents of cultural and midden layers are piecemeal, lack detailed identification, provenance, counts, or are non-existent. Provenance information (such as stratigraphic layer, location within excavation square, and depth) are occasionally offered in Michael Trotter's or Roger Duff's field books (Duff 1958a; Trotter 1958) but these do not have catalogue numbers or detailed descriptions to correlate with the Canterbury Museum catalogue.

Interpretations: Overall, the stratigraphy, features, and artefact types from individual excavations appear to be very similar throughout Redcliffs Flat. Moa, shellfish, and spotted shag were the most common midden remains. At most excavations shellfish

midden was more commonly at a shallower depth than moa bone midden, which may reflect gradual change in diet over time as there was no definite distinction between these layers (Trotter 1975). Trotter (1975 205) gives an alternative interpretation of this change as that shellfish were better suited to be cooked in a smaller, partly filled-in oven, thus would be cooked on top of an oven already filled with larger bones. However, this pattern occurs in midden deposits that are continuous throughout areas rather than just in ovens, which Trotter's theory does not account for. Layering like this did not necessarily need a long period of time to build up, yet its continuation throughout the majority of the four hectare flat and in Moa Bone Point Cave suggests that this was a change in dietary preference rather than cooking method.

The artefact assemblages from individual excavations differed occasionally between discrete areas in relation to specific activities carried out, such as adze manufacturing (evident in the Sewer Trench), fishhook manufacturing (evident in the School Section), and cooking and food refuse. From an initial view, the majority of artefacts are AEP or 'Moa Hunter' Types, though some, as mentioned by Trotter (1975 205), appear to be characteristic of later cultural Types, such as nephrite pieces worked by scarf cutting. These pieces however appear to have been intrusive into the surface of the occupation deposit. Overall, Michael Trotter summarises his discussion with the thought that these Redcliffs archaeological sites are evidence from an early occupation of a large group of people for a short period of time as the ovens were large in size and there is little evidence for weathering or the building up of sand between deposits (Trotter 1975 207). The newer evidence from Redcliffs Flat fits in with this interpretation.

### **3.3.1 Moncks Cave (M36/47)**

The second cave of the Redcliffs site complex is Moncks Cave, located c. 550m southeast of Redcliffs Flat on the corner of Cave Terrace and Main Road. The cave consists of two large chambers joined with a third at the back of unknown size (Figure 3.30) and is hollowed out of the tip of Moncks Spur, about c. 100 m from the modern shoreline (Figure 3.1). Like Moa Bone Point Cave, the cave entry faces northeast and has a rock formation sheltering its north-western side, but is overall slightly smaller in size. The first chamber is easily accessible as the entryway reaches 3 m in height. The second chamber is similar in size (5 m high) but has a restricted entry through a narrow corridor while the third has never been explored as it is joined by a narrow and long

corridor which is partly blocked by off by a rock wall and debris (Meeson 1889 69). The cave floor slopes towards the back of the cave, which increases in dampness and darkness. Meeson (1889) suggested that this third chamber had been used as the walls of the corridor were smoothed as if by people passing through.

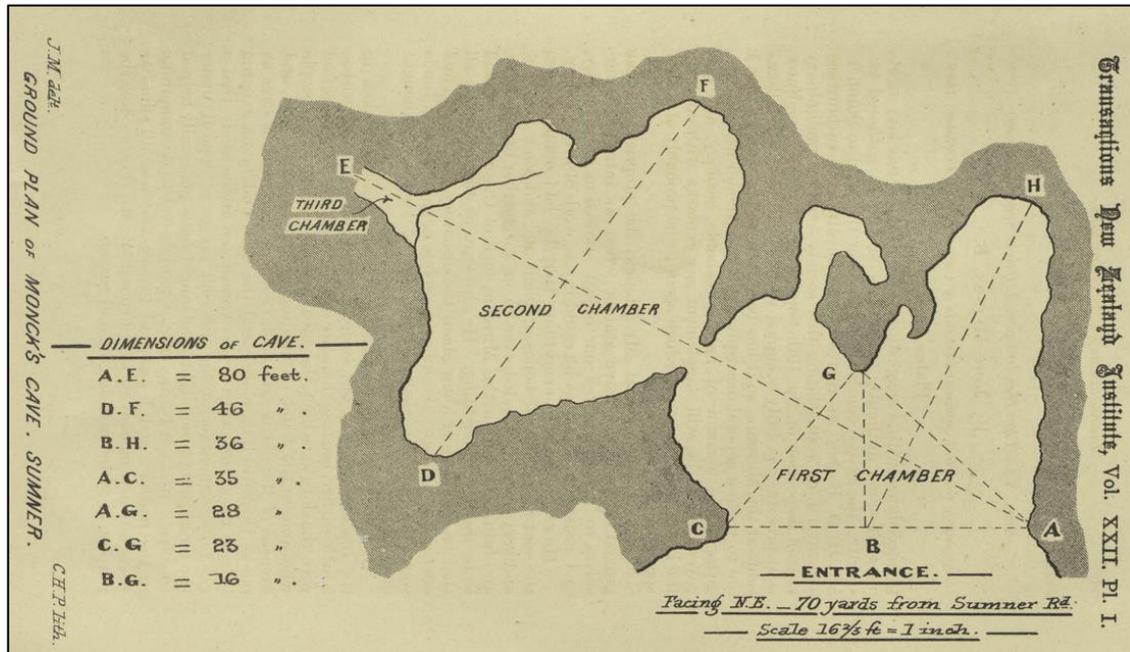


Figure 3.30. Plan of Moncks Cave in 1889. From Meeson (1889).

**1889:** Moncks Cave was first discovered by road workers when removing rubble at the base of Moncks Spur. The extensive mound of rubble (c. 36 m thick), from a land slide, had sealed the cave entrance and was quarried for material for Main Road for up to thirty years (Forbes 1890). The cave was not entirely sealed from nature as some rabbit bones were scattered on the cave floor, likely having entered from a small crevice or burrow (Meeson 1889 66). Some of the rubble extended inside the cave entrance. The surfaces of the two main chambers were discovered scattered with roof debris and much archaeological material. This archaeological scatter included fragmented bird (moa and swan) and fish bone, polished greenstone, and many artefacts of perishable materials. There was also a midden in front of the cave with some artefacts (Forbes 1890 374; Meeson 1889 68).

Before representatives of Canterbury Museum (H.O. Forbes) and the CMAS (John Meeson) inspected the site, many of these artefacts were excavated and collected by Mr. Monck, the land owner, and thus losing their provenance information were handed over to the museum. A few weeks after the cave had been opened excavation was

carried out by two paid workers either supervised by H. Forbes and J. Meeson or, in their absence, Mr Monck (Forbes 1890). Mr. Monck was recorded to have “done his best to preserve everything of value” which likely meant that items such as stone chips and unmodified flakes of little interest to the untrained eye, if they were present, would have been left ignored (Meeson 1889 64). In consideration of these incidents Roger Duff exclaimed that “no New Zealand site has suffered more from unskilled, amateur excavation than the second Sumner Cave [Moncks Cave]” (Duff 1977 260).

**1969:** During the period of his Redcliffs excavations Michael Trotter excavated a trench outside Moncks Cave between Main Road and a “substation” (likely the pumping station in Figure 3.31) revealing disturbed shell midden (No. 19, Figure 3.11). At 229 mm deep an oven of 229 mm depth was located c. 8.5 m from the “substation”, surrounded by a midden layer (Trotter 1971 15). No further detail is available on this find and it is not discussed in Trotter’s (1975) publication.

**1998:** Despite thoughts that Moncks Cave’s archaeological record had been completely excavated and thus destroyed in 1889 (Trotter Unknown), Chris Jacomb discovered an intact stratigraphic deposit with charcoal and shell in the eastern part of the inner chamber (Jacomb 2004, 2008). In 1998, a proposal by the Christchurch City Council to develop the area in front of Moncks Cave into a recreational garden provided an opportunity for further investigation both inside and outside the cave (Figure 3.31). The aim was to develop a chronological and cultural context for the artefacts from both excavations.

A team from Canterbury Museum, including Sally Burrage, Sam Platts, Trevor Worthy, Bill Edwards, Richard Holdaway, and Topsy Rule, led by Chris Jacomb, excavated several test pits, totalling 19000 m<sup>2</sup> (Figure 3.32). At this date the cave was a different shape and smaller size than at its first discovery. Jacomb describes the cave as 20 m long by 6 m wide and 4 m high, which is 5-8 m smaller than previously recorded. The outside area had been developed with power poles, a pathway, stairs, a pumping station, and several service pipes (Jacomb 1998a). Some of the test pits also had European material within the top 60 mm of topsoil or midden, perhaps dug in by animals, while others (Units F11 and F12) had been fossicked.

Pits were excavated outside where trees were proposed to be planted (Jacomb 1998a). The team found three areas of intact stratigraphy inside and three areas outside the

cave. The cultural deposits consisted of shell midden, charcoal stained sand, and bird spear points. Jacomb suspected that little archaeological material would be found further back in the cave so the team did not extend their excavations (Jacomb 1998a).

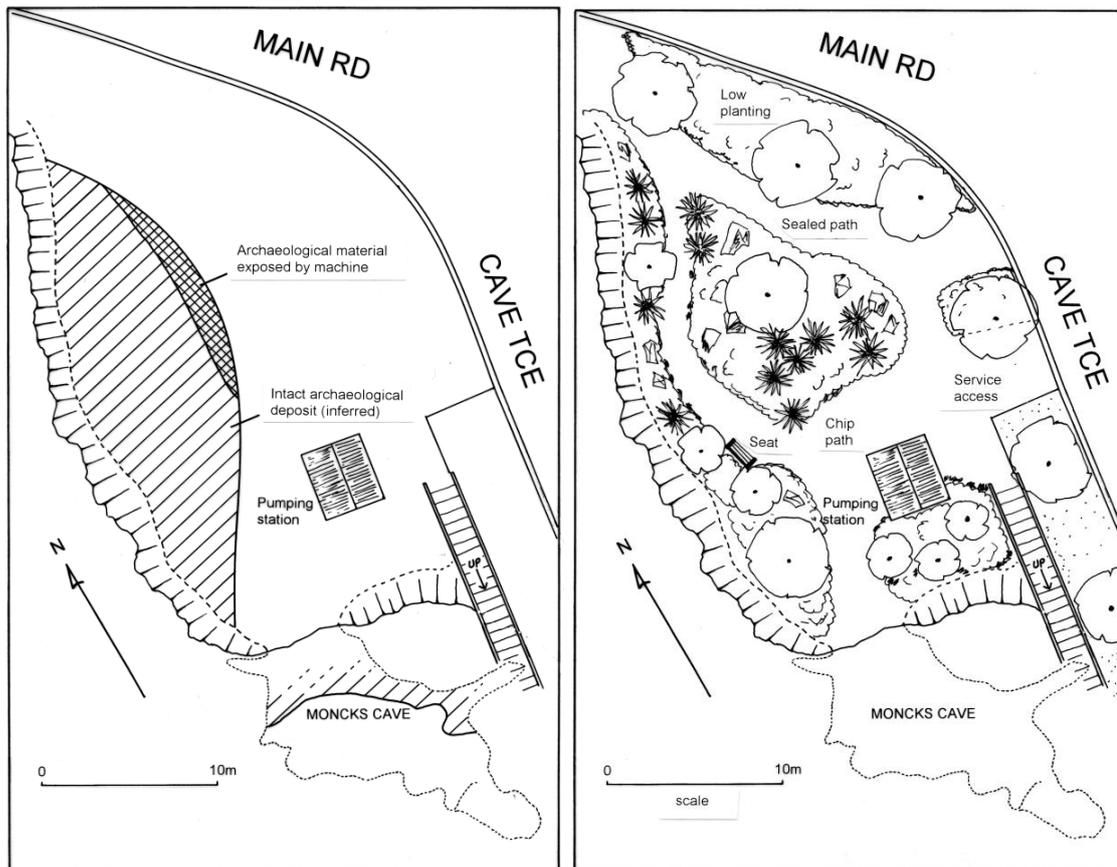


Figure 3.31 Left: Archaeological features at Moncks Cave, Redcliffs. Chris Jacomb Plan, Canterbury Museum Canterbury Museum Archives. Right: Proposed landscaping at Moncks Cave, Redcliffs. Chris Jacomb Plan Canterbury Museum.

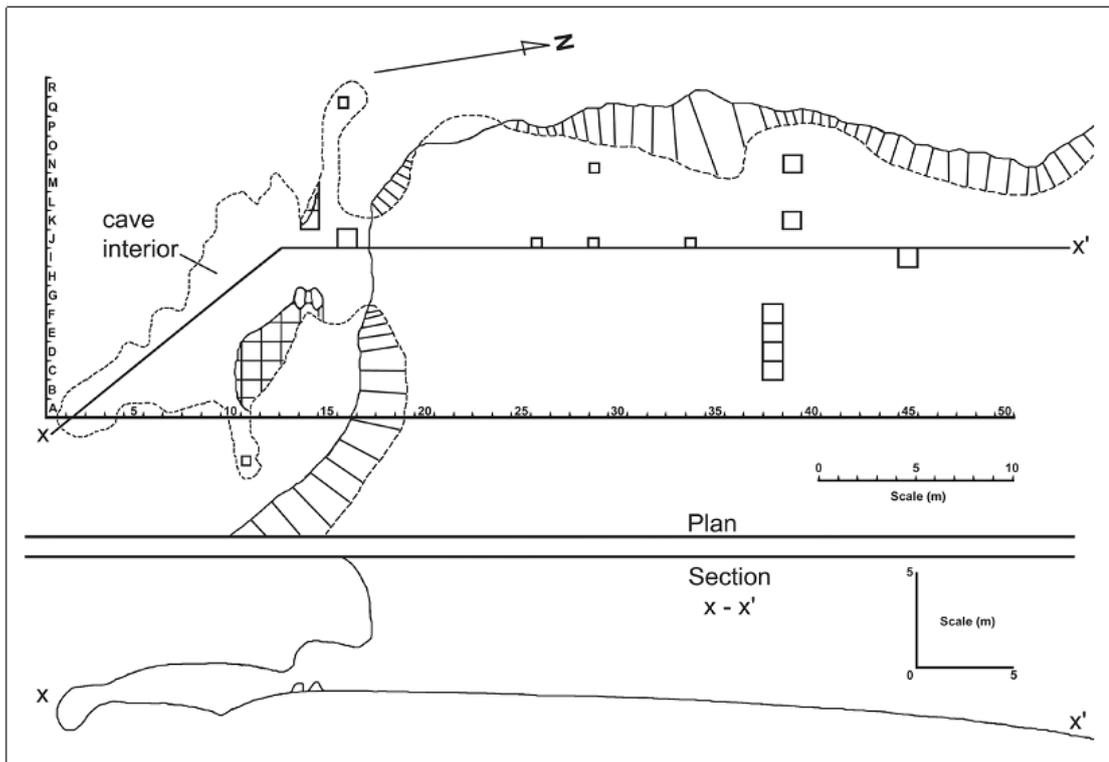


Figure 3.32. Plan of squares excavated by Chris Jacomb at Moncks Cave, Redcliffs, in 1998. From (Jacomb 2008 48).

### Features

Midden: Forbes (1890 374) mentioned that there was a midden in front of the cave but did not discuss it in detail other than the finding of bone fishhooks and bird spear points in the midden and of moa eggshell fragments still containing their epidermis “just below” the midden surface. The midden itself may have been similar to that scattered throughout the cave (bird and fish bone).

Dense shell midden (400 mm thick) with a small amount of bird, fish, sea mammal, and rat bone was uncovered in 1998 within test pits outside the cave between 17-26 m from the cave entrance (Units C38-F38, K39, N39 and I45, Figure 3.32). The midden was covered by 100 mm of loess and sat on clean dune sand, though some also overlaid small spots of dense charcoal such as a fire scoop in I45 (Jacomb 2008). Other than a thin layer of charcoal stained sand and shell in Unit J26, three test pits between the midden area and the cave entrance were sterile, giving an indication of the extent of this midden.

Two midden deposits containing shell, fish, and bird bone were located in the cave, one against the east wall (Units F14-G14 between a rock cleft) and one against the west

wall (Units K14-M4). The deposit through Units A12- G13 extending along the east wall was also layered with thin lenses of charcoal and sparse shell fragments (Figure 3.33). These lenses dipped towards the rear of the first chamber and were interpreted as having washed in from a deposit outside the cave during heavy rain (Jacomb 2008 49, 54). McFadgen and Goff (2005) suggested that these lenses reflected a cave flooding from higher sea level but this single event would not have resulted in the lensing of multiple thin layers (Jacomb 2008 54). The two thicker midden deposits (Units G14 and L14) each contained bird bone and bird spear points, while the lens deposits further back in the cave did not contain any cultural material. It is unclear how these deposits relate to the midden described by Forbes as they are either c. 10 m within the cave or c. 20 m from the cave entrance and were covered by c. 100-500 mm of topsoil or loess. No moa bone was found in any of the midden deposits.

Natural Shell Lens: A lens of naturally deposited shell (*Austrovenus stutchburyi*) was identified about 500 mm deep in brown sand below a fire scoop in Unit I45. This indicated an old estuary shoreline, which turned to blue-grey sand 1.5 m below (Jacomb 2008 48).

Hearths: Evidence of fires or hearths were found only during Meeson's (1889 67, 69) excavation. These were lenses of ash and possibly charcoal in areas of the first chamber which were found "at different times", suggesting different stratigraphic levels. Jacomb (2008) later suggests that these may be the lenses that he uncovered in 1998.

### **Artefacts**

Meeson (1889 68) stated that the most common artefacts were related to fishing such as canoe equipment, stone sinkers, pumice floats, fish spears, fishing lines, and netting. Stone flakes and tools (greenstone, obsidian, basalt, and chert), including polished adzes and awls, ornaments, bone needles, and unusual artefacts such as fern root pounders, fire-lighting sticks, human hair, combs, bird feathers, and pieces of seal skin were also listed. A paddle, bailer, and outrigger float were collected from a natural cleft in the rock near an outer wall. Some bone fishhooks and bird spear points were found in the midden in front of the cave. The provenance of all of the remaining artefacts from 1889 is unknown, though it seems that most came from the first chamber and some from the second. The few artefacts from Jacomb's excavations, such as a wooden scoop

(which was removed by museum conservationists from the ashy midden layer and stored in the “old conservation lab for further treatments”) and bird spear points, have been recorded with their square and layer (Jacomb 1998a, b). Skinner (1924) provided a brief description and analysis of a selection of artefacts that were sent to the Otago Museum in 1922, including several wooden artefacts, adzes, other stone tools, bone fishhooks, shell, and fibres, with adjoining photographs and drawings.

### ***Stratigraphy***

The lack of record of the depth or contents of any of the layers described by Meeson and Forbes creates much difficulty in the interpretation of the artefacts and occupation period of Moncks Cave. The surface of the cave floor was covered in a layer of roof debris. Shells and “volcanic ash” was the first layer in the first chamber. At least five further layers were identified by Meeson (1889 67) as loess interspersed with ashy layers with the evidences of fires and “dirt beds” between 25-229 mm thick throughout the cave. This lensing of dirt flecked with ash and possibly charcoal between layers of loess is very similar to some stratigraphic layers at Moa Bone Point Cave. Skinner wrote that the stratigraphy of Moncks Cave was not nearly as deep as that of Moa Bone Point Cave (Skinner 1924 151), but it is unclear where he sourced this information as Meeson (1889) and Forbes (1890) did not provide any measurements of depth.

Chris Jacomb (2008 49) provided a detailed record of stratigraphy from each excavation square. Cultural material overall was at a very shallow depth and may thus have related closely to the material recovered from the surface. The type and depth of stratigraphy varied between the test pits but generally consisted of:

- Layer 1. Loess with rubble and/or modern topsoil.
- Layer 2. Cultural deposit of shell and sparse bird, fish, and mammal midden, some bird spear points in the cave interior and charcoal stained soil outside the cave.
- Layer 3. Loess with rubble or clean sand.

The main stratigraphic differences reflected the horizontal position of each test pit as those inside the cave consisted wholly of cultural material layered in loess with rubble from the roof, while the most distant pit from the cave (Unit I45) was covered by modern topsoil and sat on blue-grey sand as the old shoreline.

The stratigraphy of the in-washed lenses (Unit F13) was:

Layer 1.	Lenses (2-5 mm) of light yellow-grey loess silt alternating with darker yellow-grey loess silt with roof debris, 0-150 mm.
Layer 2.	Dark brown loess with charcoal and sparse shell, 150-165 mm.
Layer 3.	Lenses (2-5 mm) of light yellow-grey loess silt alternating with darker yellow-grey loess silt with roof debris, 165-200 mm.
Layer 4.	Dark brown loess with charcoal and sparse shell fragments, 200-230 mm.
Layer 5.	Lenses (2-5 mm) of light yellow-grey loess silt alternating with darker yellow-grey loess silt with roof debris, 230-900 mm.



Figure 3.33. Laminated strata from a vertical section at Unit F13 within Moncks Cave, Redcliffs. The two dark layers contain charcoal and shell fragments. From (Jacomb 2008 50).

Jacomb (2008 54) interprets the layers described by Meeson (1889 67) as being thinner lenses like those above as he found no evidence of stratigraphic depth inside or outside the cave.

### **Dating**

As no dates or appropriate samples were retrieved in 1889 the period of occupation has been inferred from artefact Types and association with moa bone. Unfortunately this was made more difficult by the lack of information on the state of the moa bone and on the stratigraphic position of any item other than the surface artefacts. Meeson (1889 68) ascribed the occupation of the cave and the creation of all of its artefacts to 'Moa Hunters'. Forbes (1890) suggested that the moa eggshell in being positioned within a midden was most likely the remains of a meal and that the carved kuri, canoe apparatus, and swan bones (on the surface) were contemporaneous with moa bones. Note that nowhere is it explicitly stated that the carved kuri was found on the surface, although

Forbes (1890 375) implies that it was. He therefore suggested a ‘Moa Hunter’ origin for much of the midden and some artefacts, but he also allocated a later Māori origin to the polished nephrite artefacts, fishhooks, and some wooden artefacts. Though described briefly, the artefacts do appear to represent both early AEP Types (adzes and bird spear points) and later ‘Classic’ Types (nephrite artefacts and composite bone fishhooks), but many of the perishable artefacts do not have equivalents in other early Aotearoa archaeological sites so require further analysis to determine where or whether they relate to a cultural phase.

Due to the undisturbed nature of the cave it is acceptable to consider the artefacts collected from the surface (bailer, outrigger float, paddle, greenstone “implements”, and possibly the carved kuri and other stone and bone artefacts) to be contemporaneous with fragments of moa long bones and eggshell collected from the surface (Forbes 1890). This moa bone, while some was burned and scattered around a hearth (Forbes 1890 374), was only used industrially and had no evidence of having been butchered. Several moa bones had been worked, such as sharpening into awls. This treatment has been suggested to mean that they were collected as industrial material rather than from live moa (Skinner 1924 152). Skinner (1924) supported the view that the surface artefacts were from a later date than of ‘Moa Hunter’ occupation and Jacomb (2008 45) provides the idea that the cave had been a moa nesting site providing the eggshell (with its inner membrane attached), fragmented moa bone, and feathers.

Jacomb (2008 49) produced a chronology of cave occupation through a suite of eleven radiocarbon dates determined from marine shell collected from each test pit with midden, six from the cave interior and five from the exterior (Figure 3.34). See the publication (Jacomb 2008) for details on sample provenance.

No evidence for multiple occupations was found, as the lenses in the first cave chamber gave very similar calibrated dates and likely originated from the same deposit that was laid down around the end of the 14<sup>th</sup> century AD before being washed into the cave. The thick midden deposit inside the cave (Unit G14) had no traceable stratigraphy and the radiocarbon dates seem to indicate that it was from a single event around the late 14<sup>th</sup> to early 15<sup>th</sup> centuries AD, rather than it having built up in layers over time (Jacomb 2008). The date from the midden deposit on the western side of the cave (Unit L14) agreed with these dates.

Provenience	Conventional Age	Calibrated Age	$\delta^{13}\text{C}$	Lab. No.
<i>Cave interior</i>				
G13 layer 2; lens 1	980 ± 40 BP	1σ AD 1325-1425 2σ AD 1280-1460	1.0 ± 0.2	Wk6769
G13 layer 2; lens 2	910 ± 70 BP	1σ AD 1340-1480 2σ AD 1280-1570	1.6 ± 0.2	Wk6770
G14 layer 2; spit 1	900 ± 40 BP	1σ AD 1385-1490 2σ AD 1320-1530	1.1 ± 0.2	Wk6771
G14 layer 2; spit 2	950 ± 45 BP	1σ AD 1340-1450 2σ AD 1290-1451	1.2 ± 0.2	Wk6772
G14 layer 2; spit 3	960 ± 40 BP	1σ AD 1335-1435 2σ AD 1290-1480	1.2 ± 0.2	Wk6773
L14 layer 2	900 ± 45 BP	1σ AD 1350-1370 (2%) AD 1380-1490 (66.2%) 2σ AD 1310-1530	0.6 ± 0.2	Wk6779
<i>Cave exterior</i>				
K39 layer 2; spit 2	780 ± 45 BP	1σ AD 1460-1590 2σ AD 1430-1660	1.3 ± 0.2	Wk6778
K39 layer 2; spit 4	830 ± 45 BP	1σ AD 1430-1540 2σ AD 1390-1550	0.7 ± 0.2	Wk6777
K39 layer 2; spit 6	1000 ± 45 BP	1σ AD 1310-1415 2σ AD 1270-1460	0.9 ± 0.2	Wk6776
I45 layer 2	750 ± 40 BP	1σ AD 1490-1630 2σ AD 1540-1670	1.4 ± 0.2	Wk6774
I45 natural shell lens	2410 ± 50 BP	1σ 200-10 BC 2σ 320 BC-AD 70	0.9 ± 0.2	Wk6775

**Figure 3.34.** Radiocarbon dates from the sites of the Redcliffs site complex, Christchurch, excluding dates discarded by Anderson (1991) and Petchey (1999) except NZ511 from Moa Bone Point Cave. All of the Moncks Cave dates are from marine shell (*Austrovenus stutchburyi*). From Jacomb (2009a 24).

As discussed above, the majority of artefacts were collected in 1889 from the surface layer. The lack of depositional material above this layer suggests that the artefacts were deposited within a short period, and were soon after sealed within the cave, and thus implies that material on the upper layer are closely associated in time which may be similar to the radiocarbon dates retrieved by Jacomb (2008 53).

The dates from deposits outside of Moncks Cave show that it was occupied at a later time than the main chamber of the cave (Jacomb 2008). The main dense midden deposit also had no visible stratigraphy, but its radiocarbon dates suggest a period of deposition over a century from about the late 14<sup>th</sup> century to the late 15<sup>th</sup> or early 16<sup>th</sup> century AD. The midden and associated fire-scoop in Unit I45 as the northern extent of the excavated site were of a similar age to the top of the main exterior midden (Unit K29). The natural shell lens to the north of the cave (Unit I45) returned a date of around 2000 BP, showing that then the shoreline was 60–80 m closer than today (Jacomb 2008 52).

### ***Summary and Interpretations***

Meeson's (1889 67) report was only intended to be "a preliminary notice" of the general discovery and findings of the cave with the aim to produce a more detailed discussion "as soon as can be done conveniently", but a second report was never published. Many details such as the exact measurements of the cave and regarding the systematic digging of the cave were intended to be reported on in this later publication. What Meeson's report offers in most detail is descriptions of the location and discovery of the cave, though these lack the accuracy of measurements and dates, as well as the mention of many of the more interesting artefacts. The artefacts are not given as a complete list and the only mention of provenance is in the description of surface finds and the artefacts in a rocky cleft, but their precise locations are unrecorded.

Interpretation: Moa bone and eggshell were particularly noted in the 1889 report, while shell midden is barely mentioned other than being a part of the scattered debris above Layer 1. Meeson (1889) interprets the cave as a temporary fishing and moa hunting camp. Some stone tools were flaked inside the cave leaving flakes and "blocks" of chert and flint (Meeson 1889 68). The occupation was overall relatively short, particularly inside the cave, and there is little evidence of culture change over time from the radiocarbon dates and artefact Types (Skinner 1924 161). Use of the second and third chambers appears to have been minimal compared to the first chamber and cave exterior. This is likely the result of the dip in ceiling height restricting both entry and light and probably increased dampness due to the gradual drop in floor level (Jacomb 2008 49). Use of the cave exterior extended possibly a century beyond the use of the interior. If the cave had been sealed by then, the outside area would still have been desirable as it was protected from the northwest winds by the cliff face of Moncks Spur.

The absence of non-industrial moa bone in Moncks Cave (Duff 1977 262; Skinner 1924), a site in close proximity to Redcliffs Flat and Moa Bone Point Cave where moa butchery, cooking, and consumption was certainly carried out, has been crucial to the development of a rapid model for moa extinction (Holdaway & Jacomb 2000). Due to this evidence, the period for moa extinction is now defined as being within the first century of occupation of Aotearoa, which agrees with the main period of use of Moncks Cave.

### **3.3.2 Modern Monitoring and Salvage Archaeology**

Since Chris Jacomb's excavation there has been sparse archaeological investigation within Redcliffs due to the lack of development of the residential area which may have revealed new material. The 2010 and 2011 Christchurch earthquakes changed this as the redevelopment of much of Christchurch, including Redcliffs, increased the amount of archaeological salvage and monitoring work by contract companies such as Underground Overground Archaeology, Opus International Consultants Ltd, CERA, and Strata Heritage. New midden deposits have been identified below house foundation or roads (Carter 2012, 2013; Kurmann & Cable 2013). This thesis is only focused on the Redcliffs site complex as outlined in this chapter due to the importance of clarifying the information about the four major sites before undergoing more in depth analysis. It is important for future investigations of Redcliffs to incorporate evidence from these new sites and build up a more detailed picture of the suburb.

### **3.4 Redcliffs Site Complex Synthesis and Initial Interpretations**

This synthesis gives greater clarity to the long history of archaeological work in Redcliffs, which has resulted in a large base of archaeological information, and, more importantly, what we can now do with this information. In collating a wide range of resources, including often disregarded unpublished museum records, details have been clarified regarding the discovery, excavation, and dating of the Redcliffs site complex and in the collection of artefacts and recording of stratigraphy and artefact provenance. A list of individual excavation events that resulted in material that likely went to Canterbury Museum has been made using information from published and unpublished literature and the Canterbury Museum Ethnology Registers (Table 3.4). The excavation codes will be correlated to artefacts in an artefact inventory and any patterns between the assemblages from different excavation events will be considered in the next chapters.

**Table 3.4.** A list of individual archaeological excavations of the Redcliffs site complex, Redcliffs, Christchurch, each with an arbitrary code to be assigned to artefact assemblages held in the Canterbury Museum in Chapter Four of this thesis. MBPC: Moa Bone Point Cave, SBG: Sumner Burial Ground, RF: Redcliffs Flat and MC: Moncks Cave.

<b>Archaeological Site</b>	<b>Assigned Excavation Number</b>	<b>Excavation</b>
MBPC	A	1872 Haast, McKay and Lowman
MBPC	B	1957 Hovell
MBPC	C	1958-1970 CMAS: Duff <i>et al.</i>
MBPC	D	1971 Duff public lecture visit
SBG	E	1873 Haast
SBG	F	1958 CMAS
RF	G	From 1865 Haast
RF	H	1872 Haast “sand hills”
RF	I	1939 Duff, Hamilton Midden
RF	J	1946/8 Yaldwyn and Dawson Hamilton Midden
RF	K	1957 Hovell and Junior Club, Miscellaneous Locations
RF	L	1957 Hovell and Duff, SW Midden
RF	M	1958 Hovell, Duff and Fomison, Hamilton Oven
RF	N	1958 Hovell, Beaumont and Rogers Properties
RF	O	1959 Duff, Hines Oven
RF	P	1959 Duff, Gray Property
RF	Q	1959 Duff, Murphy Property
RF	R	1966 Trotter, SW Midden
RF	S	1969 Trotter, Sewer Trench
RF	T	1969 Trotter, School Oven and Section
RF	U	2003 Jacomb, 27 Main Road
MC	V	1889 Meeson and Forbes
MC	W	1998 Jacomb

### **3.4.1 Main Points Learned from the Synthesis**

Despite the in-depth research and collation of primary and secondary sources it is obvious that there are still important pieces of information missing from the history of the Redcliffs site complex, particularly relating to excavation provenance. However, a greater picture has been built up of the extent of excavation and the availability of

certain information which is helpful towards future understanding of the Redcliffs site complex. Each type of information regarding the Redcliffs archaeological record as listed in the introduction to this chapter are summarised below.

Reasons for Excavation and Limitations: This chapter highlighted three general groups of investigation events. The first excavations, pre-19<sup>th</sup> century, were primarily concerned with Māori origins and carried out under a mix of scientific inquiry and curio-hunting values, often by employed workers not trained in archaeological methods. The second group of excavations, across the 1930s-60s, had a less theoretical focus. These were undertaken by workers with a better understanding of appropriate and sensitive archaeological methods but still sometimes with a curio hunting mind-set. The most recent group of excavations, since the late 1960s, were of a salvage nature and initiated through the uncovering of archaeological remains during suburban and residential development. These varied in quality depending on who was in charge of and could attend excavations.

Throughout the 20<sup>th</sup> century, the casual employ of local archaeologists and untrained volunteers, regular suburban developments, suitability of individual areas (such as being on private property), local community involvement, and changing views on the role of public institutions and the ownership of archaeological material greatly limited the extent and accuracy of archaeological investigation, particularly of Redcliffs Flat. These factors resulted in variation in the amount, quality and availability of information recorded from excavations and have defined Redcliffs archaeology as patchy salvage work rather than professional and structured scientific enquiry. The nature of Aotearoa's archaeology during this time period, especially in the lack of consideration for vertical stratigraphy and standard recording practices before the 1960s, similarly restricted the available information about the sites and artefacts. This occurrence was common nationally.

Who Excavated and Association with CMAS and NZAA: The pre-1900 excavators were paid workmen, probably with little archaeological experience, supervised by Canterbury archaeologists. The main CMAS excavations were run by Roger Duff, Michael Trotter, and Chris Jacomb though the majority of excavators were untrained local volunteers, including primary school students in the Junior Club, supplemented by visiting CMAS and NZAA members with more archaeological experience.

Location of Specific Excavations: The exact location of excavation squares and the timing of the Moa Bone Point and Moncks Caves excavations still remain unclear. Similarly, information about Redcliffs Flat excavations was rarely recorded in detail, nor published, and it is difficult to estimate locations within such an extensive area. The location of test pits, trenches, and excavated areas at Sumner Burial Ground, Redcliffs Flat, and the “sand hills outside the cave” have been estimated as closely as possible from available sketch maps or descriptions but will remain uncertain.

Extent and Locations of Excavation Squares: As stated above, the location of excavation squares was rarely recorded in relation to permanent landmarks or GPS coordinates. However the size and number of excavation squares was often recorded in field books or published reports, so we have a good impression of the extent excavated within Redcliffs, just not exact locations. The archaeology seems relatively continuous in artefact types, stratigraphy and timing however and has likely been heavily affected by changing dune movement and destruction since the 1940s, so our interpretations would likely not change significantly with greater accuracy in this information.

Basic Description of Artefacts Found: The material culture recovered overall reflects a vast range of materials and artefact types. Personal ornaments, organic remains, stone tools, bone tools, and miscellaneous stone and bone items represent one of the most diverse collections of early Māori life found in Aotearoa. These will be discussed in detail in the following chapter.

Basic Description of Fauna: The range of fauna was similar between the four sites; generally consisting of shellfish, moa, small birds (penguin, shag, swan, and ducks among others), sea mammal (fur seal, sea lion, sea leopard, and whale), kuri, and some fish. More detail can be found in the excavation reports.

Where Information on Artefacts and Fauna is Available: Artefacts and faunal remains are described in all of the excavation reports (Forbes 1890; Haast 1874a, b; Jacomb 2008, 2009a; McKay 1874; Meeson 1889; Trotter 1967, 1975), some field books, and figured in some excavation reports (Dawson & Yaldwyn 1975; Haast 1874a; Jacomb 2009a; Meeson 1889; Trotter 1967, 1975) and related literature (Duff 1977; Skinner 1923; Skinner 1924; Trotter 1967, 1975). Few publications have complete lists with identifications and counts of artefacts (Dawson & Yaldwyn 1975; Haast 1874b; Jacomb 2009a; Trotter 1975).

Features: Midden and ovens were the most common features, being present at every site. Human remains (koiwi tangata) were found only at Moa Bone Point Cave and Sumner Burial Ground. The wharau in Moa Bone Point Cave interpreted from post butts is a unique feature in Redcliffs.

Radiocarbon Dating Samples and Determinations: Relative to the extent and importance of the site complex the number of accepted radiocarbon dates is small, especially as Sumner Burial Ground has not been dated and Moa Bone Point Cave has only one accepted date despite having a deep stratigraphic record. Due to the disturbance of most of Sumner Burial Ground and Moa Bone Point Cave, it is unlikely that a greater understanding of their chronologies is possible, though it is worth investigating. A better range of dates is available for Redcliffs Flat and Moncks Cave (Jacomb 2008, 2009a) and the overall chronology of the area is discussed by Chris Jacomb (2009a).

Presence and Extent of Disturbance: Most of the sites have suffered a certain extent of disturbance, either by animal digging, untrained excavation, gardening, and development activities. Very few were undisturbed before excavation, such as Moncks Cave (before Mr. Moncks' fossicking) and the SW Midden, Redcliffs Flat.

Stratigraphic Record: There are a number of stratigraphic sections available for each archaeological site, however there is little clarity about where most sections were taken. Most of the Redcliffs Flat ones depict oven or pit sections though there is also a record of non-oven stratigraphy. The stratigraphic sections from each site show similarities in having layers of shell midden, moa bone midden, and ashy specked dirt above natural sand. Shell midden was more often found above midden containing moa bone but these were rarely divided by a clean line of sand. Despite these similarities, the stratigraphy does differ greatly in terms of the number and thicknesses of layers, which is expected from dune and cave environments.

Artefact Provenance: The limiting factors discussed in the first point of this summary mean that the provenance of individual features, artefacts and faunal deposits was not consistently recorded. Michael Trotter and Roger Duff recorded the locations of some artefacts within excavation squares from Moa Bone Point Cave and Redcliffs Flat in their field books but this information can rarely be correlated to catalogued artefacts in Canterbury Museum, unless the item is unique or described in detail such as a 'god-

stick'. Several artefacts have also been fossicked by members of the public and donated to the museum so have even less provenance information. The only to-scale plans of excavations with the location of features are from Chris Jacomb (2008, 2009a). The only others are figured in Trotter (1975) or estimated in this chapter. Therefore, even with a provenance for an individual artefact it would be rare to correlate this to its location exactly in the site. Similarly, the lack of radiocarbon dates, especially from different stratigraphic layers means that any provenance information about the stratigraphic location could only be hesitantly used to study change over time. Sumner Burial Ground, Moa Bone Point Cave and Redcliffs Flat have virtually no record of artefact or feature provenance. The artefacts catalogued in Canterbury Museum are labelled with their archaeological site and occasionally with a note by Haast or Duff such as "Marine Sand".

### ***Current Interpretations of Early Redcliffs Settlement***

Some initial interpretations have been drawn by key Redcliffs researchers from this series of excavations. From the large oven sizes, levelling, and reuse of Moa Bone Point Cave, Redcliffs is interpreted to have been occupied by large groups of people intermittently for short periods over winter, so did not build long term structures (Jacomb 2009a; Trotter 1975). These people utilised a variety of local resources and took advantage of the natural rockshelters. A range of activities were carried out, including food preparation, waste disposal, and bone fishhook, basalt adze, and other lithic flake manufacturing (Dawson & Yaldwyn 1975 216; Trotter 1975 205-207). From the large number of ovens and food refuse found in the Redcliffs sand dunes compared to the fewer ovens and cooking evidence from Moa Bone Point Cave, Julius von Haast (1874a 78) interpreted the main activities of cooking and feasting to be carried out on the open sand dunes and that the cave was used irregularly for shelter and occasional cooking. People were active in Redcliffs generally from the mid to late-AD1300s to the early-mid-AD1400s. There seems to have been a gradual increase in reliance on shellfish and bird species, compared to moa. A period of intermittent late occupation occurred outside Moncks Cave up till the early-AD1500s (Jacomb 2008).

### 3.5 Chapter Conclusion

The Redcliffs site complex evidently holds an important place in the story of Aotearoa's earliest history. Redcliffs archaeology is comparable to that of the Shag and Rakaia River Mouth sites to the south and Wairau Bar to the north in terms of the types of artefacts, wide range of activities and faunal use, coastal focus, shallow stratigraphy, and early time of occupation. However, clear differences are already evident such as its impermanent and intermittent occupation and the large number of organic artefacts. These artefacts are rarely found in Aotearoa's archaeological record, which makes comparison to similar archaeological sites difficult, but means that they also hold unique potential for the information they can provide with the faunal and lithic records.

Analysis of the material culture has been hindered by the lack of consistent provenance data and a coherent chronology. Only Chris Jacomb has provided brief analyses of fauna and artefacts from his more recent excavations of Redcliffs Flat and Moncks Cave (Jacomb 2008, 2009a), but these have been of small assemblages of specific artefact classes. Much of this cannot be remedied due to the disturbance to the sites, the lack of detailed documentation, and inconsistently available information. These are common features of Aotearoa's archaeological sites and stored collections, as the majority of archaeological investigation occurred around the mid-20<sup>th</sup> century and the problems of standardisation of excavation and documentation methods, employ of untrained volunteers, and ownership of archaeological material were nationwide (Crosby 2004 116; Davidson 1994).

This synthesis has made steps towards making Redcliffs archaeological information more manageable and presented it in a usable format in one place. Better comparisons between the sites and their relationships can now be made through looking at their material culture in more detail. Despite that the majority of this collection lacks the context of artefact provenance, the many properties and relationships of the artefacts themselves can lend to interesting and nuanced interpretations of the people who lived in Redcliffs, especially when put back into their cultural, natural, and geomorphological contexts. The next chapter will bring all of the material culture available in Canterbury Museum from the Redcliffs site complex together as an artefact inventory. A description of the main artefact classes will increase our understanding of what the

overall assemblage consists of and what it reveals about the patterns of resource use, activity, and settlement of the Redcliffs hapu.

## Chapter 4: Redcliffs Site Complex Material Culture

### 4.1 Introduction

Canterbury Museum houses an important material culture collection from the Redcliffs site complex, Ihutai, Canterbury, that has yet to have a resounding impact on Aotearoa's archaeology. The reasons for this are an informal and piecemeal information record, which was addressed in Chapter Three of this thesis, and a lack of knowledge about the entire collection, which will now be addressed. This chapter will contribute to the overall thesis aim by providing a digital inventory of artefacts from the site complex alongside a description of the entire collection. This will enable a better understanding of what the overall collection looks like which will enable more targeted research and developments in the role of the site complex within discussions of Aotearoa's earliest South Island settlements.

### 4.2 The Museum Collection

The Canterbury Museum collection considered by this thesis is composed of artefacts recovered over 140 years from the c. 23 excavations of the Redcliffs site complex. The majority of artefacts are stored in the Canterbury Museum Ethnology Room, though some are held in off-site storage or are on display in the 'Iwi Tawhito-whenua hou' exhibition. The collection contains a large number of different kinds of artefacts made from various materials commonly used by Māori, such as animal bone, shell, lithics, plant fibres, and wood. Artefacts made from organic materials do not often survive in the archaeological record so it will be particularly exciting to examine them. Unfortunately, not all artefactual information was recorded over the 140 years of artefact recovery and what was does not always match artefact identifications in Canterbury Museum's catalogues. Consequently, the majority of the collection lacks a detailed provenance other than 'archaeological site'. A portion of Redcliffs artefacts (including those from Chris Jacomb's excavations) are also missing and stored elsewhere. This chapter therefore focuses solely on artefacts held in Canterbury Museum.

Since their initial recovery many of the artefacts have been listed in appendices or described in excavation reports, but few have been described in detail and artefacts

from the different sites have rarely been described or figured together. None of the collection has been addressed within a formal material culture study and a full account of material culture from the Redcliffs site complex has never been made. It is therefore important that the museum collection be listed and described in whole to understand how to overcome challenges of the collection and where to go next in its research and interpretation.

### 4.3 Material Culture Methodology

The main question was how to set up a methodology with a decontextualised museum collection? In a way we could say that all archaeological assemblages are decontextualised (i.e. taken out of their original matrix), unless they have been recorded by technology such as a total station or 3D imager. But some are especially difficult to research with traditional archaeological methods as they have little recorded provenance information, excavation plans, or associated dated material to turn to. This is the case for the Redcliffs site complex. As set up in Chapter Three, the answer was to turn away from traditional methods of material culture studies such as those focussed on chronology, classification, morphology, function, or raw material analysis and create an inventory of material culture and provide a description of these artefacts organised into six major artefact classes.

While the inventory itself will not be a complete record of Redcliffs archaeological material, its creation is an important step in managing the history of Redcliffs archaeology and will consider many artefacts that have not yet been discussed in the literature. The description of the major artefact classes will allow an overview of material culture patterns within Redcliffs and will support in the following chapter a discussion of how these relate to recognised temporal, regional, and national patterns.

#### ***Inventory***

This section describes the building of a digital inventory of the Redcliffs collection. The inventory drew chiefly from Canterbury Museum collection records. Individual artefacts in the Ethnology Storeroom are labelled with a catalogue number such as E.158.5 (where 'E' means 'Ethnology' and '158' often stands for 1958 as the date of cataloguing). Artefacts were originally catalogued by hand into several volumes of Ethnology Registers and more recently into a digital record called the Vernon database.

The Ethnology Registers, as secondary records of the artefacts which sometimes had notes from the original excavator, such as Roger Duff, were used first to build the Redcliffs artefact inventory.

**Table 4.1. Data categories recorded for individual artefacts in an inventory of the Redcliffs site complex material culture.**

<b>Categories</b>	<b>Classes</b>
<b>Site</b>	Moa Bone Point Cave, Moncks Cave, Redcliffs Flat, Sumner Burial Ground
<b>Excavation Event</b>	A-T labelled excavation events (see the summary of excavations in Chapter Three).
<b>Artefact Class</b>	Personal Ornaments Organic/Composite Bone Lithic Tools Lithic Other Unknown
<b>Material</b>	As stated in Ethnology Register. E.g. Obsidian, wood, moa bone.
<b>Description</b>	Description of artefact as in Ethnology Register.
<b>Condition</b>	As stated in Ethnology Register. E.g. burnt, fragmented.
<b>Date Collected</b>	Date
<b>Name of Excavator or Donor</b>	Name of person who excavated the artefact or donated the artefact from fossicking or a personal collection.
<b>Notes</b>	Other details regarding the artefact.

Details were added using Vernon database Shelf Lists, which are specific to shelves in the Ethnology Storeroom, and where these differed to the Ethnology Registers the details in the Shelf List records were taken primarily as they had been checked more recently against the artefacts (unless amended more recently in the Ethnology Register).

It is important to note that there are artefacts in the Ethnology Storeroom that are recorded in Shelf Lists despite not having an 'E' catalogue number. These were not included as often there was no information with them regarding their provenance and once in the inventory there would be no way of telling whether any were repeats of those listed in the Ethnology Registers.

The inventory was recorded on a Microsoft Excel spreadsheet with the fields Archaeological Site, Excavation Event, Artefact Class, Item Catalogue Number, Material, Description, Condition, Date Collected, Date of Excavator or Donor, and Notes from Ethnology Register or Shelf List (Table 4.1). In Chapter Three an arbitrary code was assigned to each excavation event. Using date, location, and excavator or collector names recorded in the Ethnology Registers, artefacts were assigned to an excavation event to identify assemblages for each individual excavation at each site. Artefact provenance was not recorded in the inventory as this was not available for most artefacts and the lack of record of excavation square locations would have made it difficult, if impossible, to use this information when it was present.

Identification and labelling of artefact type and material was drawn from the Ethnology Registers, having been described by the initial excavators and occasionally with secondary notes added by museum staff. Many of these identifications come from initial on-site interpretation or during cataloguing at Canterbury Museum. The inventory is available as Appendix C.

### ***Artefact Discussion***

This section describes how the artefact inventory (Appendix C) was utilised. The first step was to 'see' the whole collection in order to develop a broad understanding of what it can mean for Redcliffs history, rather than focusing on specific artefacts. Using information recorded in the artefact inventory, general patterns in variables such as what materials the artefacts were made from, what types of artefacts were present, how many of each there were, what condition they were in, and additional information on their style, condition, and size were outlined where available. The discussion was organised into six artefact classes, explained below, with photographs of select artefacts that are indicative of the rest of the collection. This was broken down further through identifying main artefact types or related groups, such as fishhooks. A summary of

patterns in artefact types between the four archaeological sites will follow each class in order to allow identification of similarities and differences between the sites later on.

Counts, as recorded in the Ethnology Registers, of each type of artefact within the artefact classes are presented in tables in Appendix B. Count is used instead of proportion as it is the best representation of the primary material and many of the artefacts are unusual and are only represented by one or two artefacts. Artefacts which have multiple small samples, such as feathers, were often recorded as “Feathers” or “Multiple...” in the Ethnology Registers rather than a specific number, so a minimum count has been given either as 1 or where there was at least a number available that was greater than one (for example “at least 24”) that number was recorded as the minimum amount. Any counts can be checked against the inventory (Appendix C). A minimal amount of interpretation or meaning will be drawn from the artefacts in this chapter as its purpose is to reflect the collection as stated in Canterbury Museum records. By keeping the information close to the available museum record it more accurately will set the data up as a stage for future work. But this also means that any mistakes or misinterpretations held in the original museum work and identifications will be included. These can be amended by handling of the artefacts in the future.

### *Artefact Classes*

The major artefact classes used in this chapter are Personal Ornaments, Organic/Composite, Bone Tools, Stone Tools, Lithic Other and Unknown Material. ‘Personal Ornaments’ includes artefacts such as necklace units and cloak pins. Where the material of a personal ornament was wood, shell, bone, or stone the artefact was classed under Personal Ornaments rather than in the Organic/Composite, Bone Tools, or Stone Tools classes. This category is the only category that does not relate to the material of the artefact and is justified by the common use of this category in archaeological work.

‘Organic/Composite’ includes artefacts made from wood or other plant materials, including composite items with partly organic materials, such as a wooden barracouta lure with a stone hook. ‘Bone Tools’ includes artefacts made from bone or ivory such as fishhooks. ‘Stone Tools’ includes artefacts identified as specific tool types, such as awls and adzes. ‘Lithic Other’ includes all other lithic artefacts not identified as specific tools, including raw material and manufacturing debris.

There was also a small collection of artefacts that could not be classed in the above groups as their material was not identified in any written record. These may be amended in the future through individual artefact analysis but for now are grouped separately as ‘Unknown Material’. This organisation follows a format comparable to publications of similar archaeological sites (Anderson et al. 1996; Furey 2002; Irwin 2004) for easy comparison.

#### 4.4 Characteristics of the Redcliffs Site Complex Material Culture

There are 2,950 artefacts in the Redcliffs site complex collection discussed in this thesis. Even by briefly looking at the counts per artefact class (Table 4.2) it is apparent that there are large differences between the sizes of the artefact classes overall and between the individual sites. Moa Bone Point Cave and Redcliffs Flat have the same size assemblages, which are the largest from the Redcliffs site complex.

**Table 4.2. Total counts of artefacts from each site within each major artefact class from the Redcliffs site complex, Canterbury. MBPC: Moa Bone Point Cave, MC: Moncks Cave, RF: Redcliffs Flat, SBG: Sumner Burial Ground. MBPC or RF or SBG and MBPC? means that the artefacts may come from one of these sites but there is confusion in the Ethnology Store Room records.**

Artefact Class	Archaeological Site						
	MBPC	MC	RF	SBG	MBPC or RF or SBG	MBPC?	Total
Personal Ornaments	40	17	18	-	-	-	75
Organic/Composite	381	118	1	-	-	-	500
Bone Tools	119	115	32	2	-	-	268
Stone Tools	351	96	317	82	7	-	853
Lithic Other	312	46	835	15	1	1	1210
Unknown Material	4	36	4	-	-	-	44
<b>Site Total</b>	<b>1207</b>	<b>428</b>	<b>1207</b>	<b>99</b>	<b>8</b>	<b>1</b>	<b>2950</b>

Lithic artefacts overall make up the majority of this collection, especially Lithic Other artefacts, though there is a large proportion of Organic/Composite artefacts present too. Bone Tools and Personal Ornaments are the smallest artefact classes overall.

The biggest disparity is in the number of Organic/Composite artefacts from the cave sites compared to Redcliffs Flat and Sumner Burial Ground. However this is likely explained by post-depositional processes. Out of the lithic materials, it is obvious that every site except Redcliffs Flat has a greater number of Stone Tool artefacts than Lithic Other in contrast to Redcliffs Flat having more than twice the number of Lithic Other artefacts as Stone Tools. Moncks Cave notably has a large Bone Tool assemblage relative to its whole assemblage and the lithic classes. This differentiates the site from the rest of the site complex. Sumner Burial Ground is also distinct in having a much smaller assemblage and of having most lithic artefacts.

#### 4.5 Personal Ornaments

Personal Ornaments represents the second smallest artefact class of the Redcliffs collection, after Unidentified Material. There are 75 artefacts combined from Moa Bone Point Cave, Moncks Cave, and Redcliffs Flat (Table 4.2). No personal ornaments are recorded from Sumner Burial Ground though the site report records that necklace and anklet units were uncovered in 1958 (Fomison 1964). A range of ornament types were found, with the most numerous artefacts being combs and necklace units (Table 4.3). Preforms, crudely finished, and completely finished artefacts as well as those broken throughout these stages, are represented. Personal ornaments are made from a variety of materials which are bone (bird, fish, seal, mammal), sea mammal ivory, stone, shell, wood, and plant.

##### ***Neck Pendants (Rei Puta or Hei)***

On average, four or five neck pendants of several types in stone, bone, or ivory were recovered from each archaeological site, except Sumner Burial Ground. The most numerous neck pendant type (n=6) is the imitation whale tooth pendant (Figure 4.1), with one from unidentified bone, four from moa bone, and one from seal ivory. These only come from Redcliffs Flat and Moa Bone Point Cave. Three of these have large portions of the body broken off, which is probably why such high status items were discarded. One real Sperm Whale tooth pendant (Rei Niho Paraoa) came from Moa Bone Point Cave (Figure 4.1). The other neck pendants are of various forms but the only one described is the reel. The Moncks Cave neck pendants are made from argillite,

fish bone, and nephrite. The argillite neck pendant is “unfinished”. There is also one partly drilled and polished nephrite neck pendant from Moa Bone Point Cave.

### ***Necklace Units***

There are 17 necklace units of shell, stone, bone, and ivory. *Dentalium* shell sections (Figure 4.1) and turret shells are the most numerous necklace unit types overall. The only necklace unit from Moncks Cave may be an argillite ornament preform. The only units from Moa Bone Point cave are one stone reel and four *Dentalium* sections which were recovered strung together with a small two-ply thread. The rest originate from Redcliffs Flat, including four pierced turret shells that were collected grouped together, four pierced and ground seal teeth that were also grouped together, and individual moa bone, seal ivory, and *Dentalium* reels.

### ***Cloak Pins (Aurei)***

There are six bone cloak pins in total. The only whole pins (n=3) are of unidentified bone and come from Moa Bone Point Cave. The cloak pins range from 60-200 mm long and are often curved from the natural shape of the bone. One may be from fish bone and is the only one recorded as having an eye (E.161.69, Figure 4.1). However the eye is located at one end, suggesting that it may be a needle instead of a cloak pin, which more usually had a centrally placed perforation. Another Moa Bone Point Cave artefact is a seal ulna with deep cuts to indicate the form of a cloak pin ready to be cut out. Two mammal bone artefacts from Moncks Cave are also labelled as “probable cloak pin”.

### ***Toggles***

There are two unfinished albatross bone (poro toroa) toggles from Redcliffs Flat and two bird bone fragments of either a toggle or flute from Moa Bone Point Cave.

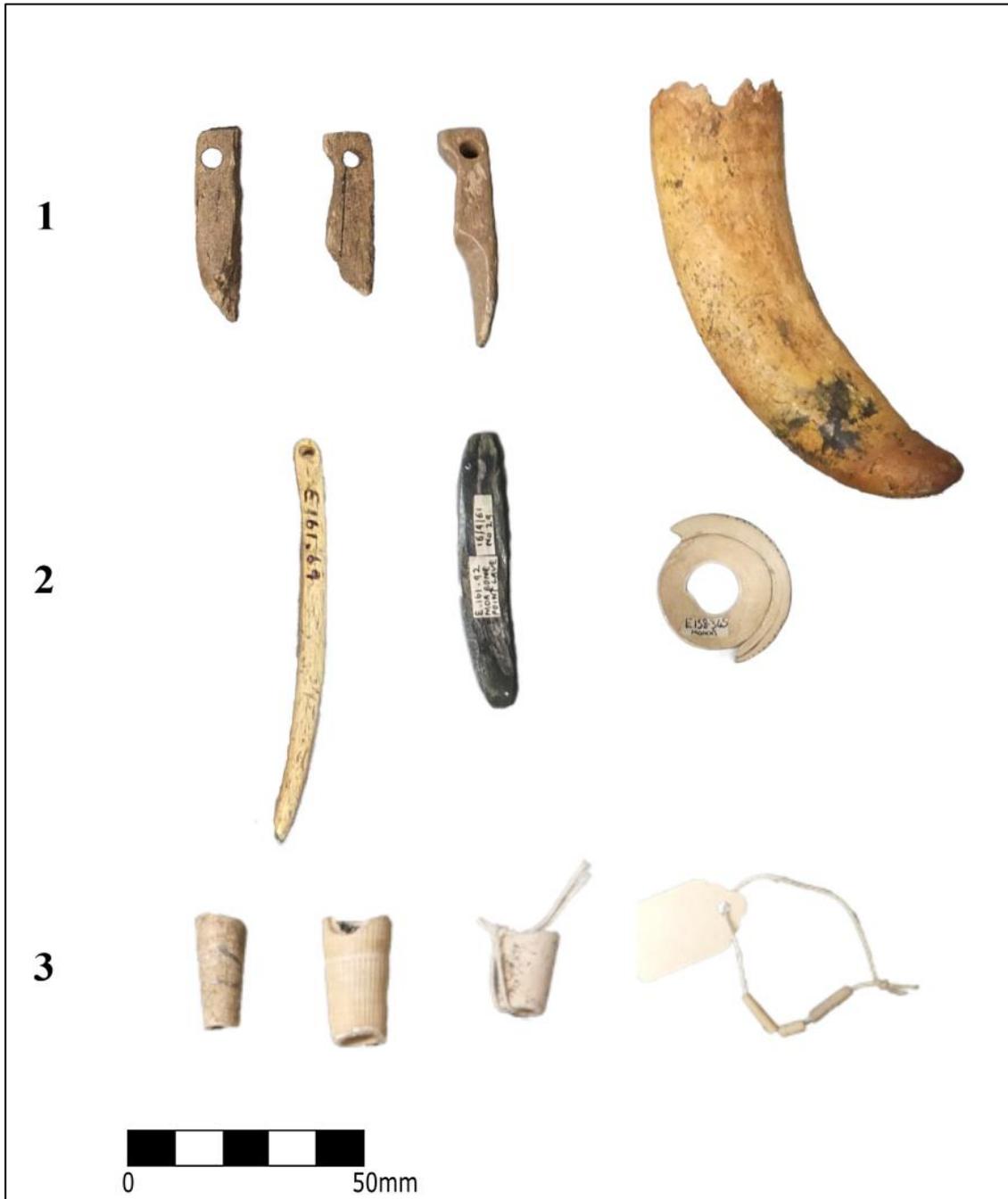


Figure 4.1. Personal ornaments from the Redcliffs site complex, Canterbury. 'RF'= Redcliffs Flat, 'MC'=Moncks Cave, 'MBPC'= Moa Bone Point Cave. **Row 1:** Imitation whale tooth pendants: E.158.558 (RF), E.158.557 (RF), E.158.556 (RF), Sperm Whale Tooth pendant: E.163.724 (MBPC). **Row 2:** Cloak pin: E.161.69 (MBPC), nephrite pendant: E.161.92, fish bone pendant or toggle: (E.158.345 (MC). **Row 3:** *Dentalium sp.* necklace units or cut sections: E.161.105B (MBPC), E.158.43 (MBPC), E.161.105A (MBPC), E.162.148.



Figure 4.2. Head Ornament Comb (E.72.49), Moa Bone Point Cave, Redcliffs, Christchurch. Image courtesy of Canterbury Museum.

### ***Combs (Heru)***

Combs were only recovered from the two caves. Only five combs are whole (or near complete), four of which are from Moncks Cave. The one whole comb from Moa Bone Point Cave (Figure 4.2), measuring 270 mm long by 122 mm wide, was misidentified as an eel spear in the Dominion Museum Bulletin (Hamilton 1908 68). Three whole combs are made of wood and two of whale bone. The number of teeth per comb ranges from 2-20, with an average of five. The remaining items catalogued as combs are either broken crossbars or individual wooden teeth, especially from Moa Bone Point Cave.

Some of the teeth are incised, such as with a diamond or rafter pattern, or still have hair caught in them. There are two comb preforms, one from each cave, and, uniquely, a basalt comb crossbar with four teeth stumps from Moa Bone Point Cave. Even more unusual, was a composite wooden comb from Moa Bone Point Cave which has 20 wooden teeth (two are broken off) that are secured with fine fibre lashing and still has the wearer's hair caught in them.

### ***Personal Ornaments of Organic Material Other Than Wood***

There are three ornaments, only from Moa Bone Point Cave, that are made from organic materials other than wood. These are a twisted flax armband, a plaited raupō headband, and a wooden bead. The flax and raupō artefacts are plaited sections and it is unclear how definite their identifications are without further analysis. There are also feathers from both caves that may have had the intended purpose for ornamentation of people, cloaks or canoes.

### ***The Excavation Assemblages***

There is a notable difference in the number of personal ornaments recovered from the A (1872) and B (1957) excavations of Moa Bone Point Cave compared to the C (1958-1970) excavations. The quantity of artefacts from Selwyn Hovell's B excavation could be explained by the small area he excavated and perhaps his method or skill as it was evident that he had missed many artefacts when 1958-1970 excavators worked through his spoil. The difference between the A and C assemblages are likely to be indicative of the use of candle light versus electric lighting, particularly for the discovery of small reel units, as well as of the extensive period that the C excavations were carried over.

### ***Archaeological Sites***

The number of personal ornaments from Moa Bone Point and Moncks Caves is relatively similar and is proportionally greater than Redcliffs Flat. The types of personal ornaments from the caves are also more various, but this is largely due to the preservation of organic materials. Very few stylistic details are recorded in the registers so a future analysis of the artefacts is desirable.

The few cloak pins present only come from the caves. The only imitation whale tooth neck pendants and most of the necklace units come from Moa Bone Point Cave and Redcliffs Flat. Several other neck pendant forms in more various materials come from Moncks Cave.

A greater number of complete combs came from Moncks Cave, while a greater number of broken comb teeth came from Moa Bone Point Cave, though this is likely exaggerated by combs with up to 20 teeth each. The lack of combs from Redcliffs Flat and Sumner Burial Ground compared to the caves most likely reflects post depositional preservation patterns as most of the combs were made from wood, except two whalebone examples.

The materials used for personal ornaments are consistent with those used in the other artefact classes. The full range of materials only came from Moa Bone Point Cave as there are no ornaments made from stone or organic materials from Redcliffs Flat and no ornaments made from shell, sea mammal ivory, or bone from Moncks Cave.

#### 4.6 Organic/Composite Materials

Organic/Composite artefacts make up a large component the Redcliffs collection, with 500 artefacts (Table 4.2), though they are more notable for the unusual artefact types present. This is the largest artefact class for both cave sites. A large portion (n=381) of these are from Moa Bone Point Cave, with the rest from Moncks Cave, except one from Redcliffs Flat. None were recovered from Sumner Burial Ground. There is a large variety of Organic/Composite artefact types (Appendix B). Some of these are described and figured by Skinner (1923; 1924). The types of artefacts include items for everyday use such as vessels, bedding, and fire making equipment as well as more special items such as human hair, carved figures, and kōkōwai stained wood. Many of these artefacts are unique to archaeological sites in Aotearoa of this early time period due to their fragile nature and common degradation over time. Similar articles have been recovered from sites with later dates, such as Kohika (Irwin 2004) and Kauri Point (Shawcross 1964).

### ***Canoe (Waka) Apparatus***

Thirteen wooden artefacts are identified as equipment associated with a canoe. It is likely that there was at least one outrigger canoe (waka ama) used at Redcliffs, based on the presence of a short outrigger float from Moncks Cave (Figure 4.3), though there is no evidence of the actual canoe. A narrow paddle (hoe, E. 158.218, Figure 4.4), possibly for steering and with kōkōwai painted bands (Skinner 1924 154), a large carved bailer (tīheru) and the head of a paddle carved with two faces were also recovered from Moncks Cave. The paddle, bailer, and outrigger float were collected from a natural cleft in the wall of the main chamber in 1889. Another paddle (E.89.3.1) is recorded as from Moncks Cave but this is likely to be a repeat entry of E.158.217, although it is still included in the count of artefacts as there was no record in the Ethnology Register that this had been re-catalogued. Both the paddle and bailer have cracks that were mended with flax. They are on display in Canterbury Museum and described in Skinner (1924). A paddle blade and six canoe fastenings (wooden pins, plugs, or drilled sections) were also recovered from Moa Bone Point Cave.



**Figure 4.3. Canoe (waka) outrigger float (E.158.219), Moncks Cave, Sumner (Redcliffs site complex), Christchurch. Image courtesy of Canterbury Museum.**

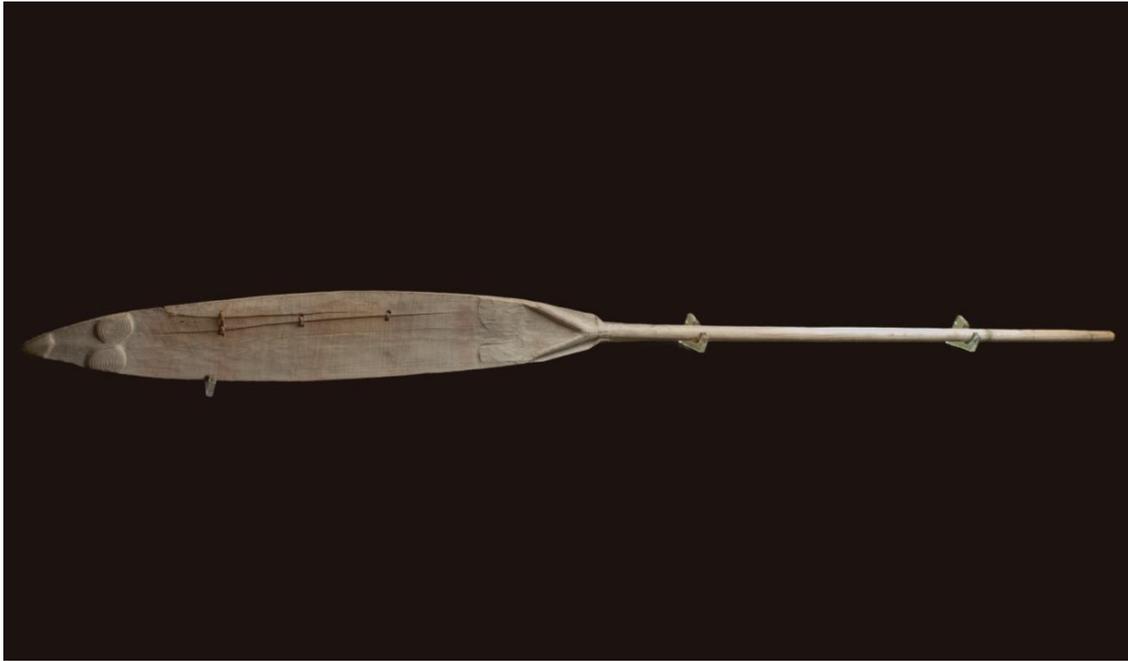


Figure 4.4. Canoe (waka) paddle (hoe) (E.158.217), Moncks Cave, Sumner (Redcliffs site complex), Christchurch. Image courtesy of Canterbury Museum.

### ***Fishing and Hunting Equipment***

There is a variety of wooden hunting and fishing tools: 33 come from Moa Bone Point Cave and 10 come from Moncks Cave (Table 4.1). There are 12 wooden shanks of composite fishhooks (matau) that range in size and are barbed (for example E.159.220 and E.158.78, Figure 4.5). There are also four barracouta lure (pohau manga) shanks and one hāpuku fishhook shank. Some of the larger composite shanks may also be for hāpuku fishhooks. One barracouta lure shank has a section of its bone point still sitting in the drilled hole (E.72.59, Figure 4.5). The composite fishhook shanks are composed of bent wood, which often came from wood, like mangemange vine, that was grown for this purpose or fire hardened (Hamilton 1908 29, 38). Two composite fishhook shanks still have the remains of a flax tie at the snood end (one is E.158.245, Figure 4.5). Four composite fishhook shanks are broken, two are unfinished preforms and one may be a broken one-piece fishhook. There are four large one-piece hāpuku fishhooks from Moa Bone Point Cave, one of which is barbed. There are also two wooden tabs for a paua lure from Moa Bone Point Cave.

Several wooden spear points and shafts of different types were recovered from the caves. There are four bird spear points, with three to four barbs each, as well as two shafts for bird spears, though in the Ethnology Register it is unclear which cave they

came from. There are also six “spears” from Moa Bone Point Cave, though it is not recorded whether these are bird spears or other weapons. Lastly, there are two interesting artefacts from Moa Bone Point Cave that are long pieces of wood with central holes that are labelled as parrot stands.

### ***Miscellaneous Carved Wooden Items***

Some of the most famous and unique artefacts from Redcliffs are carved wooden items of uncertain functions. There are two shafts, one from each of the caves, that have carved human head details at one end. The Moa Bone Point shaft detailing is described as an archaic human figure and labelled as the head of a ‘god stick’ (niu). The shaft is broken c. 150 mm from the carved end. The Moncks Cave wood shaft is similarly broken and was initially labelled as a ‘god stick’ but is suggested in the Ethnology Register to more likely be a chisel haft, or by Skinner (1924 154) as a paddle handle. The Moncks Cave carving is quite different in style than the Moa Bone Point Cave ‘god stick’ and is described as of “froglike un-Maori faces, linked by what appear to be arms” (1924 154).

The carved kuri figurine from Moncks Cave (Figure 4.6) is the most eponymous artefact of Redcliffs. It was possibly found on the cave floor amongst swan and moa bones, although its location was not explicitly stated (Forbes 1890; Meeson 1889). It was initially recorded as a toy but is currently on display in Canterbury Museum as a pendant (hei kuri) suspended from the hole made by the meeting of the kuri’s curved tail with its back. Two other unusual artefacts from Moncks Cave are labelled as a “model canoe and paddle”. The canoe measures 272 x 59 x 25 mm and the paddle measures 228 x 21 x 8 mm, with kōkōwai remains on its handle. Their provenance is unknown so they may not belong together. Skinner (1924 158) has suggested that they are toys even though the canoe does not really look canoe-like.



Figure 4.5. Wooden artefacts from the Redcliffs site complex, Canterbury. 'MC'= Moncks Cave, 'MBPC'= Moa Bone Point Cave. **Row 1:** E.159.220 & E.158.78 (MBPC, composite fishhook shanks), E.162.181 (MBPC, worked wood, possibly an unfinished bird spear point), E.158.245 (MC, composite fishhook shank). **Row 2:** E.72.59 (MBPC, barracouta lure shank). **Row 3:** E.159.305 (MBPC, pounder handle).



Figure 4.6. Carved figure of Maori domestic dog, kuri, (E.158.356), Moncks Cave, Sumner (Redcliffs site complex), Christchurch. Image courtesy of Canterbury Museum.

### ***Vessels or Food Bowls (Kūmete)***

Many paua (*Haliotis* sp.) shells used as vessels (n=13) and wooden bowls (n=7) or bowl fragments (n=16) were recovered from the caves, mostly from Moa Bone Point Cave. Eight of the paua shells have or had (much of the flax has disintegrated since discovery) their natural holes plugged with flax to seal them. One unplugged shell was found with a flax loop attached, though this detached during storage. This was possibly a tool or ‘flick’ to prise shellfish from rocks underwater. Many of the shells were discovered and collected with their contents remaining (for example, shell E.157.223, Figure 4.8). The contents include fish and bird bones, feathers, locks of human and kuri hair, an obsidian flake, decayed vegetation, cordage, and flax cuttings. One shell from each cave was kōkōwai stained from storage or mixing of the pigment.

Many of the wooden bowls were of a broken state or were fragments, possibly belonging together. These may have been food bowls or vessels for other uses. Most of the whole bowls and fragments have lugs, but it is not recorded whether these are double or single lugs. The only whole bowl from Moncks Cave was found containing

fibre and kuri bone. One bowl and a lugged fragment from Moncks Cave are noted to possibly come from Moa Bone Point Cave instead as they were not recorded in Meeson's (1889) report (E.158.362 may be confused with E.72.64). There are also discrepancies between the Shelf Lists and Ethnology Register over the number of bowl fragments from Moa Bone Point Cave, which will have to be resolved at another time.

Fragments (n=4) of gourd were also recovered from Moa Bone Point Cave; two of which had scratches from being hollowed out so were likely used as gourd containers (ipu), though they may otherwise have been net floats.

### ***Fire Sticks (Kai Ure)***

A number of fire sticks were recovered throughout the caves; 31 from Moa Bone Point Cave and 12 from Moncks Cave. These were recorded as 'fire stick', or more specifically as the 'plough' (alternatively 'rubber') for wooden pieces that were rubbed against a wooden bed to produce fire, or as the 'bed' for the wooden pieces that were rubbed by the ploughs and as a result became grooved. The beds feature between one and six grooves each. Some of these interpretations have question marks written beside them in the Ethnology Registers as the ploughs are often described as adzed and pointed sticks, which is not definite evidence for use as a fire stick. The grooves of the bed pieces are more indicative of their use. One is also charred at both ends. Some of the artefacts catalogued as worked wood in the inventory may have been used as fire sticks too as some have been worked to slight points or show evidence of rubbing.

Only in a couple of instances were a plough and bed found together, though a similar number of each was recovered from each site. Recycling of material for fire sticks is evident in the use of a composite fishhook shank as a plough at Moncks Cave, while one Moa Bone Point Cave artefact appears to have been used as both a plough and bed. One bed is notched, possibly for suspension to prevent its loss, and one plough has a "knot" (of flax?) at one end for the same purpose.

### ***Weapons***

There are very few weapons from Redcliffs that are not described above as fishing and hunting equipment. There is a c. 450 mm long wooden two handed weapon (taiaha or pou whenua) and two charred points, described as fire hardened spear (tao) points, from

Moncks Cave. Six spears from Moa Bone Point Cave are mentioned above as being either hunting or fighting spears. A couple of items listed as fire sticks or worked wood have been worked to points, some of which were subsequently rubbed down and could be spears or fire sticks.

### ***Miscellaneous Wooden Tools and Artefacts***

There is a collection of wooden tools, parts of tools, and miscellaneous items from the caves. Many of these only have one example and some are of unknown function. Most (n=39) come from Moa Bone Point Cave. The tools include an awl (89 mm long), blade, net needle, paua knife, spatula, and a worked stick with a knob to keep a net open.

Two mallets or beaters were recovered from Moncks Cave. One, due to its small size, is considered to be a child's beater or toy. Two fern root pounders (*patu aruhe*) were also recovered from Moncks Cave. They were originally labelled as eel-killers but do not have sharp edges (Skinner 1924 158). Five pounders are recorded from Moa Bone Point Cave but a note in the Ethnology Register for four of the pounders says "From Moncks Cave case?". There are several other wooden fragments that likely belong to pounders: one a butt, one the grip end, two longer handle portions (one is E.159.305, Figure 4.5) with butts, and three slender fragments. Six artefacts are tentatively labelled as dart heads (*teka*), one from Moncks Cave and five from Moa Bone Point Cave. It is unclear what their purpose is without further analysis of the artefacts themselves as they are made from wood and darts were made from lightweight flower stalks of flaxes, fern, or bracken (Reed 2002 49).

Several hafts or handles possibly for attachment of an adze, gouge, or a chisel come from Moa Bone Point Cave. One has a drilled end for tool insertion. There are also two longer 'spar' ends from Moa Bone Point Cave for insertion of something like a paddle head and a shaft of *tawa* which may belong to a spear or similar equipment. Other miscellaneous items include a post, a pile, a broken stake, one post butt from Moncks Cave, and five post butts from Moa Bone Point Cave. These post butts measure 102-229 mm in diameter. Other singular items from Moa Bone Point Cave are an Elephant fish spine lashed to a stick, a wooden funnel, and six wooden points lashed together.

### ***Worked and Unworked Wood Fragments***

There is a large number of worked wooden fragments (n=101) and unworked wood pieces (n=31), nearly all from Moa Bone Point Cave. ‘Working’ includes evidence of cutting, adzing, burning, drilling, grooving, polishing, notching, and shaping into points or rounded ends. Many of these may be offcuts or tool preforms. Two adzed pieces have traces of kōkōwai on their surfaces. Suggested identifications are a slender beater, a partial adze haft, fire stick, and a spear point. The unworked wood chips or fragments may have been fire starting material, offcuts from wood working, or material to be worked. Some wood has been identified as totara, pukatea, rewarewa, ribbonwood, and lacebark.

### ***Textiles***

A large proportion of the organic artefacts (n=116) are textiles or fibre made from unidentified fibres, raupō or flax. Few are identified to species level, so there may be plants other than flax or raupō upon further investigation. The artefacts are either finished items or raw or semi-prepared pieces of material to be made into items.

Matting: Several plaited mats or variously sized mat fragments were recovered from both caves. Most are identified as “matting” and are made from plaited flax that is very fragile with many decayed sections. Details of the discovery, description, and conservation of a large (610 mm<sup>2</sup>) double layered mat are recorded in an Ethnology Register (Canterbury Museum 1973-1977 167-170). The rectangular mat has two differently plaited layers bound by an outer rim; the lower layer having a “tough-wearing uneven form of plait” and the upper having “a smooth, even plait... [that] may have been decorative, for herring bone and plain plaiting can be seen” (Canterbury Museum 1973-1977 167-170). It is interpreted to be a cushion for sitting. The flax was identified as *Phormium tenax*. The mat was recovered during one of the last CMAS excavations of Moa Bone Point Cave from the left side of the passage to the second chamber and uniquely has a provenance: “[279 mm] deep, below the ash layer [229-279 mm] and on top of the layer of clean sand and charcoal [279-356 mm]”. Yet this cannot be related to the rest of the cave’s stratigraphy as there are no records from the CMAS excavations to tell whether this “layer of clean sand” is the cave floor and these measurements do not match Haast’s (1874b 64) stratigraphic record. Part of the rim

was cut off during the excavation of Haast's (1874b) longitudinal trench. In 1969, as one of the rare conservation efforts undertaken on Redcliffs artefacts, the mat was cleaned and strengthened with soluble nylon.

The other artefacts are smaller fragments, one described as finely plaited, one as a fragment of a whariki mat, and two may originate from the same parent item. Another was found associated with seven lengths of braided flax rope. These fragmentary pieces may have all been mats but the lack of detailed description means that they could be from bags or other woven items.

Baskets/Bags (Kete): There are several fragments of baskets and one near-whole basket from Moa Bone Point Cave. They are made from unidentified plaited fibre. Two, possibly three, fragments of a raupō basket with a partly intact cord around the rim also come from Moa Bone Point Cave. They may be a slipper not a basket, highlighting the difficulty of interpreting these kinds of artefacts where degradation changes the original shape. Thus these interpretations, especially of fragments, should be taken cautiously.

Sandals (Pārekereke): There are 11 textile sandal fragments from the caves, with the greatest number and most complete sandals originating from Moa Bone Point Cave. The most complete sandal has a toe missing (E.157.181, Figure 4.7). The sole is made of thick bands of flax woven together and would have been held in place by several thinner bands tied at points around the sandal edge. A second sandal from Moa Bone Point Cave is very similar in size and make (E.158.177, Figure 4.7), but is missing a large portion of the 'toe' and is slightly larger. The remaining artefacts are fragile fragments of plaited textile. One is identified as raupō and two have their measurements recorded as 130 x 100 mm and 130 x 80 mm. The fragments from Moncks Cave were found in bowls, three inside a bowl of unidentified material (likely wood) and one inside a wooden bowl.



Figure 4.7. Flax sandals from Moa Bone Point Cave, Redcliffs site complex, Canterbury. Left hand sandal with toe missing: E.157.181. Right hand sandal half: E.158.177.

Bedding: Several groups of textiles were identified as bedding from Moa Bone Point Cave. The textiles are shredded flax, raupō, tussock, and feathers. Most appear to have been bound together or are plaited into textile. One group was of twisted, shredded and knotted flax, one was tussock bound by cross ties, and another was fragmentary raupō textile. Two other groupings, c. 1 x 0.5 m each, were bound collections of shredded flax sticks, raupō and feathers.

Cord and Fishing Line: There are 34 fragments of cord, line, or rope made from flax, rushes, sedges, or unidentified materials (Table 4.2). There are 10 lengths of cord from Moa Bone Point Cave including one described as plaited and twisted material, one large undressed fragment, and three of twisted flax measuring 145 mm long, 145 x 1 mm and 52 x 5 mm. Part of one sample has been burnt and many are fragile in condition. One artefact is identified as fishing line made from dressed flax and is very fragile. Another sample (145 x 1 mm) labelled as cordage may also be fishing line. One piece of plaited fishing line was also recovered from Moncks Cave. The distinction between cord and fishing line is likely to be the fineness of the plaited material and will differ between the views of different interpreters.

The 16 Moncks Cave cord fragments are recorded as possibly being recovered from inside bowls. No supporting evidence is recorded, but the Ethnology Register notes to reference artefact E.158.385 which is a sandal fragment found in a wooden bowl. Some bowls (E.158.363, E.158.387C) are recorded with cordage in their list of contents. It is therefore likely that these cord fragments were the same ones having been stored separately from the bowls. Nine of these lengths are thick cord and six are thin cord, measuring 335 x 7 mm, 105 x 10 mm, 285 x 6 mm, 430 x 6 mm, 130 x 6 mm, 90 x 9 mm, 70 x 10 mm, 75 x 3 mm and 60 x 7 mm. One length was tied in a loose loop and measures 100 x 67 mm.

A single artefact from Moa Bone Point Cave is listed as “plaited rope”, made from rushes or sedges, as it is thicker than the other samples (90 x 14 mm). It is attached to a plaited section measuring 38 x 40 mm. There were seven lengths of plaited rope recovered in association with the large Moa Bone Point Cave mat (E.158.174), but they do not have catalogue numbers. They are probably the same cord fragments discussed above as they are the only rope/cord artefacts from Moa Bone Point Cave, yet only six are listed from the correct excavation. This difference reflects cataloguing inconsistencies and the ease with which exact numbers of artefacts recovered across different excavations become muddled.

Other Textile Items: Nine artefacts from Moa Bone Point Cave are labelled as ‘textile’ or ‘plaits’ and are not identified as any of the above items. There is one segment of plaited raupō, 143 x 28 mm, and one of plaited flax. The rest are fragments of woven textile. One is an unidentified plaited textile measuring 711 x 381 mm (E.159.306, Figure 4.8), one is a plaited flax textile, one is a thick and matted textile of bark fibre (112 x 60 x 1 mm), and one is a flax textile with burnt edges that may be the remains of a sandal and measures 135 x 60 mm. The remaining fragments are of unidentified material; one is burnt and one may be raupō and may be part of a headband.

Aside from these larger textile artefacts there is also an array of pieces of flax or similar materials from Moa Bone Point Cave that are mostly unmodified, being individual sticks or tied into knots or loops. There are at least 21 sections of flax or raupō of various lengths that have been knotted. Three are recorded to be partly dressed, one is tied in a double knot, and one is knotted with a “guide”. Two knots are partly burnt and some are in a fragile condition. One is suggested to be the knotted end of a headband as

the raupō is plaited and “folded in three directions”, while six others are considered to belong to flax nets and are between 40-170 mm in length. The other samples may be knots broken off other textile or composite items, as in one case a knotted textile fragment is tied to a length of round wood, or simply have been knotted for storage. Possibly for a similar purpose, there is a loop of flax (133 x 34 mm) and a loop of lacebark (50 x 14 mm). Lastly, there are three undressed flax sticks.

Similar to the flax loops but different enough in form to suggest a more specific purpose are three rolls of flax or raupō from Moa Bone Point Cave and two from Moncks Cave. One coil is tied in two places and was recovered inside a paua shell (E.157.223, Figure 4.8). Two other coils (c. 30 mm wide) were tied in place, another was wrapped around a core, and the last one was a loose roll of soft stripped raupō (E. 162.463, Figure 4.8). A suggestion in the Ethnology Register is that they are blanks for head ornaments. One from Moa Bone Point Cave (unknown which one) has been analysed in greater detail and identified as a retracted flax trumpet (tētere), with the inner and outer flax rings being opposite ends of the trumpet (Fyfe 2008).

Netting (Kupenga): At least five portions of net were recovered from Redcliffs, only one of which was from Moncks Cave. Two are made from knotted flax and are fairly small fragments measuring 83 x 25 mm and 135 x 65 mm. The others are of an unidentified material. One catalogue entry is recognised as “portions of whitebait net”, while another is a very unique example of a composite artefact as it still has a pumice net float attached.

### ***Items of Organic Materials Other than Wood or Textile***

There is a small collection of worked and unworked items of natural materials other than wood or textile. One is a small piece of paua from Moa Bone Point Cave with two drilled holes in its center and therefore labelled as a button. The “Eye” of a mussel shell was also recovered, possibly saved as an ornament or interesting article. There is also powdered paua, now stored in tinfoil, which may have been the result of working objects such as the button. Several other shell fragments are listed that were not recovered with the faunal material. One is unidentified and not described so may still be food remains. There are two fragments of unworked fossil *Dentalium*, two cut pieces of fossil *Dentalium* and three cut or drilled shells that may have been material intended for



Figure 4.8. Organic and composite artefacts from Moa Bone Point Cave, Redcliffs site complex, Canterbury. Row 1: E. 162.463 (roll of stripped raupō), E.158.121 (knotted pieces of flax bedding). Row 2: E.159.306 (plaited textile). Row 3: E.157.223 (Paua shell with plugged holes holding a circle of cut flax tied in two places (E.157.223A)).

ornament creation. There is also a piece of mangemange vine from Moncks Cave that may have been intended for cord or wood for a fishhook.

Many samples of human hair were recovered from both caves. One section was recovered from Moncks Cave within a paua vessel alongside bird feathers, kuri hair, and an obsidian flake. Of the others, one lock is plaited, one is knotted and one is described in the Ethnology Register as dark brown and 85 x 25 mm. Henry Skinner's (1924) descriptions of the Moncks Cave hair samples do not agree exactly to the Ethnology Register descriptions, though he provides more detail and is likely more accurate. Skinner (1924 160) describes two locks as "dark brown, of medium texture, waved or even ringletted", one of which was associated with kuri hair. The other was partly plaited into "2-ply threads" and associated with kuri hair, feathers, and bark and a bunch of "fine and ringletted" chestnut coloured hair (Skinner 1924 160). A fourth bunch was "coarser, chestnut, slightly waved, well combed and about 14 in. long" (Skinner 1924 160). The remaining samples were recovered associated with kuri hair, feathers, plaited fibre, and hohere bark.

Human hair was also discovered wrapped within the teeth of the 20-tooth wooden comb from Moa Bone Point Cave. Another section was stored with a second wooden comb, presumably found together, and two locks were found with worked wood pieces, including ribbonwood strips. It is unknown where many of the individual locks were collected from. Cream and brown clumps of kuri hair were also recovered mixed with some pale feathers, while another clump was found in a paua bowl from Moncks Cave.

A large number (n=22+) of miscellaneous bird feathers were recovered from Moncks Cave. A few pale feathers were mixed with kuri hair and more, some identified as weka, were also in the above described paua vessel with kuri and human hair. Feathers were also found amongst bedding in Moa Bone Point Cave but are catalogued with the bedding rather than under 'feathers'. Another unique find from Moa Bone Point Cave is a bird skin bag containing two composite fishhooks, possibly made from bird claws, and a small wooden toggle. The bag is currently on display in the Canterbury Museum 'Iwi Tawhito-whenua hou' exhibition.

### ***The Excavation Assemblages***

The majority of Organic/Composite artefacts from Moa Bone Point Cave were recovered during the C (1958-1970) excavations, as with Personal Ornaments. The artefacts recovered by the other two excavations are generally larger wooden artefacts such as vessels, fire sticks, and unworked debris, though some textiles were also found then. All of the Moncks Cave Organic/Composite artefacts were recovered through excavation V (1889).

### ***The Archaeological Sites***

There is a greater overall number of Organic/Composite artefacts from Moa Bone Point Cave than Moncks Cave. There is also, more specifically, a greater number and range of textile artefacts from Moa Bone Point Cave. Frequently, both caves had artefacts associated with the same activities, especially those related to canoe use, fire making, fishing, hunting, and the production of textiles and wooden items. A couple of differences between the cave assemblages include the preponderance of feathers from Moncks Cave, the greater number of wooden composite fishhooks, lures, and paua vessels at Moa Bone Point Cave and the possibility of more pounders coming from Moncks Cave (though this last point depends on resolving where five pounders originated from). Interestingly, the only non-hunting weapons came from Moncks Cave (tao points and taiaha/pou whenua). The “spears” from Moa Bone Point Cave however may also have been weapons not, hunting spears, so will need to be individually analysed to clarify this.

The rest of the distinctions derive from artefacts that were unique to each site and were not recovered from elsewhere in the site complex. Those from Moa Bone Point Cave include gourd containers, bedding, bird spear points, canoe fixtures, flax trumpets, baskets, parrot stands, a paua knife, a shell button, and a large number of unworked wood pieces. The individual items from Moncks Cave are the bailer and outrigger, wooden shafts (for bird spears), a carved kuri, kuri hair, a mallet, a “model canoe and paddle”, a net with attached float, wooden “spear points”, and a taiaha or pou whenua. These differences may reflect general patterns across all artefacts classes showing differences in the overall use and preservation of the sites or may be found to reflect

more specific differences in how the caves were used, when they were used, and the activities carried out within them.

No organic artefacts were recovered from Sumner Burial Ground or Redcliffs Flat, other than a piece of shell from the latter. The lack of organic artefacts from these sites is predominately the result of environmental degradation, possibly also with effects from residential development. Due to this, the Redcliffs cave organic assemblages are incredibly important in what different aspects of Māori life they show that normally wouldn't be available in the archaeological record of this period and also show the importance of considering these sites as a related complex, which enables the use of holistic interpretations based on different artefact assemblages.

#### 4.7 Bone Tools

Bone Tools is the third smallest artefact class from Redcliffs, with 268 artefacts, with artefacts from every site in the site complex (Table 4.2). The number of bone artefacts from the two caves is the most similar of all the artefact classes. There is a large number of different artefact types, mostly including tools for making other items or for fishing and hunting, though they are not as various as the Stone Tool or Organic/Composite classes. There are also a couple of unusual tools including a small tattooing chisel (uhi) and patu, as well as debris from tool making such as tabs, cores, and fragments.

##### ***Bird Spear Points (Tara)***

Barbed bird spear points are the most numerous type of bone artefact overall, with 10 from Moa Bone Point Cave and 58 from Moncks Cave. Some more (n=unknown) bird spear points from Moncks Cave were recovered from a surface midden at the cave entrance. Four were also found in a midden just inside the cave in 1998 but are not part of the Canterbury Museum collection. None were recovered from Redcliffs Flat or Sumner Burial Ground. Most of these are nearly complete with tips, butts, or points of barbs broken off (such as E.158.262 and E.158.273, Figure 4.9). Their sizes range largely and those with measurements are 320-950 mm long. Two have been burnt at some stage. Three bird spear points appear to be unfinished. There are also two bird spear point tangs and six unidentified portions. Eighteen are identified as being made from bird bone, 13 from mammal bone, one from human bone, and the rest are

unidentified bone and ivory. Where the number of barbs is recorded it is between 2-8 barbs, some of which have broken off. There are both single sided (such as E.173.6, Figure 4.9) and double sided barbed bird spear points, yet this factor is often unrecorded. Several are also serrated or notched on locations such as the butt, for lashing, and on the barbs, for decoration. One bird spear point (E.162.268) also shows “a shadow” of the lashing at its butt end.

### ***Fishhooks (Matau) and Trolling Lures (Pa Kahawai)***

The majority of the Redcliffs bone tools (n=74, see table 4.5) are related to fishing (fishhooks and lures) and the creation of fishing equipment (cores and tabs). There are several types of bone fishhooks and lures, including one-piece and composite (two-piece) fishhooks and barracouta and minnow lure points. Several more are in the Unidentified Materials class (Table 4.8) as their material was not recorded in the Ethnology Registers. Moa bone is the most common material, though fishhooks of seal ivory and human bone are present. Some bone fishhooks were recovered from the surface midden at the entry to Moncks Cave (Meeson 1889) but which ones they are in the museum is unknown.

Fragments and Miscellaneous Preforms: There are several broken fishhook fragments: a barbed point, a barbed shank, a distal end, and two barbs, one of which is burnt. There are three fishhook preforms, but it is not recorded whether they are composite or one-piece.

One-Piece Fishhooks: There are overall three complete one-piece fishhooks, one unfinished one-piece fishhook point, and two preforms (Appendix B). The point is labelled as Type D1 after Hjarno (1967). One of the preforms is made from a split seal tooth (E.158.539, Figure 4.9) and the other is possibly human bone. The rest are from moa bone, though one of the Moncks Cave fishhooks is identified as made from sub-fossil moa bone and measures 68 x 53 x 20 x 11 mm. Only one one-piece fishhook is recorded as being barbed.



Figure 4.9. Bone artefacts from the Redcliffs site complex, Canterbury. 'RF'= Redcliffs Flat, 'MC'=Moncks Cave, 'SBG'= Sumner Burial Ground. **Row 1:** Moncks Cave bird spear points: E.158.247, E.158.262, E.158.256, E.158.273, bird spear point preform: E.158.258. **Row 2:** awls: E.158.947 (RF), E.158.550 (RF), E.158.547 (RF), E.158.287 (MC), E.158.281 (MC). **Row 3:** fishhooks and tabs: E.158.228 (MC), E.158.229 (MC), E.158.539 (RF), E.158.239 (MC), E.158.235 (MC), E.158.237 (MC). **Row 4:** a chisel: E.115.3.1 (SBG). Note that some artefacts are not included in the class Bone Tools, rather they are counted in Unidentified Material as they were not labelled as bone in the Ethnology Registers.

**Composite Fishhooks:** There are 18 composite fishhook points (note that nine more are recorded under Unidentified Material class), one shank, one fragment of the “base end”, and three barbs from Moa Bone Point Cave. One of the points measures 27 mm long and one appears to have been very large though only the tip was recovered (E.162.158, Figure 4.10). Eight of the points are barbed (such as E.165.659, Figure 4.10), one is also notched for lashing, and one is charred.

One point, measuring 32 mm long, also has two lugs at the bend for lashing and an internal barb. Only one composite fishhook shank was recovered from Redcliffs. It comes from Moa Bone Point Cave and has a hole drilled at the snood end, which may have been for wearing as a pendant. Of the broken barbs, one had notched sides and another is charred. Three composite fishhook points, of human bone, were also recovered from Moncks Cave. They measure 41 x 9 x 4 mm, 32 x 6 x 3 mm and 44 x 9 x 3 mm.

**Trolling Lures:** There are six bone points of barracouta lures from the caves, made from human, moa, and mammal bone and seal ivory. The single seal tooth point is broken so was originally labelled as a one-piece fishhook tab but was amended as the end of a barracouta point. There is one minnow lure point (E.158.216A, Figure 4.10), though five are recorded under Unidentified Material (including E.158.235, Figure 4.9). It has a lug on the distal end for lashing. There are two broken minnow lure portions; one is part of the tail end (though it was originally labelled as a broken whale bone pendant) and the other is a distal end. The lure points would have been lashed to secondary pieces such as a bone, shell, or wood shanks, as recorded in the Organic/Composite and Unidentified Material classes

### ***Gouges***

Nine fish gouges were recovered, four from Moa Bone Point Cave and five from Moncks Cave. Fish gouges are characteristically made from slivers of bone with both ends sharpened (Reed 2002 69). Two of the gouges are this shape. The other four are unfinished, such as E.162.347 in Figure 4.10. One gouge is made from the tibia of a “nelly” (E.72.37, Figure 4.10) and the others are of unidentified bone.

### ***Cores and Tabs***

There are only two fishhook cores from Redcliffs. Both are from drilled one-piece fishhooks from Redcliffs Flat. Five tabs, combined from Moa Bone Point Cave and Redcliffs Flat, are identified as being for manufacturing fishhooks. Two of these are sawn fragments, one is ground and another is for a minnow lure. There is also one tab, from Redcliffs Flat, that still has both the fishhook and core partly attached.

There are 16 other bone tabs, with at least one from each site in the Redcliffs site complex. Some are polished, sawn, drilled, or scarped and one is charred. These will have been for manufacturing ornaments or tools. Two tabs are partially drilled as if for a fishhook. Those measured are between 90-138 mm x 25-45 mm x 9-13 mm. Most of the tabs are made from moa bone, though one is of seal ivory, one of human bone, and several of unidentified bone.

### ***Awls and Chisels***

Awls are the most numerous bone tool type from Redcliffs Flat, though the greatest number come from Moncks Cave. Most of the awls are made from lightweight bird bone (such as E.158.550 and E.158.287, Figure 4.9), some of which are identified as from a duck tibia, a petrel wing bone, a moa femur, an extinct swan tibiotarsus, and two from the humerus of a spotted shag. Awls of mammal and unidentified bone are also present. There are 23 complete awls which vary in size and shape mostly depending on the type of bone used. Some have natural handles from the bone head (such as E.158.547, Figure 4.9). Those measured are between 55-100 mm long and 6-35 mm thick. Of the four broken awls, two are points and the others are unidentified portions. One of these is made from the tarso-metatarsus of an albatross and was found in a needle case, of which there are no details available. Lastly, there is a broken artefact that is identified as an awl or a needle, suggesting that only a fine point remained that was not indicative enough of either tool type. One moa bone chisel was also recovered from Sumner Burial Ground.



Figure 4.10. Bone artefacts from Moa Bone Point Cave, Redcliffs site complex, Canterbury. **Row 1:** E.72.95 (winkle picker), E.72.96 (winkle picker), E.72.37 (fish gouge), E.173.6 (bird pear point), E.157.155 (bird spear point), E.161.121 (bird spear point), E.72.36 (flax threader needle). **Row 2:** E.163.271 (needle), E.163.289 (worked bone), E.162.347 (fish gouge), E.162.149 (worked bone), E.158.68 (worked bone), E.158.66 (worked bone), E.160.122 (tattooing chisel). **Row 3:** E.165.659 (composite fishhook point), E.162.158 (composite fishhook point), E.158.216A (minnow lure point).

### ***Needles and Threaders (Auika)***

Bone needles were only recovered from the caves, four from Moa Bone Point Cave and five from Moncks Cave. Their shapes vary between flattened, curved, and rounded cross sections. Needle length varies largely too and probably relates to function (for example compare the two needles in Figure 4.10). Those measured are between 36-60 mm long. One needle has a sawn eye (E.163.271, Figure 4.10) while four have ends broken off. Another was reworked into a smaller needle (36 mm x 1.5 mm) after an end snapped off. Two smaller broken portions were also recovered; one 36 mm long fragment with the needle eye and one needle point. Two of the needles are further identified as mat pins and another as a long flax threader made from a “nelly” humerus (E.72.36, Figure 4.10).

There is one near-whole fish threader (missing a head and eye) and four point portions of fish threaders. These are all made from bird or unidentified bone and were only recorded from Moa Bone Point Cave. One fish threader point may otherwise be a cloak pin or fish gouge. This highlights the similarity in form of these artefact types, the uncertainty of some of the identifications made in this assemblage, and the lack of knowledge or consultation with modern Māori knowledge during the initial cataloguing process.

### ***Pickers***

There are two winkle pickers from Moa Bone Point Cave, one possibly made from bone from the extinct Haast’s eagle (*Harpagornis moorei*), and the other from seal bone (E.72.95 and E.72.96 respectively, Figure 4.10). They are similar in shape to the awls (see examples in Figure 4.9) but have more elongated points.

### ***Other Bone Items***

There are three individual artefacts that do not fall under the above categories. Firstly, a moa bone harpoon preform was recovered from Redcliffs Flat. There are also four fragments of a single whale bone patu parāoa (weapon) from Moa Bone Point Cave. Also recovered from Moa Bone Point is a small serrated tattooing chisel made from unidentified bone, with six shallow teeth and black pigment still attached (E.160.122, Figure 4.10).

### ***Miscellaneous Worked Bone***

Worked bone fragments are the second most numerous bone artefacts from the Redcliffs site complex, behind bird spear points. However, they are more numerous than bird spear points at Moa Bone Point Cave. The bone materials are consistent with those used in the above categories, being seal ivory and human, bird, kuri, and whale bone. The working includes cut marks, bevelling, drilled or cut holes, grinding, edge wear, or is simply recorded as “working wear” or “traces of working” in the Ethnology Registers. For example E.163.289 (Figure 4.10) is a small narrow bird bone shaft that may be part of a broken awl, E.162.149 is a small double scarfed fragment that may be from more recent European work, E.158.68 is a sawn fossilised bone fragment, and E.158.66 is a small cut and polished section of bird bone, with a partly drilled hole through the center, possibly for making into a bead.

Some of the worked pieces are likely to be manufacturing debris or early or broken preforms of bone tools or ornaments. Some artefacts are suggested to be very early forms of gouges, fishhooks, bird spear points and beads. There are also seven worked seal teeth, which are possibly preforms for fishhooks or pendants. One tooth has holes drilled at each end, two have been split and one of which has been ground.

### ***Miscellaneous Unworked Bone***

There are six unworked pieces or fragments of bone that have not been included in the Redcliffs faunal material. These may have been raw material for future uses or be misidentified faunal material or waste. Two pieces are unworked slivers of fossilised moa bone, which would have been scavenged from moa remains as industrial material. Three are fragments of kuri jaw bone and the last artefact is tentatively assigned as the spine of an elephant fish.

### ***The Excavation Assemblages***

The majority (n=25) of bone artefacts, especially unidentified worked fragments, were recovered from the C (1958-1970) excavations of Moa Bone Point Cave. Fewer were recovered from the cave’s earlier excavations. This reflects the pattern that more small artefacts, especially of unspecific forms, were recovered from the C excavation period due to more modern excavation methods such as better lighting. The bone artefacts

from Redcliffs Flat appear to be of low frequency and sparsely scattered between the excavation events as only one or two bone artefacts were recovered from each site (note that the nine awls from excavation K (1957) are actually from miscellaneous locations, so likely do not come from one deposit). All of the Moncks Cave Bone Tools were recovered through excavation V (1889).

### ***The Archaeological Sites***

A larger number and greater variety of bone artefacts were recovered from the caves than Redcliffs Flat or Sumner Burial Ground. The bone assemblages of Redcliffs Flat, Sumner Burial Ground, and Moa Bone Point Cave are generally smaller compared to the other artefact classes. Only a bone chisel and tab were recovered from Sumner Burial Ground. This reflects the general frequency, type and number of artefacts recovered from this site. Comparatively, the bone assemblage is one of the largest from Moncks Cave, largely due to the massive number of bird spear points (n=58) which are the most numerous Redcliffs site complex artefact type. Many worked bone pieces and awls and a few needles, fish gouges, barracouta lures, and composite fishhook points make up the rest of the assemblage.

Moa Bone Point Cave has the largest variety of bone artefact types, especially with the recovery of several items which only occur once or twice, such as the winkle picker, tattooing chisel, patu parāoa, and flax and fish threaders. There are also more composite fishhook points (though there are eight composite fishhook points from Moncks Cave under Unidentified Material that are likely to be bone), many more worked bone fragments (n=30), and the only minnow lure in this assemblage. Interestingly compared to Redcliffs Flat and Moncks Cave there are only two awls from Moa Bone Point Cave. Awls and worked bone pieces followed by tabs and bird spear point preforms (the only ones in the Redcliffs site complex) are the most numerous bone artefacts from Redcliffs Flat, but there is still very few (n=3-9) of each.

The bone materials represented overall are very similar, being seal, moa, bird, fish and mammal bone, with human bone only present from the cave sites.

## 4.8 Stone Tools

Stone Tools is the second largest artefact class in the Redcliffs collection, with 853 artefacts. Stone Tools is the largest artefact assemblage from Sumner Burial Ground, the second largest from Moa Bone Point Cave and Redcliffs Flat, and the third largest from Moncks Cave. Many lithic materials (n=24) are represented in a range of artefact types, second in variety only to Organic/Composite artefacts. The artefact types can be divided into three main categories: 1. general tools, such as adzes, pounders, knives, and chisels 2. tools for making other tools, such as burnishers, grindstones, drills, and cutters, and 3. other stone items that are not “tools” in the modern sense, but do not class as Lithic Other, such as stone bowls and fishhooks.

### ***Adzes or “Adze Heads” (Toki)***

Adzes are the most numerous stone tool type and occur in high quantities from every site (Figure 4.11). Overall there is a large number of complete adzes (n=193), broken adze portions (n=196), adze preforms (n=60) and adze preform portions (n=35). “Portion” refers to a fragment or identifiable section that has broken off a complete adze. The materials are basalt, argillite, greywacke, nephrite, chert, palla, slate, dolerite, and andesite, with basalt being the most common at each site, followed by argillite, though the majority from Moncks Cave are of unlabelled material.

Complete Adzes: The complete adzes are most commonly ground and polished, with some being flaked and polished. Many are unfinished with part polishing or grinding. Twenty three adzes overall have small chipping or breakage, mostly on the blade or butt ends. Few measurements have been recorded, but the adzes evidently range from small and “gouge-like” (minimum 44 mm long) to large (maximum 210 mm long) hog-backed or Type 4A (Duff 1977) adzes, as exemplified in Figure 4.11. Some nephrite adzes have scarfed cuts. Recycling is evident in a few adzes, showing reworking from broken adzes or flakes. Some complete adzes have an identified Type, presumably by Duff’s (1977) typology. Only one adze from Moncks Cave has a Type, which is Type 2B, measuring 121 mm x 64 mm. Many adzes from Moa Bone Point Cave have been given Types, which are Types 1B, 2, 2A, 2B, 2C, 3, 3B, 4A, and “Canterbury Plains Type”. The only recognised Types from Sumner Burial Ground are Type 2A and “Southern curved type”.

Finished Adze Broken Portions and Fragments: There are as many unidentified adze fragments as complete adzes from Redcliffs. The majority of these are blade portions, particularly those from Moa Bone Point Cave. Butt portions are overall half as numerous as blade portions. One fragment is identified as a mid-section of an adze and two as poll portions (upper butt). This probably reflects the difficulty of identifying butt portions compared to blade portions, as there are many unidentified fragments from the caves. These fragments likely broke off during use, though some may be fragments of adze preforms but do not have appropriate information recorded to group them as thus. Four blades, three butts, and one fragment come from Type 4A (Duff 1977) adzes. Two butt portions, from Sumner Burial Ground and Moa Bone Point Cave, have horns for lashing. The only fragments or portions with identified Types are two “Canterbury Plains Type” adze blades and one Type 2B (Duff 1977) blade from Moa Bone Point Cave.

Preform Adzes and Broken Portions and Fragments: Adze preforms from Redcliffs are only present in argillite, andesite (one artefact), and basalt or have an unlabelled material. The adzes are in different stages of completion with partial sawing, polishing, hammering, or incomplete shaping. Most are simply labelled as adze “roughouts” or “blanks”. Three adzes were being refashioned from old items, one from an adze fragment, one from a flake, and one from an adze blade. The Types identified are Type 2A, 3, and 3B (Duff 1977), all from Moa Bone Point Cave. The short, wide Type 3 (Duff 1977) argillite adze is noted in the Ethnology Register to be waterworn and “foreign to cave collection and could have come from the Marlborough Sounds”.

There are 35 broken portions of preform adzes, near-evenly split between Moa Bone Point Cave and Redcliffs Flat. These will have been broken during manufacturing or post-depositional processes. Several from each site are identified as butt and blade portions, but most are unidentifiable fragments. Nine come from Type 4A (Duff 1977) adze preforms.

### ***Chisels, Gouges, and Gravers***

There is little consistent distinction made between small adzes, gouges, and chisels in the museum records, as their identifications are sometimes questioned in the Ethnology Register notes. These artefacts are generally small, narrow lengths with a sharp end (for

example E.109.17.5, Figure 4.11) and labelling is based off the Ethnology Registers. The chisels and gouges are made from nephrite, argillite, basalt, and phyllite (one artefact) or are of unlabelled material. There are overall similar numbers of chisels, chisel blades (E.158.130, Figure 4.11), and chisel fragments (total n=22) and gouges, gouge butts, gouge blades, and gouge fragments (total n=17), spread relatively evenly across all four sites. There are slightly more complete chisels and gouges than fragments of each. Several are described as flaked and ground like the adzes. Three artefacts have been reworked from other items, such as a stone “sliver” or adze fragment. The only graver is made from red quartzite and was recovered from Redcliffs Flat. Two further artefacts from Redcliffs Flat are labelled as gravers. One is made from red quartzite and the other is a fragment, possibly a chip from an adze.

### ***Awls and Drill Points***

Only one stone awl, made from polished nephrite, was recovered overall. Sixteen drill points (including the “hand drill”) and one possible drill preform are present. The majority of drill points are from Redcliffs Flat and have varied materials, including basalt, flint, argillite, chert, nephrite, and quartzite or are unlabelled. The four drill points from Moa Bone Point Cave are made from flint, argillite, quartzite, and chalcedony. The argillite drill point has been reworked from an adze fragment. There is also one artefact which was fossicked from Redcliffs Flat that is labelled as either a drill point or adze preform.

### ***Scrapers***

There are 25 scrapers in total, six from Moa Bone Point Cave and 19 from Redcliffs Flat. They are made from basalt, argillite and flint, plus some from Redcliffs Flat are from quartzite. Of those from Moa Bone Point Cave, three were made from flakes and one has kōkōwai staining. Two scrapers from Redcliffs Flat are alternatively labelled in the Ethnology Register as, in the first instance, a “hand-axe” with two blades or, in the second instance, a cleaver that is square in shape and retouched on all sides. There is another burnt quartzite artefact from Redcliffs Flat that is also labelled as a “hand axe”.



Figure 4.11. Stone tools from the Redcliffs site complex, Canterbury. 'MBPC'=Moa Bone Point Cave, 'SBG'= Sumner Burial Ground. Row 1: E.158.617 (MBPC, adze), E.72.52 (MBPC, adze), E.157.139 (MBPC, adze). Row 2: E.158.130 (MBPC, chisel blade), E.109.17.5 (SBG, gouge). Row 3: E.115.3.4 (SBG, adze fragment), E.158.84 (MBPC, adze fragment), E.72.53 (MBPC, adze fragment).

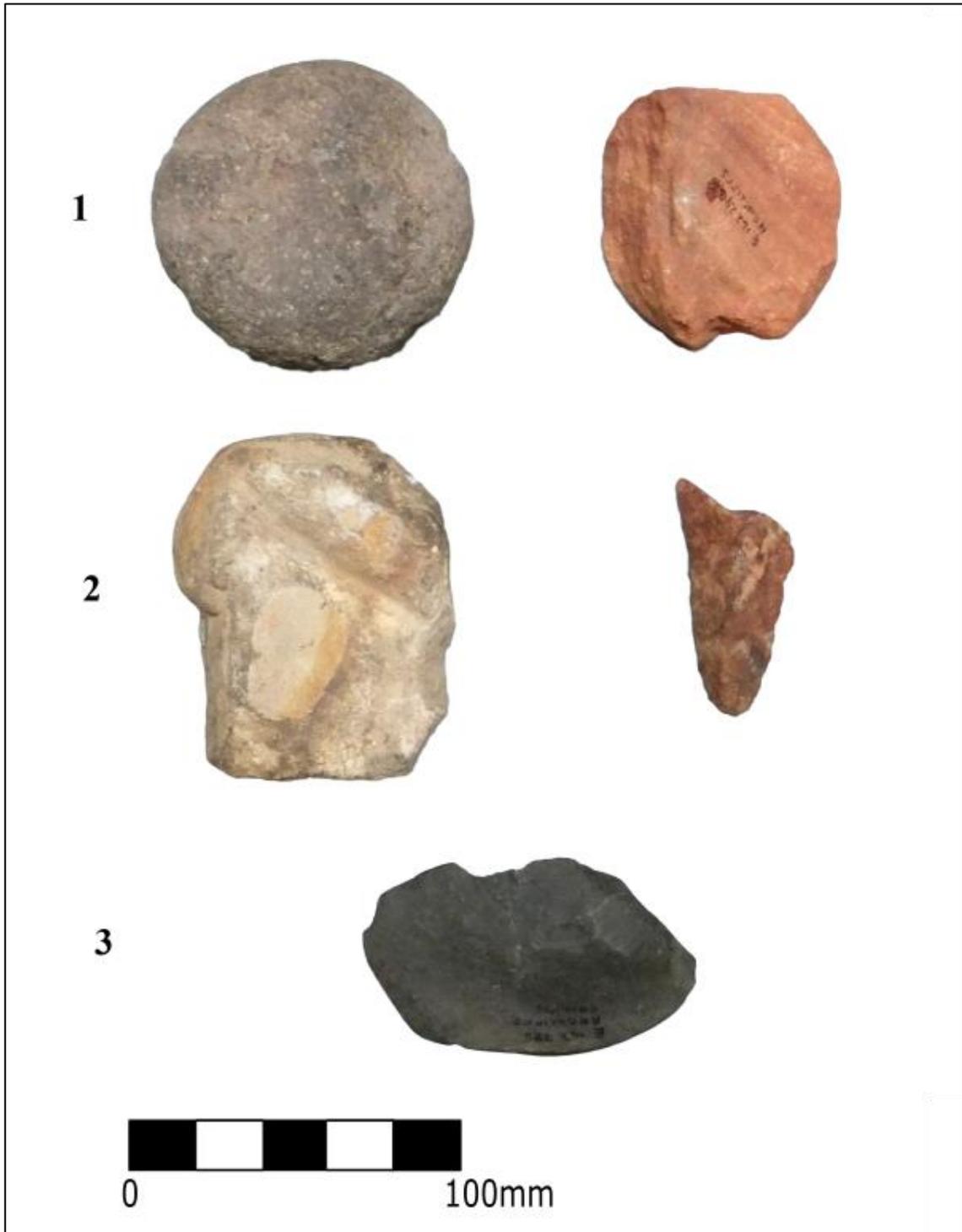


Figure 4.12. Stone tools from the Redcliffs site complex, Canterbury. 'MBPC'=Moa Bone Point Cave, 'RF'=Redcliffs Flat. Row 1: E.177.30 (MBPC, sinker), E.142.290 (RF, grindstone). Row 2: E.158.511 (RF, grindstone), E.161.109 (MBPC, knife). Row 3: E.142.285 (RF, cutter).

### ***Cutters***

There are 29 cutters overall, with examples from every site, but mostly (n=16) from Moa Bone Point Cave, which also had four cutter fragments. These were used for cutting or scarfing hard lithics, such as nephrite. The cutters are frequently made from sandstone, but also include basalt, argillite, greywacke, jasper, limestone, palla, and schist. Five cutters are described as being made from flakes or spawls off pebbles or river stones (such as E.142.285, Figure 4.12) and one is from a “rejected” adze. One cutter is double edged and the rest may be single or double. Three artefacts from Moncks Cave are labelled as cutters or burnishers, with no other details. Those with measurements (including the cutters/burnishers) are between 43-119 mm long, 21-60 mm wide and 5-18 mm thick.

### ***Knives, Blades, and Saws***

Knives are the second most common stone tool from the Redcliffs site complex (n=67), mostly from Redcliffs Flat and Moa Bone Point Cave, though they are half as numerous as adzes. Two thirds are made from quartzite (such as E.161.109, Figure 4.12) and the rest are made from flint, obsidian, slate, basalt, nephrite, and argillite. Those with measurements are between 60-95 mm long, 25-60 mm wide by 9-17 mm thick. Nine knives have retouched cutting edges and one has retouching around the whole circumference. Four have a polished surface or edge, perhaps due to usewear. Three knives are labelled as short or small due to “economizing on stone” and one has been repurposed from an adze. There is only one broken portion which is part of a knife blade.

Blades and saws are much less numerous, with three blades and 19 saws overall. The blades are all made from quartzite and are from Redcliffs Flat and Moa Bone Point Cave. Two are described as “triangular” and may be misidentified knives, as blades are normally long and rectangular or ovoid. The saws mostly come from Redcliffs Flat and are relatively evenly made from quartzite, basalt, chalcedony, chert, argillite, flint, and obsidian. Many are described as small (for example 50 x 25 x 14 mm), though there is one large double-edged quartzite saw and two large basalt saws (for example 158 x 47 x 18 mm). One basalt saw is a repurposed adze blade. The only broken portion is a

double-edged obsidian handle. One of the flint knives is also described as having a “Moa Hunter saw edge” so should be included in this category.

### ***Grindstones (Hoanga), Files, and Sharpeners***

Grindstones are the third most prevalent stone tool type (n=46), behind adzes and knives. If the grindstone ‘fragments’ are included then grindstone artefacts are as numerous as knives. The majority of grindstones and fragments were recovered from Moa Bone Point Cave and Redcliffs Flat, with more fragments at the latter. Two grindstones are made from basalt and the rest are sandstone (such as E.142.290 and E.158.511, Figure 4.12), though some are unidentified stone. Traces of use include grooves and hollows. Five grindstones were used intensively with usewear on three or four faces, while many others have little use on one face.

There are six files and one preform from Moa Bone Point Cave and one file and one end portion from Redcliffs Flat. All of the files are made from sandstone. The preform is partly cut from a burnt slab. One file is ground on all surfaces and is suggested to be a worn down grindstone. There is also one small sandstone “sharpener” from Redcliffs Flat which is likely to be another name for a grindstone or file.

### ***Burnishers, Polishers, Rimers, and Rubbers***

Burnishers, polishers, rimers, and rubbers are relatively evenly spread from the four archaeological sites and in low numbers, although there are 12 polishers from Sumner Burial Ground making them the second most numerous stone tool type for the site after adzes. These artefacts were for the same uses and are made from rough stone including sandstone, dolerite, pumice, and unidentified stone. One dolerite burnisher shows intensive usewear across all surfaces.

### ***Fishing Sinkers (Māhē) or Weights and Floats***

Grooved stones were attached to baited fishhooks to enable them to sink down to the habitat of deeper sea dwelling species, such as hāpuku (Hamilton 1908 53). There are twice as many sinkers and weights (combined count=10) from Redcliffs Flat than from both cave sites and none from Sumner Burial Ground. The majority are made from sandstone but there are also scoria, greywacke, andesite, and dolerite sinkers. The

majority have grooves for line attachment, except the preform and one has notches instead (and a couple with no details recorded). A greywacke sinker is unusual with two transverse grooves. One has been recycled from an old grindstone and another possibly from a hammerstone. Two pumice fishing floats, with holes, were recovered from Redcliffs Flat and multiple (unspecified) pumice floats were recovered from Moncks Cave.

### ***Other Stone Tools***

Pounders (Tuki): There is a possible pounder of unidentified stone from Moa Bone Point Cave. Unfortunately there are no further details recorded about it. A pounder of dolerite came from Redcliffs Flat. This has kōkōwai staining on its surface likely as residue from pounding kōkōwai into pigment.

Patu: There is only one patu recorded from the Redcliffs site complex, which is a fragment of unidentified stone from Moa Bone Point Cave. It is described as being re-ground on one edge.

“Tri-Backed” Stone: One unusual stone artefact, from Redcliffs Flat, is made from basalt and shaped into a three armed star. The arms are fairly thick and un-pointed. It appears to have been a multi-use tool with one edge being used as a saw and another as a scraper.

Bowl: One stone bowl fragment was recovered from Moa Bone Point Cave. It is made of sandstone and is labelled as being used for holding tattooing pigment, suggesting that the stone is stained.

Fishhooks: Two stone fishhook shanks were recovered, one from Redcliffs Flat and one from Sumner Burial Ground. They are made from jasper and basalt respectively, with the latter showing evidence of repair. A broken slender nephrite artefact with one barb and three notches was recovered from Moa Bone Point Cave and may belong to a fishhook point or bird spear point.

“Rounded Point”: One artefact with an unknown function is a broken slate artefact with a rounded point from Moa Bone Point Cave.

Stopper: A top shaped stopper made from pumice was recovered from Moa Bone Point Cave.

### ***Unidentified Tools***

Several artefacts from Redcliff Flat (n=7) and Sumner Burial Ground (n="multiple") are listed just as "tools". Two are made from basalt and the rest are of unidentified materials. Three from Redcliffs are polished. Individual analysis will be required in the future to clarify this.

### ***The Excavation Assemblages***

Stone Tools follows similar excavation event collection patterns as the previous artefact classes, with the majority of artefacts being collected during C (1958-1970), V (1889) and K (1957) excavations. However, there are a greater number of artefacts that have been retrieved by fossickers from every site. Surprisingly, few stone tools were recovered during Haast's (1874b) Moa Bone Point Cave excavation relative to Organic/Composite and Lithic Other artefacts. The Redcliffs Flat assemblage was collected across the greatest number of its excavation events compared to the other artefact classes.

### ***The Archaeological Sites***

In terms of types and numbers of stone tools, Redcliffs Flat and Moa Bone Point, and occasionally Sumner Burial Ground, are the most similar. The Moncks Cave Stone Tool assemblage is quite distinct from the rest of the site complex.

There are very few knives and grindstones and no scrapers or blades from Moncks Cave, although they are all common from Moa Bone Point and Redcliffs Flat. Drill points, scrapers, and saws were only recovered from Moa Bone Point Cave and Redcliffs Flat, with the majority (especially quartzite scrapers) being from the latter. Most cutters and files came from Moa Bone Point Cave, with only a couple of each from Redcliffs Flat. The majority of the few fishing weights or sinkers were recovered from Redcliffs Flat compared to the caves. The only stone gravers and only awl came from Redcliffs Flat.

The number of complete adzes from Sumner Burial Ground is the greatest in proportion to the site's overall number of artefacts, followed by polishers. It is notable that more adze preforms (n=38) were recovered from Redcliffs Flat than complete adzes (n=21) and in comparison to the other sites. A much greater number of broken adzes (especially blade portions) and broken adze preforms were recovered from Moa Bone Point Cave and Redcliffs Flat than at Moncks Cave and Sumner Burial Ground. Those from the latter makes sense with the site being an urupa where people were interred with complete adzes and adze manufacturing would not have occurred there. It may also be the added result of collection methods as the workers were less likely to be interested in broken artefacts in 1889 due to collection values of the time. Comparatively, Moncks Cave is distinct in having virtually no broken adze fragments relative to a large number of complete adzes.

Only a few Stone Tool artefacts have identified and recorded Types and nearly all are adzes. Most identified Types are of artefacts from Moa Bone Point Cave, but where artefacts from the other archaeological sites have identified Types they are the same as those represented in Moa Bone Point Cave.

#### 4.9 Lithic Other

Lithic Other is by far the largest artefact class from the Redcliffs site complex with 1,210 artefacts. The Redcliffs Flat Lithic Other assemblage is larger (n=835, Table 4.2) than any other Redcliffs artefact assemblage. This class is comprised of flakes, adze flakes, hammerstones, cores, worked stone, and unworked stone artefacts. Due to the lack of interest by fossickers in such artefacts, there are a number of artefacts fossicked from Redcliffs Flat and likely from Sumner Burial Ground that are labelled collectively as "Flakes and Fragments" (n=8 from Sumner Burial Ground), "Flakes and Flints" (n=22 from Redcliffs Flat), and "Flints and Broken Adzes" (n=33 from Redcliffs Flat) and are likely to reflect a wider range of artefact types upon further investigation (Appendix B). The materials recorded for these catalogue entries are obsidian, argillite, and flint for Redcliffs Flat and quartzite, and flint for Sumner Burial Ground, but they lack artefact counts.

## ***Flakes***

The number of flakes far surpasses any other artefact type from Redcliffs Flat (n=570) individually and the Redcliffs site complex overall (n=754). This is because nearly all stone tool manufacturing activities require flaking or produce flakes as by-products. The materials present at all four sites are argillite, chalcedony, and obsidian. There is also andesite, basalt, chert, flint, greywacke, garnet (hydro-glossular or rodingite), jasper, nephrite, palla, porcellanite, serpentine, quartz, and quartzite from Moa Bone Point Cave (Figure 4.13); chert from Moncks Cave; basalt, flint, quartz, and quartzite from Redcliffs Flat; and basalt, flint, palla, porcellanite, quartzite, and silicified stone from Sumner Burial Ground. The most common flake materials for each site are basalt, quartzite, and flint for Moa Bone Point Cave, obsidian for Moncks Cave, basalt for Redcliffs Flat and basalt, obsidian, and flint for Sumner Burial Ground.

A small proportion of the flake assemblage has evidence for use, as edge retouching or wear, and several artefacts may actually be tools such as cutters, saws, “points”, or drills. Thirteen flakes from Moa Bone Point Cave are recorded to have retouch along an edge, but none from the other sites have this level of detail recorded. Two Moa Bone Point Cave flakes have ground surfaces, one has been hammered, and four flakes from Redcliffs Flat have polished surfaces. These likely belonged to adzes and should really be labelled as “adze flake”. This will not be changed here however as they need to be checked and amended in the Ethnology Registers. Four basalt flakes and one of unidentified material from Moa Bone Point Cave have kōkōwai staining, from scraping or rubbing kōkōwai.

## ***Adze Flakes***

There is a smaller number of flakes labelled as adzes or adze flakes from the Redcliffs site complex (n=39), the majority of which came from Moa Bone Point Cave, with some from Redcliffs Flat and Moncks Cave. They are mostly made from argillite and basalt, with some from palla and two nephrite adze flakes from Moa Bone Point Cave. They are identified as flakes from adzes by identifying ground or polished areas from the original adze surface. One artefact is “in the process of being reworked”, one was reused as a cutter, and one is kōkōwai stained.

### ***Spawl***

There is a nephrite spawl shaped artefact from Moa Bone Point Cave. It is suggested to have been made from a slender artefact such as a pendant or needle but if it is spawl shaped it is possibly just a sharp edged nephrite fragment. It needs individual analysis for better identification.

### ***Hammerstones***

Hammerstones (n=26) were only recovered from Moa Bone Point Cave and Redcliffs Flat, with most coming from the first. They are made from a variety of materials with evidence of pecking: including argillite, basalt, chalcedony, dolerite, greywacke, garnet, and 'scoria'. Most appear to have been small pebbles originally and one garnet hammerstone is described as being a repurposed core.

### ***Cores***

The same number of cores came from Moa Bone Point Cave and Redcliffs Flat (n=59 each) with only six from Moncks Cave and none from Sumner Burial Ground. The materials that the cores are made from are agate, argillite, basalt, chalcedony, chert (Figure 4.13), flint, jasper, limestone (one artefact), obsidian, porcellanite, quartz, and quartzite, with the majority being made from quartzite and flint. The cores are generally small in size, with those measured sitting between 47-74 mm x 30-50 mm x 20-36 mm, though one or two are larger and described as "large" or "boulder". A quartzite core from Moa Bone Point Cave is kōkōwai stained, while five cores of different materials are retouched.

### ***Kōkōwai***

There are 14 examples of kōkōwai from Moa Bone Point Cave and are mostly of unknown form (they may be powder, lumps, or rolled balls). Two pieces of kōkōwai were discovered in proximity to a kōkōwai stained scraper and one lump has been partially ground. There are also 35 examples of unworked kōkōwai from Redcliffs Flat. They are recorded as fragments.

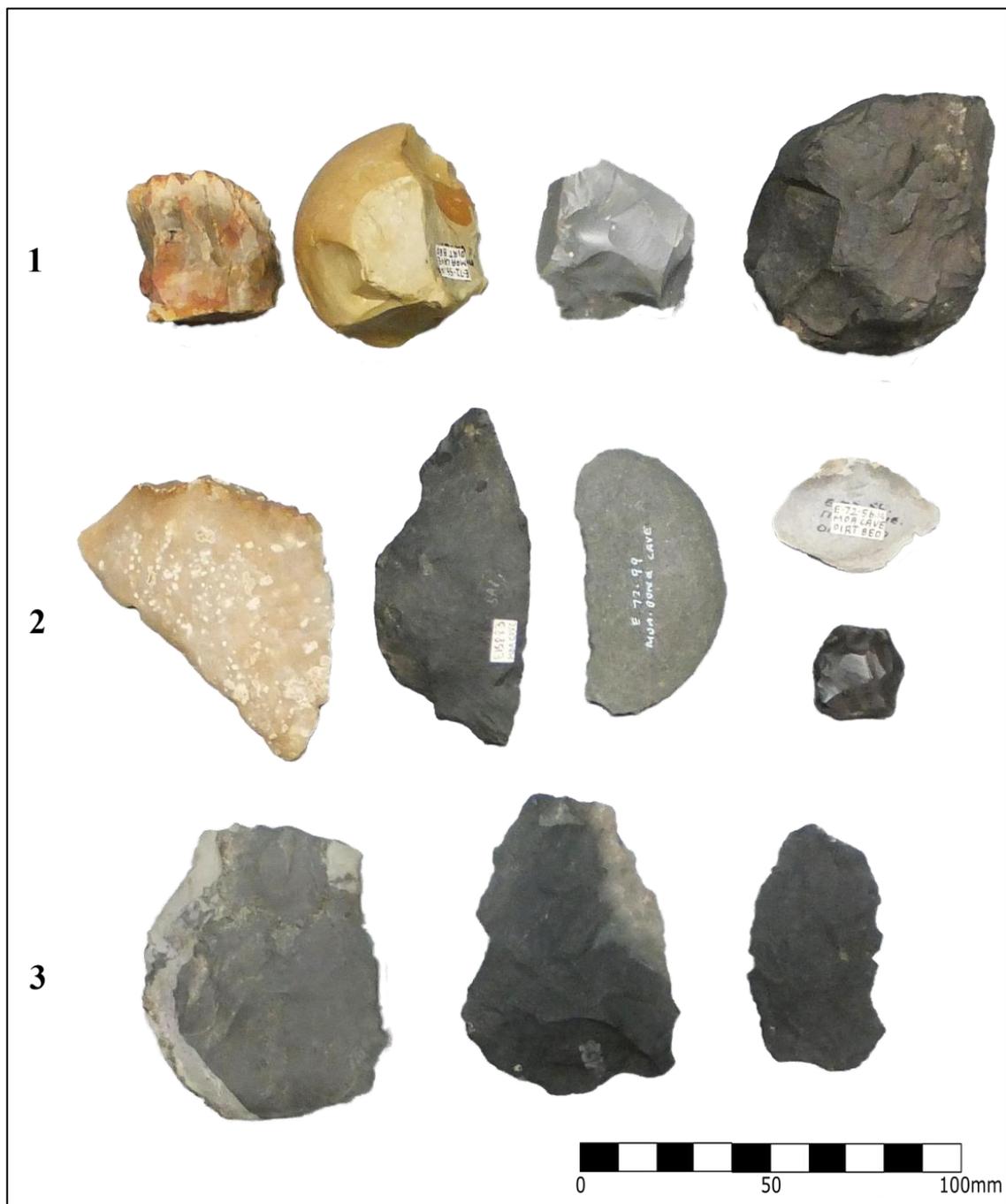


Figure 4.13. Lithic Other and Stone Tool artefacts from Moa Bone Point Cave, Redcliffs site complex, Canterbury. **Row 1:** E.72.56.7 (core), E.72.56.10 (core), E.72.92E (flake), E.158.186 (core or hammerstone). **Row 2:** E.72.92 (flake), E.158.83 (adze fragment), E.72.99 (cutter), E.72.56.14 (core), E.72.56.4 (core). **Row 3:** E.72.92F (flake), E.72.89.4 (worked stone), E.72.89.7 (worked stone).

### ***Worked Stone***

Forty nine stone artefacts of unidentified type but with evidence of working were recovered from the Redcliffs site complex, mostly from Moa Bone Point Cave and Redcliffs Flat, although they were present at every site. These will be misidentified stone tools, fragments of tools, the beginnings of preforms, or debris from tool manufacturing. They are in a range of materials, including argillite, basalt, flint, limestone, mudstone, obsidian, pumice, garnet, sandstone, and slate, with nephrite interestingly being the most common. The working includes flaking, grinding, polishing, scarf cutting, and grooving. Two sandstone artefacts from Redcliffs Flat are shaped; one is conical and the other spherical. There are also five conical shaped pumice artefacts from Redcliffs Flat with smoothed surfaces. These may be fishing floats as one has a perforation, perhaps for line attachment. A basalt piece from Moa Bone Point Cave has been shaped like a top and is listed as a “Top?” recognising that it may have been a toy. Lastly, a rock of unidentified material has been smoothed on one surface and is kōkōwai stained.

### ***Unworked Stone***

A large number (n=129) of lithics with no recorded evidence of working or use were recovered from the Redcliffs site complex, the majority of which come from Redcliffs Flat. Only two come from Sumner Burial Ground and Moncks Cave and 12 from Moa Bone Point Cave. Unworked stone artefacts represent a relatively even spread of the materials mentioned above, except for a large number (n=45) of sandstone artefacts from Redcliffs Flat. These may have been pieces reserved to be grindstones, and the other materials reserved for further tool making.

### ***The Excavation Assemblages***

Lithic Other follows similar excavation event collection patterns as the previous artefact classes, with the majority of artefacts being collected during C (1958-1970), V (1889) and K (1957) excavations. Once again few stone artefacts were recovered during Haast’s (1874b) excavations, except a surprising number of cores. A large number (n=63) of Lithic Other artefacts were recovered by fossickers, although the majority still come from excavation K (1957) or L (1957).

### ***The Archaeological Sites***

Moa Bone Point Cave and Redcliffs Flat are once again more similar than the rest of the site complex by having large Lithic Other assemblages, although Redcliffs Flat is unique in having more (and a significant number at that) Lithic Other artefacts than Stone Tools. Moncks Cave interestingly has the smallest Lithic Other assemblage relative to its overall assemblage size and has nearly twice as many stone tools. Sumner Burial Ground follows the same pattern as the caves in having less Lithic Other artefacts than stone tools, though the difference between the two lithic groups is greater. This likely relates to the site's purpose of being an urupa, which more commonly would have complete tools interred with human burials.

Most of the flakes, kōkōwai pieces, and unworked stone material come from Redcliffs Flat. Most of the unworked stone is sandstone pieces. Most of the adze flakes, hammerstones and the only kōkōwai stained flakes and core came from Moa Bone Point Cave. The majority of cores and worked stone pieces also come from Redcliffs Flat and Moa Bone Point Cave. Very few of any of these artefact types, except flakes, were recovered from Moncks Cave.

Moa Bone Point Cave and Sumner Burial Ground flakes are made from more various materials than Moncks Cave and Redcliffs Flat. Those from Moncks Cave are much more restricted with only four material types. Basalt is overall the most common flake and adze flake material.

#### **4.10 Objects of Unidentified Material**

There are 44 artefacts that do not have a material recorded in the Canterbury Museum Ethnology Registers. Most (n=36) of these came from Moncks Cave and simply reflect a less detailed strategy at the time of cataloguing. Some of the artefacts, such as a file, are likely to be made from stone, but the possibility for many of them to be made of either stone or bone or even wood means that there is too high a possibility of inaccuracy to try to infer material from artefact type. Instead individual artefact analysis will have to resolve this. These artefacts are thus kept together as a class, which will make it easier to identify them and add the required information to their catalogue entries in the future. The counts of these artefacts are not big enough to dramatically affect the patterns already outlined in the above artefact classes, but will be useful to

look at during future studies on specific artefact types. An exception may be the eight composite fishhook points from Moncks Cave, which makes the count more similar to that of Moa Bone Point Cave. A full list of these artefacts can be found in Appendix B.

#### 4.11 Chapter Summary

Overall there is a large range of different types of artefacts which have examples at every site of the Redcliffs site complex. They originate from different features and types of sites, such as ovens, midden, urupa, and caves but show some general patterns in the types of activities they represent. The biggest distinctions recognised are in the predominance of certain types of artefacts in certain sites and in some aspects of the material culture of Moncks Cave and Sumner Burial Ground. These will be outlined further below.

Certain artefact types provide evidence for specific activities that were carried out at the sites. Some of these are consistent across the Redcliffs site complex while others have examples from only a couple of the archaeological sites.

##### ***Evidence for craft or manufacturing***

A large number of artefacts associated with the manufacturing of bone, wood, and stone tools came from Moa Bone Point Cave and Redcliffs Flat. These are cutters, files, grindstones, gouges, drills, awls, polishers, adzes, adze preforms, cores, hammerstones, flakes, bone tabs, and unworked stone pieces. A large number of unworked stones (especially sandstone) and adze preforms came from Redcliffs Flat. Fishhook preforms and graters were unique to Redcliffs Flat. Fewer artefacts relating to manufacturing activities came from Moncks Cave. They are awls, bone tabs and fragments, cutter, gouges, polishers, adzes, flakes, and cores.

Several tools were only recovered from the caves, including needles and chisels from both sites and threaders and tool handles/hafts from Moa Bone Point Cave. Virtually the only artefacts from Sumner Burial Ground fit under this category, mostly being adzes, flakes, and polishers with a small number of gouges, chisels, grindstones, flakes, saws, cutters, fishhooks, and stone, bone, and shell pieces. However, in being an urupa, most do not show evidence of manufacturing occurring on site but were interred as

important tools with koiwi tangata. Some of these were found within a midden deposit though so are more likely to have been utilised during the second use of the site.

Evidence for textile production in the caves includes a net needle and many knots and partly dressed lengths of flax or raupō from Moa Bone Point Cave.

### ***Evidence for moa butchery***

Moa butchery, cooking, and consumption in Redcliffs can mostly be inferred from the presence of ovens and midden material, but some tool types were recovered that are characteristic of these activities. These are knives, especially those made of quartzite, blades, saws, and some scrapers or cleavers (Anderson 1983 11). The majority of these were recovered from Redcliffs Flat and Moa Bone Point Cave and only three to four each of knives and saws were recovered from Moncks Cave.

### ***Evidence for fishing activities***

All of the archaeological sites have some evidence for fishing activities, though these vary between the sites. Fish gouges and lures were only recovered from the caves, with minnow lures only coming from Moa Bone Point Cave and barracouta lures only coming from Moncks Cave. Only one-piece fishhooks came from Redcliffs Flat, while composite fishhooks were common from both caves, but particularly Moa Bone Point Cave. One composite fishhook shank came from Sumner Burial Ground. Additionally, there were two harpoon pieces (preform and end portion); one from Redcliffs Flat and one from Sumner Burial Ground.

Evidence for canoe and fishing net use only came from the caves due to post-depositional factors. Both caves had paddles, while a bailer and outrigger float came from Moncks Cave and small canoe fittings came from Moa Bone Point Cave. Fishing line and netting was recovered from both caves and a wooden net opener came from Moa Bone Point Cave.

Fishing sinkers were recovered from every archaeological site except Sumner Burial Ground. Several pumice net floats came from Moncks Cave and Redcliffs Flat and one was even still attached to a net fragment.

Shellfish collection can be inferred from a paua knife from Moa Bone Point Cave, though some of the netting was likely used for shellfish dredging or collection too.

### ***Evidence for hunting***

Artefacts that were used for hunting (birds) only come from the caves. There are several wooden bird spear points and many bone bird spear points from both caves, though a massive number of them comes from Moncks Cave especially. There are also six spears that may have been for bird spears and two wooden parrot stands, all from Moa Bone Point Cave.

### ***Evidence for subsistence plant exploitation***

There is possibly evidence for plant or rhizome processing in the form of seven wooden pounders from the cave sites, most of which are suggested to be fern root pounders. Four of those labelled as Moa Bone Point Cave may originate from Moncks Cave, leaving two definitely from Moncks Cave and one definitely from Moa Bone Point Cave. There are also several wooden pounder fragments from Moa Bone Point Cave. Without evidence of fern root, kumara, or tī plant material or starch, or even associated horticulture pits or ovens it is difficult to determine the function of these pounders.

### ***Every-day or utilitarian items***

There is a large number of items that relate to what can be considered everyday activities carried out on site, such as storage or transport of items, fire making, and footwear. They mostly originate from the caves as they are mostly made from organic materials. These are paua vessels, wooden bowls, sandals, baskets, mats, bedding, and fire sticks and tools for preparing food such as knives, saws, scrapers, and possibly pounders.

### ***Treasures (Taonga tuturu) or special/unusual items***

As opposed to the large number of artefacts for everyday activities, there are a number of artefacts, mostly from the two caves but also Redcliffs Flat, which are non-utilitarian and may have been ornamental or even tapu in nature. These include the large number of kōkōwai pieces, a kōkōwai stained rock, and a kōkōwai pounder from Redcliffs Flat.

There are a few pieces of kōkōwai from Moa Bone Point Cave but also the only kōkōwai stained flakes, core, stone slab, grindstone, wooden piece, paua vessel, and scraper. The only kōkōwai from Moncks Cave is a stained paua vessel and pigment on some carved items listed below.

Many locks of human and kuri hair and collections of bird feathers were recovered from the caves. There is a flax trumpet from Moa Bone Point Cave and two more possible ones from each cave. There is also the possible ornament or model of a kuri, a possible model canoe and paddle, and two carved shafts (with faces) as paddles or ‘god sticks’. Some of the beautifully decorated tools, such as the paddle, bailer, tattooing chisel, combs and multi-pattern woven mat, as well as all of the personal ornaments are also items of distinction and show Māori visual arts.

### ***Condition***

Breakage (pre or post-depositional) is a common feature in artefacts from all sites, whether it is an end snapped off or large decayed portion. Two artefacts, a paddle and bailer from Moncks Cave, show evidence of pre-depositional breakage that had been mended with textile ties. It is also surprising how well preserved some of the wooden artefacts, such as the carved kuri, large mat, and bailer, are considering they were sitting in a cave for several hundred years. The damp conditions and sealing off of Moncks Cave played a large role in the preservation of many of its artefacts. Several artefacts that were present at both caves show a slight difference in condition, possibly arising from the regular re-use of Moa Bone Point Cave compared to Moncks Cave. For example, there are many more broken wooden bowl fragments from Moa Bone Point Cave compared to complete bowls from Moncks Cave, as well as more small pieces of canoe equipment (such as fastenings and a paddle head) from the first compared to large complete paddle, an outrigger float, and bailer from the latter.

Many of the wooden artefacts from the caves were recorded as partially charred. Skinner (1924 153) explained the charring of wooden artefacts to be from the carving of the artefacts with heated chisels or from later hardening of the wood through heat treatment.

The above categories show some basic similarities in the material culture assemblages between all of the sites of Redcliffs site complex. The range of materials

represented by artefacts in these categories is also relatively consistent across the site complex. The assemblages of Moa Bone Point Cave and Redcliffs Flat are more similar to each other than the rest of the site complex. Both the Moncks Cave and Sumner Burial Ground assemblages have features that make them distinct within the site complex.

***Major site distinction: Moncks Cave***

An especially high number of bird spear points were recovered from Moncks Cave compared to any other artefact type. There are also a lot of bird feathers from the site, including some identified as weka feathers, which suggests that the people using the site had a large focus on hunting local birdlife. The greatest collection of bone awls and several unusual artefacts like the carved kuri and possible model canoe and paddle also come from here. Unlike Moa Bone Point Cave and Redcliffs Flat no scrapers, knives, blades, grindstones, and hammerstones were recovered from this site.

***Major site distinction: Sumner Burial Ground***

The Sumner Burial Ground assemblage lacked most of the artefact types that were found at the rest of the site complex. The assemblage virtually consisted of adzes, flakes and a few other stone tools, with only one bone tab, a bone chisel, and a single stone fishhook shank. This is fairly consistent with the site's more specialised use as an urupa, though the variety of artefact types not usually associated with urupa can be explained by the subsequent use resulting in the shellfish midden layer. It is important to reiterate that there were also personal ornaments recovered from the site but that they were not found in the Canterbury Museum collection.

***Artefact Type***

Few artefacts were recorded in the museum catalogues with greater detail than a name and perhaps a material or measurements. Occasionally adzes or gouges were labelled with a Type based on Duff's (1977) adze typology. These include the Types of 1B, 2, 2A, 2B, 2C, 3, 3B, 4A, "Canterbury Plains Type", and a "Southern curved type". Only one other artefact, a fishhook, has been given a Type label. It is labelled as a D1 point probably from Hjarno's (1967) fishhook typology. These will be discussed further in the next chapter.

## 4.12 Chapter Conclusion

An artefact inventory and general description of the entire Canterbury Museum Redcliffs material culture collection are in themselves very useful tools for any future research on the Redcliffs site complex. Already some of the interpretations presented by previous literature based on faunal records and the presence of features and artefacts have been supported by the material culture description. By considering the material culture of the Redcliffs site complex in its entirety (or close to, as most of the known material culture is at Canterbury Museum) some new data and interpretations can be drawn in this thesis. By presenting the histories and material culture assemblages of the four major Redcliffs archaeological sites together this project offers greater opportunity for comparisons and syntheses of the archaeological sites to take place, partly here and more in future research.

Based on the research in the last two chapters, there is the possibility of resolving some provenance issues for some artefacts through a focused research study. However, the majority of the collection cannot be provenanced accurately enough to convey information about stratigraphic change over time, or possibly even intra-site activity areas. The information presented in this chapter holds lots of potential for interpretations of local environment use, the activities at each site, clues about the timing and extent of occupation, their relationship to a dynamic landscape, their role within a settlement system, and especially in broadening our understanding of any relationship that the sites may have. The next chapter will consider such aspects of real life that the material culture of the Redcliffs site complex can point to. This method aims to broaden our ideas about the Redcliffs site complex and consider the artefacts within local and national contexts of living people, activities, and traditions.

# Chapter 5: Discussion and Conclusion

## 5.1 Introduction

The aim of this thesis was to organise and synthesise the archaeological history and material culture collection of the Redcliffs site complex in order to recognise the archaeological information available for future projects and what the collection looks like overall. Research Aim 1 was addressed in Chapter Three by organising, synthesising, and summarising the Redcliffs site complex's complicated archaeological history. Research Aim 2 was addressed in Chapter Four. The knowledge gained in Chapter Three guided the methodology used to create an inventory and description of Canterbury Museum's Redcliffs site complex material culture. Both outcomes will be a major resource for future studies of Redcliffs archaeology and material culture and promote the role that Redcliffs can play within discussions of early Māori life in the South Island of Aotearoa.

While all of the major Redcliffs researchers (Haast, Meeson, Duff, Skinner, Trotter and Jacomb) have offered interpretations about the individual archaeological sites, and occasionally about relationships within the site complex, these ideas have changed little over the past 50 years and lack the detail found in similar South Island archaeological site interpretations such as Wairau Bar and Shag River Mouth. This chapter addresses Research Aim 3, where the summaries made throughout this thesis will be drawn together towards an interpretation of Māori life at the Redcliffs site complex. It will begin with a summary of the findings of the material culture inventory and description and then address the three research themes of what resources were utilised, what activities took place, and what kind of settlement pattern was represented. This discussion will end with an overall site complex interpretation in the contexts of its local landscape and South Island settlement and provide guiding ideas for future research in this area.

## 5.2 Summary of Redcliffs Site Complex Material Culture

Through a material culture inventory and description the nature, extent, and importance of Canterbury Museum's Redcliffs site complex material culture has been realised. Some major similarities have been recognised between the assemblages of the four

archaeological sites. Bone fishhooks (though the presence of different types varied between the sites), stone tools for manufacturing stone, bone and wood tools, and stone tools associated with moa butchery were recovered from all four sites. The rest of the artefact types featured at one or multiple sites but not all four. The types of artefacts recovered overall and the materials they were made from were similar across the site complex and reflect a broadly similar strategy of occupation, with the assemblages of Redcliffs Flat and Moa Bone Point Cave being more similar to each other (for example in the quantities of stone manufacturing and moa butchery tools) than to the rest of the site complex. In total, a greater variety of artefacts came from Moncks Cave and Moa Bone Point Cave but a greater quantity came from Redcliffs Flat and Moa Bone Point Cave.

There were some differences found in the predominance of certain artefacts in certain sites and in some aspects of the material culture of Moncks Cave and Sumner Burial Ground. Organic artefacts were only found in the cave sites due to their better preservation conditions and there appears to have been slightly better preservation of wooden artefacts in Moncks Cave, which is likely due to it having been sealed off. There was a lesser variety of artefacts from Moncks Cave compared to Moa Bone Point Cave, though the assemblage had a relatively large number of bird spear points, bird feathers, and bone awls. Sumner Burial Ground similarly had a particularly restricted range of artefacts, being mostly stone adzes and flakes, which is a consequence of its more restricted use as an urupa and midden site.

The pattern of there being a greater variety of artefacts from the caves relates to post-depositional processes as the sites provided different conditions for artefact preservation. It is then left to consider who was using the sites, what for and for how long to explain the remaining patterns in artefact type and abundance.

### 5.3 Research Themes

The broad scale interpretations about the Redcliffs site complex, based on the decades of investigation outlined in Chapter Three, have agreed on Redcliffs having been a large “permanent overwintering base camp” (Jacomb 2009a 25) during the mid-late 14<sup>th</sup> century AD to early 15<sup>th</sup> century AD with some occupation outside Moncks Cave extending to the 16<sup>th</sup> century AD. A few more specific interpretations have been made in the literature from basic analyses of features and faunal and artefactual material.

These were summarised in Chapter Three and, by collating them with further information from the material culture considered in Chapter Four, can be extended here and organised into three themes.

### ***Use of Resources***

While faunal artefacts and the use of resources for subsistence were not the focuses of this thesis, a few general patterns can be made from the literature discussed in Chapter Three that are relevant to a discussion of Redcliffs resource use. Overall, the faunal records of Moa Bone Point Cave and Redcliffs Flat represent a broad spectrum of Canterbury species, including birds, fish, shellfish, sea mammals and mammal (kuri), most of which were likely caught around Ihutai (Jacomb 2009a 25; Trotter 1975). These notably include the remains of the now extinct *Cygnus sumnerensis* (swan) and *Harpagornis moorei* (Haast's eagle). The remains of some species were more frequent, showing indicating a preference for shag, moa, and seal species (Challis 1995). There was less faunal diversity at Moncks Cave which reflects greater specialisation of subsistence on estuarine shellfish and small forest and swamp birds.

Of more relevance to this thesis' achievements is the resource use implied by the material culture. Industrial materials at Redcliffs represent a full range used by Māori in early Aotearoa, with artefacts made from a variety of bone, lithic, and organic materials. The bone types that were identified in the museum catalogue are moa, seal, "nelly" (petrel), duck, extinct swan and eagle, spotted shag, fish (elephant fish and unidentified species), albatross, human, kuri, and seal and whale, seal, and kuri ivory. There is a wide range of lithic materials identified, which are agate, andesite, argillite, basalt, chalcedony, chert, dolerite, flint, garnet, greywacke, jasper, kōkōwai, limestone, mudstone, nephrite, obsidian, palla, porcellanite, pumice, quartz, quartzite, sandstone, schist, scoria, serpentine, silicified stone, and slate. Fossil pieces of *Dentalium* sp. shell, many paua, and a couple of freshwater mussel shells were also present as artefacts. Some wooden artefacts were identified to species and include totara, mangemange vine, hohere, pukatea, rewarewa, ribbonwood, and lacebark. Organic artefacts were mostly identified as flax, raupō, unidentified fibres or wood, but a few more types were mentioned which are rushes, tussock, sedges, gourd, feathers, kuri hair, and human hair.

A few materials were either preferred, more suitable for specific artefact types or were more readily available than other resources as a larger proportion of artefacts were made from them, including moa bone, bird bone, raupō, and flax. Nearly all of these materials reflect those that were naturally available in the Ihutai and Horomaka areas (see Chapter Two for detail), though some stone types, such as obsidian, nephrite, and quartzite, would have been brought in from further afield as they were not available locally. Most of the bone would have been collected fresh from prey but the remains of moa and whales would have also been targeted for large sized industrial material, particularly after moa were declining and as whales were seldom found and rarely, if ever, caught. Smaller birds were abundant in the area and their small and lightweight bones were suitable for fine tools such as needles, awls, and bird spear points. Raupō and flax were particularly common in the swampy zones edging the Port Hills and the Avon and Heathcote rivers and their durable and flexible leaves were suitable for many types of weaving and clothing, after being stripped with mussel shells and sewn with awls and needles.

### ***Activities Represented***

#### *Fishing and Hunting*

The quantity of fishing equipment, spears, and bird spear points show that hunting in the swamp and surrounding forests and fishing in the estuary and nearby sea were large parts of the economic life of the Redcliffs Flat and Moa Bone Point Cave communities. Butchery tools such as knives, blades, saws, scrapers, and cleavers were common from these two sites and are likely to be related to medium scale moa butchery, which is supported by the large amount of moa bone present in the lower stratigraphic layers. The collection of netting, fishing floats, net openers, fishing line, fishhooks, fish gouges, a paua knife, and canoe equipment from these sites as well as the Moa Bone Point Cave wharau all paint a picture of people who would pull their waka ama into the local estuary to set their lines or nets as well as to travel out of the estuary and around the corner to collect rocky shore shellfish and lure larger pelagic fish. Artefacts aimed at catching particular species include whitebait netting and hāpuku, kahawai, and barracouta fishhooks.

Contrastingly, there was much less fishing equipment and a greater number of bird spear points and feathers at Moncks Cave, showing a more specialised focus on hunting

small birds. There were also large shell midden deposits at Moncks Cave showing an additional focus on shellfish collection. Notably, the numerous bird spear points were only recovered from the caves, suggesting that their occupants had a greater focus on bird hunting or that the caves were just more suitable places to store such small and useful tools. There may also have been a greater reliance on horticulture at Moncks Cave as several pounders were recovered from the cave, but this interpretation relies on resolving the origin of four pounders that may instead come from Moa Bone Point Cave, as well as the actual use of the pounders. The Moncks Cave lithic collection was distinct from the rest of the site complex and lacked tools associated with moa processing such as scrapers and blades, though there were a few knives which would have been useful for other butchery.

#### *Craftsmanship and Manufacturing*

Particular concentrations of similar artefacts provide evidence for specialised activity areas (Trotter 1975). These activities include fishhook and adze manufacturing on Redcliffs Flat (more localised areas within the site were found and discussed in Chapter Three). These sand dunes also seem to have been an area where stone was left out for future use as a large number of unused sandstone blocks, suitable for use as grindstones, and other lithic adze preforms were recovered. General lithic flaking, bone working and tool retouching was carried out at all four sites. The Moncks Cave lithic assemblage was more restricted in type and material than the rest of the site complex, suggesting that tool production there represented a small by-product of everyday tool use rather than an activity focus. Certain artefacts only occurred or were numerous in the caves, such as prepared organic materials, textiles, bowls, bird spear points, piles of wood, fire sticks, needles, chisels, and threaders. This pattern will be the result of better preservation conditions in the caves, particularly for the organic materials, but possibly also as a sign of the caves being used to store items and perhaps as a dry and sheltered location for practising certain crafts such as net and mat weaving. Lithic, wood and bone debris and preforms, partly prepared textiles, and equipment such as needles show that in-situ repair and craft occurred to an extent at each site in Redcliffs.

#### *Everyday Activities: Sleeping, Eating, and Storage in the Caves*

While no structures have been found in Redcliffs other than the wharau, bedding was recovered from Moa Bone Point Cave suggesting that people did sleep under the shelter

of the cave; though it is likely that most of the large hapu slept in temporary structures outside as the cave was damp and would have been smoky from hearth fires. Several mat fragments suggest that people sat or kneeled on the sandy cave floor. The midden remains in both caves and two moa bone filled ovens in Moa Bone Point Cave show that food was cooked and consumed inside the caves. From the wide spread of ovens across Redcliffs Flat it is apparent that cooking occurred all over the dunes, but particularly along the past estuary edge. Ash scattered throughout stratigraphic layers and many fire sticks in both caves provide evidence for fires or hearths. The lugged wooden bowls also found in the caves may have been used as kūmete (food bowls). These, plus the plugged paua shells, were also used as storage vessels such as for holding feathers, flax coils, and tools. The shelter of the caves, while being useful for fires in bad weather, would also have been suitable for storing dry wood and a large stack of logs was recovered in a back corner of Moa Bone Point Cave. A bird skin bag and several kete or baskets are also evidence of vessels for storing or carrying items, though these were likely carried outside the caves.

#### *Cultural Activities*

A few non-utilitarian activities of ornamentation and ceremony in Redcliffs can be inferred from a small collection of artefacts, particularly from the caves. These are the carved wood kuri, possible model canoe and paddle, flax trumpets, kōkōwai use, a tattooing chisel, and two possible carved ‘god sticks’ (although these may be ornamented paddle ends).

#### **Settlement Type**

Several aspects of the type of settlement that occurred in Redcliffs can be inferred from the types of activities that were undertaken, the duration of settlement and the seasonality of resources. The timing of settlement and chronology of the sites will be discussed later with the site interpretation.

#### *Types of Activities*

From the types and range of activities that were carried out in the Redcliffs site complex it is clear that the area was not just a short term subsistence-focused camp as its inhabitants stayed long enough to set up areas for manufacturing lithic, wood, and bone tools as well as for the crafts of making personal ornaments, musical instruments,

mats, nets, and other textiles, although some of these items would have been brought with them. While the occupation of Redcliffs was not specifically short term it was also not permanent, as the stratigraphy was shallow, there is no evidence for houses and there were few (although large) ovens.

### *Periods of Occupation*

The Redcliffs site complex was occupied over at least two periods of time, though several of the locations within it were used only once. The faunal changes across stratigraphic layers seen at Moa Bone Point Cave and Redcliffs Flat have been suggested to be indicative of gradual subsistence shifts rather than different occupations and they are likely to have been occupied together, due to their proximity and similar material culture. The evidence for a small hiatus between two occupation events in Moa Bone Point Cave, as marked by blown sand, remains unresolved. The presence of deep midden layers above a human burial and the multiple shell and ash layers do point to different uses of the cave but the timing of these is nearly impossible to distinguish. There is likely to have been very little time between each phase, in Moa Bone Point Cave and Redcliffs Flat, as there is virtually no building up of soil between stratigraphic layers. The stark differences between the urupa layer and upper shell midden layers of Sumner Burial Ground are indicative of two periods of use. The lack of any form of dating from this site makes it difficult to say when or how long apart these were, but it seems that the first use of the site related to a widespread settlement of Ihutai and that the second occurred later, likely after local moa decline, as a coastal subsistence-focused camp.

For the site complex as a whole there is a sort of horizontal chronology between the inside and outside of Moncks Cave, Moa Bone Point Cave and the individually excavated locations within Redcliffs. Redcliffs Flat as a whole was occupied for about a century around the end of the 14<sup>th</sup> century AD (Jacomb 2009a). The single radiocarbon date from Moa Bone Point Cave and the single occupation within Moncks Cave fit within this period. This is confusing for Moncks Cave as the moa remains have been used as evidence for the rapid extinction of moa as there is no evidence of on-site butchery (Holdaway & Jacomb 2000), which is plentiful at Moa Bone Point Cave and Redcliffs Flat. The differences in their assemblages need to be resolved through the development of a finer chronology and an investigation of seasonality (Jacomb 2009a)

and artefact Types. The material from the exterior of Moncks Cave is from a later occupation that also spans across a century (Jacomb 2008).

### *Seasonality*

Redcliffs Flat has been suggested to be a winter camp (Jacomb 2009a; Orchiston 1974 3.56; Trotter 1975). Moa Bone Point Cave is considered to have been the same, due to its proximity and similarities to Redcliffs Flat and its shelter is likely part of what made the area suitable to temporary winter settlement. The presence of weka feathers, which were saved for wintertime hunting, and hāpuku bones, which were often preserved for winter (Leach 1969), support this theory. Jacomb (2009a 25) suggests that the inside of Monck's Cave was occupied at a different season to Redcliffs Flat and Moa Bone Point Cave to explain the similarity in timing between the sites but the distinct fauna and material culture. Further chronology and fauna studies are needed to investigate whether this is a reflection of seasonality or timing of occupation.

### **Summary**

The material culture shows that many of the same activities and resource use practices were carried out at the four archaeological sites of the Redcliffs site complex. The sites were not used in exactly the same way by the same people but these activities and resource use patterns seem to be reflective of general practices carried out by Māori during this time period. There was no complete site specialisation based on material culture, although some activities were focused at certain locations within the discrete site areas.

A consideration of the material culture collection also revealed the distinction of two sites, Monck's Cave and Sumner Burial Ground, within the site complex. Chris Jacomb (2009a 25) has previously outlined that the Monck's Cave archaeological evidence is different from the rest of the site complex and Sumner Burial Ground is well known as a unique site in the area. The evidence for the activities and resource use patterns that were carried out within them supports them in continuing as part of the site complex but has revealed some characteristics that are unique to the other sites. The deviation of Moncks Cave's material culture shows a different focus in activity which particularly relates to resource procurement and settlement changes that were taking place in the mid to late 15<sup>th</sup> century AD. The use of Sumner Burial Ground as an urupa is obviously

different from the rest of the site complex so was expected to show some differences. Overall, the Redcliffs site complex material culture shows a more diverse activity range than many similarly aged sites and thus reflects more aspects of everyday and special activities in Māori life than shown by a material culture collection of this age before.

#### 5.4 Site Interpretation: Redcliffs, a 'Moa-Hunter' camp or something more?

Redcliffs holds a unique place in both Aotearoa's cultural and archaeological history. The area has been excavated by several key archaeologists during formative periods of Aotearoa's archaeological discipline, but concurrently suffered from unprofessional excavations and recording. This resulted in Redcliffs archaeology being passed off as interesting but too difficult to resolve. The stagnant nature of Redcliffs research is particularly evident in regard to our past knowledge of the massive material culture collection in Canterbury Museum. The image that "Redcliffs" has summoned to Aotearoa's archaeological and museum communities is of a once sandy area covered by moa bone middens situated next to two significant moa hunter aged caves sites from which some curious organic artefacts, such as the kuri figurine, have been recovered. From considering the entirety of the available material culture assemblage, this thesis has identified a slightly different character for the Redcliffs site complex than previously considered, particularly as more than a simple 'Moa Hunter' camp.

A large range of activities are represented by the material culture that are reflective of the everyday and more special activities of a temporary camp of one large or several Māori hapu. A broad and opportunistic focus of subsistence and resource use is evident and, in particular, a greater marine focus has been realised than in previous interpretations. The site complex's environmental context can be considered as a major reason for its early but impermanent settlement. Rather than on moa and moa hunting, the focus appears to have been on the shelter of large caves and a sheltered bay during winter in proximity to a rich seascape and abundant forest and swamp resources.

Redcliffs was nearly continuously occupied in at least one location at a time for around two centuries, which is longer than is commonly acknowledged for the site complex. The radiocarbon dated chronology indicates that the main phase of occupation, particularly of Redcliffs Flat, Moa Bone Point Cave, and inside Moncks Cave, occurred from the middle of the 14<sup>th</sup> century AD to the early 15<sup>th</sup> century AD. Occupation

outside Moncks Cave extended across the 16<sup>th</sup> century AD with a more specialised focus (Jacomb 2008, 2009a). Relating to the acknowledgement of a Transitional phase, the Redcliffs site complex material culture as a whole does not seem to be typically early (AEP) or late ('Classic'). The few artefacts that were recorded as having a Type agree with the chronology. There are several adzes with Types that are characteristic of early phases of occupation in Aotearoa, such as large, rectangular cross-sectioned adzes (for example Types 1B and 4A) as well as a couple of smaller types (for example Type 2B) that are more characteristic of later styles (Duff 1977; Shipton et al. 2016). The Redcliffs site complex is similar to other Transitional or Middle Period sites through having cave sites and in being situated in a small sheltered bay (Jacomb 1995). Redcliffs occupation thus sits at an interesting period in time at the beginning of and extending into the Transitional phase of the South Island Māori culture and can provide further evidence for some of the changes in subsistence and activities that are suggested to have occurred then.

The Moncks Cave material culture is more distinct from the rest of the site complex and its faunal record has been previously acknowledged to be different too (Jacomb 2008, 2009a). These factors hint that the people who lived at Moncks Cave, especially outside, were living in Redcliffs during a slightly later period than Moa Bone Point Cave and Redcliffs Flat; one where many birds, especially moa, were becoming extinct and exchange networks were lost, termed as the Transitional phase. A more formal seriation of artefact Types from this site and any new radiocarbon dates for the area may help to shine light on the relationship of Moncks Cave to the rest of the site complex.

## 5.5 Conclusion and Wider Context

In conclusion, Redcliffs is a zone that was occupied by large groups of people across at least a hundred-year period within the first few centuries of Aotearoa's east Polynesian settlement. The wide range and abundance of faunal and floral resources for industry and subsistence, alongside physical characteristics that suited a large camp of people who liked to utilise the local seascape, were the major impetus for settlement, particularly during harsher winter seasons. The local Māori hapu practised broad scale resource use due to the widely available and various resources with occasional

instances of specialised activity, particularly after moa decline, such as more intense shellfish collection.

Redcliffs appears to have been a short term and seasonal camp of a large group of people, mainly for fishing, shellfishing, and fowling activities, that may have occurred annually for a short period of time at the transition from the 14<sup>th</sup> to 15<sup>th</sup> centuries AD. These camps were situated in a dynamic coastal landscape in a very favourable position for a wide variety of day to day activities and therefore still offer huge potential to understanding the activities and behaviours from first occupation of Aotearoa to the Transitional phase, especially if a better understanding of seasonality and chronology can be developed. These sites are particularly important as they were inhabited during a period of rapid change, leading to the beginning of the 16<sup>th</sup> century AD. The differences between Moncks Cave's faunal record and material culture and that from the rest of the site complex within such a tight time frame highlight the rapidity of change in the lifestyles and culture of east coast South Island Māori.

The Redcliffs site complex fits within a group of large South Island river mouth or coastal sites, including Rakaia, Wairau Bar, Waitaki, Clarence, Hurunui, Wakanui, Connolly's Seadown, and Waipara (Orchiston 1974 3.16). Redcliffs is more similar to Wairau Bar than the others in terms of midden and oven distributions, artefact types, vertical stratigraphy, and associated burials. Michael Trotter (1982 93) states that Wairau Bar, Rakaia River Mouth, and Redcliffs show great similarities and "represent the stage of greatest development of Moa-hunter culture in Canterbury and Marlborough", particularly through material culture Types. This statement still stands with the more recent development of the terminology and characteristics of the AEP phase (in replacing 'Moa Hunter'), yet Redcliffs shows much more than the height of the AEP phase. The Redcliffs site complex is unique to this group of coastal sites as it shows a greater continuum through Māori cultural phases, albeit only through a couple of short occupation events, and is not simply AEP or 'Moa Hunter'.

Redcliffs also differs to the South Island site type (typified by the sites listed above) through the presence of organic artefacts and in the length and type of occupation. These South Island sites generally represent longer term or repeat occupations as hamlets or even short term villages, some with specialised activity (such as moa

cooking at Rakaia and Waitaki river mouths), whereas Redcliffs was used as an overwintering camp with few structures due to its short term use.

As an addition to Redcliffs belonging to this site group, the presence of a large variety of organic artefacts provides unique potential in Aotearoa for the further investigation of the early interactions between the sea, the estuary, the landscape, and people. By being able to study a much broader range of material culture there is greater potential to uncover the biographies of the people living in these areas as well as more specific details about their past stylistic and cultural practices. The variety of knowledge available from the individual archaeological sites of this site complex and from their relationships allows Redcliffs to be considered in multiple ways. This project has provided insights towards the problems in the Redcliffs archaeological record and past efforts (or lack of) in museum curation and has evidenced the ability of a museum collection to communicate knowledge and ideas that reveal what life was like in Aotearoa c. 700 years ago, despite the lack of detailed provenance and stratigraphic records. This thesis has achieved this by considering regional settlement patterns, the historical background, and environmental and geomorphological contexts for the Redcliffs site complex material culture. Orchiston (1974 3) states:

“the most all-embracing prehistoric study is one in which artefactual, ecological and settlement data are synthesised”.

Due to the scale of the Redcliffs site complex most of these factors were touched upon in this thesis, but not in great detail. I would suggest the addition of mātauranga Māori (traditional knowledge) to this list in order to provide an alternative context to the collection which will relate better to modern uses and values of the collection. For an in-depth interpretation and understanding of Māori history in Redcliffs it is important that more focused investigations take place. Despite not having provenance information for artefacts, studies can address their stylistic attributes, identify Types, and carry out more detailed analyses on individual artefact classes. New information may also be revealed through a reanalysis of parts of the collection to double check artefact identifications, update descriptions, and check artefact conditions. The entire faunal record also hosts a wealth of information about the economic and subsistence activities of the Redcliffs communities. It will be important to consider why some common estuary birds are missing from the faunal records, the extent that fishing, moa hunting,

and fowling were carried out, and during what seasons the sites were occupied in. A better understanding of the wider Canterbury and South Island settlement during this period of time can be developed by comparing the Redcliffs site complex with nearby sites such as Bromley, Brighton, Panau, Tumbledown Bay, and inland sites and through considering their relationships. This will be helped by a focused study on developing a more accurate chronology of the Redcliffs area, with a focus on identifying the potential for new radiocarbon dates and incorporating evidence from more recent excavations.

This thesis has overall generated two very useful tools, an archaeological history and material culture inventory, which make the future study of the Redcliffs site complex more approachable. The acknowledgement of the extent and potential of the Redcliffs site complex's material culture reiterates the significance of the museum collection and the importance for future work to be undertaken. This thesis also suggested an extension to the site extent or area which has implications for identifying areas of potential for future archaeological excavations. In conclusion, the placing of Redcliffs material culture within its environmental and geomorphological landscapes has revealed that the people living in Redcliffs had a close relationship to the sea and were flexible within a highly changeable environment leading up to the Transitional phase of Māori culture. By providing a platform for any future research on Redcliffs this thesis aims to regenerate interest in the Redcliffs site complex and promote a more productive future for the Redcliffs collections in Canterbury Museum.

## References

- Anderson, A. 1983. *When All the Moa Ovens Grew Cold*. Dunedin, N.Z.: Otago Heritage Books.
- Anderson, A. 1989a. The Last Archipelago: 1000 years of Maori Settlement in New Zealand. In: Green, D. (ed) *Towards 1990: seven leading historians examine significant aspects of New Zealand history*. Wellington, N. Z.: GP Books. 1-19.
- Anderson, A. 1989b. *Prodigious Birds: Moas and Moa-hunting in Pre-historic New Zealand*. Cambridge, England: Cambridge University Press.
- Anderson, A. 1991. The chronology of colonization in New Zealand. *Antiquity*, 65: 767-95.
- Anderson, A., Allingham, B. & Smith, I. 1996. *Shag River Mouth: The Archaeology of an Early Southern Maori Village*. Canberra: ANH Publications, RSPAS, The Australian National University.
- Anderson, A. & Smith, I. 1996. The Transient Village in Southern New Zealand. *World Archaeology*, 27: 359-71.
- Barber, I. 1995. Constructions of Change: a History of Early Maori Cultural Sequences. *The Journal of the Polynesian Society*, 104: 357-96.
- Beattie, H. 1994. *Traditional Lifeways of the Southern Maori : the Otago University Museum ethnological project, 1920*. Dunedin, N.Z.: University of Otago Press in association with Otago Museum.
- Brailsford, B. 1981. *The Tattooed Land: the Southern Frontiers of the Pa Maori*. Wellington, N.Z.: Reed.
- Brooks, E., Jacomb, C. & Walter, R. 2009. Archaeological Investigations at Wairau Bar. *Archaeology in New Zealand*, 52: 259-68.
- Brooks, E., Walter, R. & Jacomb, C. 2011. History of Excavations at Wairau Bar. *Records of the Canterbury Museum*, 25: 13-58.
- Bulmer, S. 1989. Gardens in the South: diversity and change in prehistoric Maori agriculture. In: Harris, D. & G. Hillman (eds) *Foraging and farming: the evolution of plant exploitation*. London: Unwin Hyman. 688-705.
- Burrage, S. & Norris, B. 2007. Canterbury Museum Archaeological Society (CMAS) History. *Canterbury Museum Archaeological Field Collections, Related Documents*. Unpublished Manuscript.
- Canterbury Museum 1961. *Ethnology Register No.5*. Ethnology Registers, Canterbury Museum.

- Canterbury Museum 1969. Redcliffs Salvage Dig. Archaeological Society Records. Box 2/2. Miscellaneous CMAS Records. File 2004.40.429.
- Canterbury Museum 1973-1977. *Ethnology Register No.10*. Ethnology Registers, Canterbury Museum.
- Carter, M. 2012. 198 Main Road, Redcliffs, Christchurch: Report on Archaeological Monitoring. *Unpublished Report for Faulks Investment Ltd.*, 1-5.
- Carter, M. 2013. 98 Beachville Road, Redcliffs: Report on Archaeological Monitoring. *Unpublished Report for Jamon Trust*, 1-6.
- Challis, A. 1992. *A Review of Archaeological Site Records for the Canterbury Region*. Wellington, N.Z.: Department of Conservation.
- Challis, A. 1995. *Ka Pakihi Whakatekateka O Waitaha: the archaeology of Canterbury in Maori times*. Wellington, N.Z.: Department of Conservation.
- Cox, J. & Mead, C. 1963. Soil evidence relating to post-glacial climate on the Canterbury Plains. *Proceedings of the New Zealand Ecological Society*, 10: 28-38.
- Crosby, A. 2004. Ritual. In: Furey, L. & S. Holdaway (eds) *Change Through Time. 50 Years of New Zealand Archaeology*. Auckland, N. Z.: New Zealand Archaeological Association. 105-23.
- Davidson, J. 1984. *The Prehistory of New Zealand*. Auckland, N.Z.: Longman Paul Ltd.
- Davidson, J. 1994. The Eastern Polynesian Origins of the New Zealand Archaic. In: Sutton, D. (ed) *The Origins of the First New Zealanders*. Auckland, N. Z.: Auckland University Press. 208-19.
- Dawson, E. & Yaldwyn, J. 1975. Appendix Two: Excavations and Faunal Remains at Hamilton's and Adjacent Properties, Redcliffs, 1956-1948. *Records of the Canterbury Museum*, 9: 214-18.
- Duff, R. 1938-1941. *Field Book No.1 April 1938-May1941*. Canterbury Museum, Canterbury Museum Records. Box 16. Catalogue No.48.
- Duff, R. 1955-1958. *Field Book Miscellaneous 1955-1958*. Canterbury Museum, Canterbury Museum Records. Box 19. File 70.
- Duff, R. 1956. *The evolution of Polynesian culture in New Zealand : moa-hunters, Maoris, Morioris*. Wellington:
- Duff, R. 1956-1958. *Field Book No.4 Nov 1956-Jan1958*. Canterbury Museum, Canterbury Museum Records. Box 16. Catalogue No.52.
- Duff, R. 1958a. *Field Book No.5 Jan 1958*. Canterbury Museum, Canterbury Museum Records. Box 16. Catalogue No.53.

- Duff, R. 1958b. *Field Book No.6 1958*. Canterbury Museum, Canterbury Museum Records. Box 17. Catalogue No.54.
- Duff, R. 1958-1959. *Field Book No.8 Dec 1958-Mar 1959*. Canterbury Museum, Canterbury Museum Records. Box 167 Catalogue No.56.
- Duff, R. 1959a. *Field Book No.9 Mar 1959-May 1959*. Canterbury Museum, Canterbury Museum Records. Box 17. Catalogue No.57.
- Duff, R. 1959b. *Field Book No.10 May 1959-Oct 1959*. Canterbury Museum, Canterbury Museum Records. Box 17. Catalogue No.59.
- Duff, R. 1959-60. Canterbury Museum Annual Report for the Year 1959-60. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1959-1960. *Field Book No.11 Nov 1959-June 1960*. Canterbury Museum, Canterbury Museum Records. Box 18. Catalogue No.62.
- Duff, R. 1960-62. Canterbury Museum Annual Report for the Years 1960-62. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1962-63. Canterbury Museum Annual Report for the Years 1962-63. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1963. *The Problem of Moa Extinction*. Nelson, N.Z.: Cawthron Institute.
- Duff, R. 1963-64. Canterbury Museum Annual Report for the Year 1963-64. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1965-66. Canterbury Museum Annual Report 1965-1966. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1966-67. Canterbury Museum Annual Report for the Year 1966-67. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1968-69. Canterbury Museum Annual Report for the Year of 1968-69. Canterbury Museum Annual Reports. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1969-71. Canterbury Museum Annual Report 1969-71. Canterbury Museum Annual Report. Christchurch, N. Z.: Canterbury Museum.
- Duff, R. 1977. *The Moa-hunter Period of Maori Culture*. Wellington, N. Z.: E.C. Keating, Government Printer.
- Evison, H. 1993. *Te Wai Pounamu: the Greenstone Island: a history of the southern Maori during the European colonization of New Zealand*. Christchurch, N.Z.: Aoraki Press in association with the Ngai Tahu Maori Trust Board & Te Runanganui o Tahu.

- Fankhauser, B. 1986. Archaeometric Studies of Cordyline (ti) based on Ethnobotanical and Archaeological Research. Ph.D. Thesis, University of Otago, Otago, N. Z.
- Fankhauser, B. 1992. Radiocarbon Dates for Umu Ti from South Canterbury: Discussion of Dates and Early Settlement of the South Island. *Archaeology in New Zealand*, 35: 27-39.
- Fomison, T. 1958. Rockshelters S84/68 Site Report. *New Zealand Archaeological Association*,
- Fomison, T. 1964. Sumner Burial Ground Site Report S84.69. *New Zealand Archaeological Association*,
- Forbes, H.O. 1890. Note on the Disappearance of the Moa. *Transactions and Proceedings of the New Zealand Institute*, 23: 373-75.
- Freeborn, J. 1972. *Local News: Moa Bone Point Cave*. Canterbury Museum Archaeological Society Records. Box 2/2. CMAS Newsletters and Documents. File Copy 2007.142.33.
- Furey, L. 2002. *Houhora: a fourteenth century Maori village in Northland*. Auckland, N.Z.: Auckland War Memorial Museum.
- Furey, L. 2004. Material Culture. In: Furey, L. & S. Holdaway (eds) *Change Through Time: 50 Years of New Zealand Archaeology*. Auckland, N. Z.: New Zealand Archaeological Association. 29-54.
- Fyfe, R. 2008. *Rediscovering Two Tetere Flax Trumpets in Canterbury Museum*. Aotahi School of Maori and Indigenous Studies, Christchurch, N.Z.
- Golson, J. 1955. Dating New Zealand's Prehistory. *The Journal of the Polynesian Society*, 64: 113-36.
- Golson, J. 1959. *Culture Change in Prehistoric New Zealand*. New Plymouth, N. Z.: Thomas Avery and Sons Ltd. 29-74 p.
- Green, R. 1975. Adaptation and Change in Maori Culture. In: Kuschel, G. (ed) *Biogeography and Ecology in New Zealand*. Dordrecht: Springer Netherlands. 591-641.
- Green, R. & Shawcross, W. 1962. The cultural sequence of the Auckland Province. *New Zealand Archaeological Association Newsletter*, 54: 210-20.
- Griffiths, R. 1958. *Excavation at Moa-Bone Point Cave*. Canterbury Museum Archaeological Society Records. Box 1/2. Folder GRP6. File Copy 2004.40.213.
- Groube, L. 1968. Research in New Zealand Since 1956. In: Yawate, I. & Y. Sinoto (eds) *Prehistoric culture in Oceania: a symposium*. Honolulu, Hawaii.: Bishop Museum Press. 141-49.

- Haast, H. 1948. *The Life and Times of Sir Julius von Haast*. New Plymouth: Avery.
- Haast, J. 1871. Moas and Moa Hunting. *Transactions and Proceedings of the New Zealand Institute*, 4: 66-107.
- Haast, J. 1874a. Notes on an ancient Native Burial Place near the Moa-bone Point, Sumner. *Transactions and Proceedings of the New Zealand Institute*, 7: 86-91.
- Haast, J. 1874b. Researches and Excavations Carried on in and near the Moa-bone Point Cave, Sumner Road, in the Year 1872. *Transactions and Proceedings of the New Zealand Institute*, 7: 54-85.
- Hamel, J. 2001. *The Archaeology of Otago*. Wellington, N.Z.: Dept. of Conservation.
- Hamilton, A. 1908. Fishing and Sea-Foods of the Ancient Maori. Dominion Museum Bulletin No.2, J. Mackay, Government Printer. Wellington, N.Z.
- Hansard, W. 1849. Voyage of the Acheron, Part 3. *Hocken Manuscript*. Vol.157, Hocken Library, Dunedin, N. Z.
- Harrowfield, D. 1969. A Study of the Types and Distribution of Archaeological Sites on Bank Peninsula, Canterbury. *New Zealand Archaeological Association Newsletter*, 12: 94-102.
- Hercus, A. 1948. A city built upon a swamp : the story of the drainage of Christchurch, 1850-1903 : with epilogue 1903-1936. Christchurch Drainage Board, University of Canterbury, New Zealand, Christchurch, N.Z.
- Higham, T., Anderson, A. & Jacomb, C. 1999. Dating the first New Zealanders: the chronology of Wairau Bar. *Antiquity* 73: 420-27.
- Higham, T. & Hogg, A. 1997. Evidence for Late Polynesian Colonisation of New Zealand. *Radiocarbon* 39: 149-92.
- Higham, T. & Jones, M. 2004. Chronology and Settlement. In: Furey, L. & S. Holdaway (eds) *Change Through Time: 50 Years of New Zealand Archaeology*. Auckland, N. Z.: New Zealand Archaeological Association. 215-34.
- Hjarno, J. 1967. *Maori Fish-Hooks in Southern New Zealand*. Dunedin, N.Z.: Otago Museum Trust Board.
- Holdaway, R., Allentoft, M., Jacomb, C., Oskam, C., Beavan, N. & Bunce, M. 2014. An extremely low-density human population exterminated New Zealand moa. *Nature Communications*, 5: 1-8.
- Holdaway, R. & Jacomb, C. 2000. Rapid Extinction of the Moas (Aves: Dinorthiformes): Model, Test and Implications. *Science*, 287: 2250-54.
- Irwin, G. 2004. *Kohika: the archaeology of a late Maori lake village in the Ngati Awa rohe, Bay of Plenty, New Zealand*. Auckland, N. Z.: Auckland University Press.

- Jacomb, C. 1995. Panau, Periodisation, and Northeast South Island Prehistory. Master of Arts, Department of Anthropology, University of Otago, Dunedin, N. Z.
- Jacomb, C. 1998a. *Field Book One*. Canterbury Museum, Archaeological Related Material.
- Jacomb, C. 1998b. *Field Book Two*. Canterbury Museum, Archaeological Related Material.
- Jacomb, C. 2004. Excavations at Moncks Cave. Report to the New Zealand Historic Places Trust.
- Jacomb, C. 2008. The Chronology of Moncks Cave, Canterbury, New Zealand. *Records of the Canterbury Museum*, 22: 45-56.
- Jacomb, C. 2009a. Excavations and Chronology at the Redcliffs Flat Site, Canterbury, New Zealand. *Records of the Canterbury Museum*, 23: 15-30.
- Jacomb, C. 2009b. Excavations at 27 Main Rd, Redcliffs. Report to the New Zealand Historic Places Trust.
- Jacomb, C., Walter, R., Easdale, S., Johns, D., O'Connell, D., Witter, D. & Witter, A. 2004. A 15th Century Maori Textile Fragment from Kaitorete Spit, Canterbury, and the Evolution of Maori Weaving. *The Journal of the Polynesian Society*, 113: 291-96.
- Jones, A. 1962. Sites on the North-East Coast of Banks Peninsula. *New Zealand Archaeological Association Newsletter*, 5: 112-16.
- Junior Digest 1958. Digging into the Past. *March 1st 1958*, 35-38
- Kinaston, R., Walter, R., Jacomb, C., Brooks, E., Tayles, N., Halcrow, S., Stirling, C., Reid, M., Gray, A., Spinks, J., Shaw, B., Fyfe, R. & Buckley, H. 2013. The First New Zealanders: Patterns of Diet and Mobility Revealed through Isotope Analysis. *PLoS One*, 8: e64580.
- Kirch, P. 1986. Rethinking East Polynesian Prehistory. *The Journal of the Polynesian Society*, 95: 9-40.
- Kurmann, S. & Cable, N. 2013. 44 Main Road, Mt Pleasant, Christchurch: Archaeological Monitoring Report. Report on Archaeological Monitoring. Unpublished report for Opus International Consultants Ltd, Christchurch. 1-31 p.
- Leach, H. 1969. *Subsistence Patterns in Prehistoric New Zealand: a consideration of the implications of seasonal and regional variability of food resources for the study of prehistoric economies*. Dunedin, N.Z.: Anthropology Dept., University of Otago.

- Leach, H. 1972. *A Hundred Years of Otago Archaeology: A Critical Review*. Otago Museum Trust Board, Dunedin, N. Z.
- Lockerbie, L. 1959. From Moa-Hunter to Classic Maori in Southern New Zealand. In: Freeman, J. & W. Geddes (eds) *Anthropology of the South Seas: Essays Presented to HD Skinner*. New Plymouth, N. Z.: Thomas Avery & Sons Ltd. 75-110.
- Macpherson, J. 1978. Environmental Geology of the Avon-Heathcote Estuary. PhD, University of Canterbury, Christchurch, N. Z.
- Macpherson, J. 1979. Response to Urbanisation of the Avon-Heathcote Estuary, Christchurch, New Zealand. *Environmental Geology*, 3: 23-27.
- McFadgen, B. 2007. *Hostile shores : catastrophic events in prehistoric New Zealand and their impact on Māori coastal communities*. Auckland, N.Z.: Auckland University Press.
- McFadgen, B. & Goff, J. 2005. An earth systems approach to understanding the tectonic and cultural landscapes of linked marine embayments: Avon-Heathcote Estuary (Ihutai) and Lake Ellesmere (Waihora), New Zealand. *Journal of Quaternary Science*, 20: 227-37.
- McKay, A. 1874. On the Identity of the Moa-hunters with the present Maori Race. *Transactions and Proceedings of the New Zealand Institute*, 7: 98-105.
- Meeson, J. 1889. The Newly-opened Cave near Sumner. *Transactions and Proceedings of the New Zealand Institute*, 22: 64-70.
- Ogilvie, G. 1978. *The Port Hills of Christchurch*. Wellington, N.Z.: A.H. & A.W. Reed Ltd.
- Orchiston, D. 1974. Studies in South Island, New Zealand, Prehistory and Protohistory. Ph.D. Thesis, University of Sydney,
- Petchey, F. 1999. New Zealand bone dating revisited: a radiocarbon discard protocol for bone. *New Zealand Journal of Archaeology*, 19: 81-124.
- Reed, A. 2002. *Taonga Tuku Iho: Illustrated Encyclopedia of Traditional Maori Life*. Auckland, N.Z.: New Holland Publishers Ltd.
- Schmidt, M. 1996. The Commencement of Pa Construction in New Zealand Prehistory. *The Journal of the Polynesian Society*, 105: 441-60.
- Schmidt, M. & Higham, T. 1998. Sources of New Zealand's East Polynesian Culture Revisited: The Radiocarbon Chronology of the Tairua Archaeological Site, New Zealand. *The Journal of the Polynesian Society*, 107: 395-403.
- Scott, E. 1963. *Christchurch data : notes and comments on the Christchurch drainage and sewerage systems*. Christchurch, N.Z.: Christchurch Drainage Board.

- Shawcross, W. 1964. An Archaeological Assemblage of Maori Combs. *Journal of the Polynesian Society*, 73: 382-98.
- Sheppard, P. 2004. Moving Stones: comments on the archaeology of spatial interaction in New Zealand. In: Furey, L. & S. Holdaway (eds) *Change Through Time: 50 Years of New Zealand Archaeology*. Auckland, N. Z.: New Zealand Archaeological Association.
- Shipton, C., Weisler, M., Jacomb, C., Clarkson, C. & Walter, R. 2016. A morphometric reassessment of Roger Duff's Polynesian adze typology. *Journal of Archaeological Science: Reports*, 6: 361-75.
- Skinner, H. 1921. Culture Areas in New Zealand. *The Journal of the Polynesian Society*, 30: 71-78.
- Skinner, H. 1923. Archaeology of Canterbury. Moa-bone Point Cave. *Records of the Canterbury Museum*, 2: 93-104.
- Skinner, H.D. 1924. Archaeology of Canterbury. II Monck's Cave. *Records of the Canterbury Museum*, 2: 151-62.
- Smith, I. 1999. Settlement permanence and function at Pleasant River Mouth, East Otago. *New Zealand Journal of Archaeology*, 19: 27-79.
- Smith, I. 2005. Retreat and resilience: fur seals and human settlement in New Zealand. In: Moncks, G. (ed) *The Exploitation and Cultural Importance of Sea Mammals*. Oxford: Oxbow Books. 6-18.
- Sutton, D. 1987. A Paradigmatic Shift in Polynesian Prehistory: implications for New Zealand. *New Zealand Journal of Archaeology*, 9: 135-55.
- Taylor, W. 1952. *Lore and History of the South Island Māori*. Christchurch, N.Z.: Bascands Ltd.
- The Press 1957. Remains of Moa Hunter Village at Redcliffs. *The Press*, unknown page(s)
- Torlesse, C. 1851. Report on the Canterbury Block. *The Lyttelton Times*, 5 July 1851, 7
- Trotter, M. 1958. *Field Book*. Canterbury Museum, Archaeological Related Material.
- Trotter, M. 1967. Investigations of a Moa Hunter site at Redcliffs, Sumner. *Records of the Canterbury Museum*, 8: 251-55.
- Trotter, M. 1968-71. *Field Book No.9*. Canterbury Museum, Archaeological Related Material.
- Trotter, M. 1969a. *Redcliffs Salvage*. Canterbury Museum Archaeological Society Records. Box 1/2. Folder GRP6. File Copy 2004.40.196.

- Trotter, M. 1969b. *Redcliffs School Salvage*. Canterbury Museum Archaeological Society Records. Box 1/2. Folder GRP6. File Copy 2004.40.194.
- Trotter, M. 1971. *Field Book No.12*. Canterbury Museum, Archaeological Related Material.
- Trotter, M. 1975. Archaeological Investigations at Redcliffs, Canterbury, New Zealand. *Records of the Canterbury Museum*, 9: 189-220.
- Trotter, M. 1982. Canterbury and Malborough. In: Prickett, N. (ed) *The First Thousand Years: Regional Perspectives in New Zealand Archaeology*. Palmerston North, N. Z.: Dunmore Press. 83-102.
- Trotter, M. 2004. As it Was in the Beginning...A Personal Overview. *Archaeology in New Zealand*, 47: 216-20.
- Trotter, M. Unknown. Site Record Form: S84/118, Monck's Cave. *New Zealand Archaeological Association*,
- Trotter, M. & McCulloch, B. 1971. *Prehistoric Rock Art of New Zealand*. Wellington, N.Z.: A.H. & A.W. Reed Ltd.
- Wadsworth, T. 2015. Sumner Burial Ground Site Summary M36/22 or S84/69. New Zealand Archaeological Association.
- Walter, R. 1994. The Cook Islands-New Zealand Connection. In: Sutton, D. (ed) *The Origins of the First New Zealanders*. Auckland, N. Z.: Auckland University Press. 220-29.
- Walter, R. 2004. New Zealand Archaeology and its Polynesian Connections. In: Furey, L. & S. Holdaway (eds) *Change Through Time: 50 Years of New Zealand Archaeology*. Auckland, N. Z.: New Zealand Archaeological Association. 125-46.
- Walter, R., Smith, I. & Jacomb, C. 2006. Sedentism, subsistence and socio-political organization in prehistoric New Zealand. *World Archaeology*, 38: 274-90.
- Walton, T. 1985. The Distribution and Extent of Quarry Pits Near Kaiapoi, Canterbury. *New Zealand Archaeological Association Newsletter*, 28: 113-15.
- Watson, K. 2003. Site Information M36/21. *New Zealand Archaeological Association*,
- Wilkes, O. 1965. Site Record Form: S84/73, Bromley. New Zealand Archaeological Association.
- Yaldwyn, J. 1975. Appendix Three: Observations on the Mollusca Excavated at Moa-Bone Point Cave. *Records of the Canterbury Museum*, 9: 218-20.
- Yaldwyn, J., Dawson, E. & Davidson, J. 2006. The First Ethical Controversy in New Zealand Archaeology: Joseph Hooker's Confidential Ruling in the Haast V. McKay Case. *Archaeology in New Zealand*, 49: 282-92.

Yen, D. 1961. The Adaptation of Kumara by the New Zealand Maori. *The Journal of the Polynesian Society*, 70: 338-48.

# Appendix A: Material Culture Types for Māori Culture Phases

**Table A.1** Relatively abundant artefact types that class into the three recognised phases of Māori culture (Archaic East Polynesian, Transitional and Classic), particularly from northeast South Island archaeological sites (Golson 1959, Jacomb 1995). Note that several of the ‘Common’ artefacts can be further divided into early and late types based on specific morphology (such as coarse or fine needles, Jacomb 1995, 204) but they do generally appear at sites of each culture phase.

Archaic East Polynesian	Transitional	Classic Māori
<ul style="list-style-type: none"> <li>- Large, quadrangular cross-sectioned adzes, often with a grip, argillite and basalt, some nephrite</li> <li>- Some orthoquartzite blades</li> <li>- Ivory or serpentine, limestone, <i>Dentalium sp.</i> and moa-bone imitation whale tooth ‘reel’ necklaces, whale teeth pendants</li> <li>- Drilled shark teeth</li> <li>- One-piece, mostly unbarbed, stone (sometimes bone or shell) fishhooks</li> <li>- Minnow lures with stone points</li> <li>- Long bird spears with few barbs</li> <li>- Perforated moa eggs</li> </ul>	<ul style="list-style-type: none"> <li>- Disc shaped shell ornaments</li> <li>- Shell one-piece fishhooks and bone composite fishhooks</li> <li>- Unilateral barbed bird spears, notched</li> <li>- Barracouta lures</li> </ul>	<ul style="list-style-type: none"> <li>- Small greywacke, argillite and basalt adzes, often 2A type</li> <li>- Small nephrite chisels, gouges, adzes, neck and ear ornaments and hei tiki</li> <li>- Sperm-Whale bone neck pendants</li> <li>- Two-piece/composite fishhooks and some one-piece fishhooks, often barbed</li> <li>- Barracouta and Kahawai lures</li> <li>- Drilled human teeth</li> <li>- Fishhook or straight needle-like bone pendants</li> <li>- Shell trumpets, combs, imitation human teeth</li> <li>- Ochre working items</li> <li>- Greywacke, whalebone and wooden patu</li> <li>- Notched and barbed bird spears</li> <li>- Sandstone and greywacke cutters</li> </ul>
Common Throughout		
Needles, awls, drill points, flakes/cores, woodworking and tattooing chisels, wooden and bone combs, drilled dog and seal teeth, bird bone bird spears, barracouta lures, round cloak pin, fern-root pounders, 2A adze type, flake adzes, harpoons, pickers.		



Whale Tooth Pendant			1		1					4			4	5
Wood Bead			1		1									1
Worked Stone						1	1							1
<b>Grand Total</b>	<b>7</b>	<b>6</b>	<b>25</b>	<b>2</b>	<b>40</b>	<b>17</b>	<b>17</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>5</b>	<b>18</b>	<b>75</b>

Count of Organic and Composite Artefacts	Excavation Event by Site									
	MBPC				MBPC Total	MC	MC Total	RF	RF Total	Total
Artefact Types	A	B	C	Fossicked		V		T		
Awl			1		1					1
Bedding			6		6					6
Bird Skin Bag with Composite Fishhooks and Wooden Toggle										
Bird Spear Point			4		4					4
Bird Spear Shaft						2	2			2
Bowl	1				1	1	1			2
Bowl Fragment	7		3		10					10
Bowl Lug	1				1	1	1			2
Canoe Bailer						2	2			2
Canoe Outrigger						1	1			1
Canoe Patch			1		1					1
Canoe Piece	1				1					1
Canoe Pin	1				1					1
Canoe Plug	3				3					3
Carved Dog						1	1			1

Carved Human Head			1		1	1	1		2
Charred Wood			1		1				1
Chisel Handle	1				1				1
Circular "Eye" of Shell			1		1				1
Composite Fishhook Shank	2		8		10	1	1		11
Cord		4	11		15	16	16		31
Dart Head		2	3		5	1	1		6
Dog Hair						1	1		1
Feathers						21	21		21
Fire Bed	6	1	2		9	4	4		13
Fire Plough	5	1	2		8	8	8		16
Fire Stick	1	1	12		14				14
Fish Bone and Wood Item			1		1				1
Fishing Line			1		1	1	1		2
Flax Basket		2			2				2
Flax Coil		1	3		4	2	2		6
Flax Knot		4	16		20				20
Flax Knot with Guide			1		1				1
Gourd Fragment			2		2				2
Haft	1		1		2				2
Handle			1		1				1
Hapuku Fishhook Shank						1	1		1
Human Hair Lock		1	8		9	5	5		14
Lugged Bowl Fragment			4		4				4
Mallet						1	1		1
Matting			1		1	1	1		2
Matting Fragment			4		4	1	1		5

Model Canoe						1	1			1
Model Paddle						1	1			1
Net	1				1	1	1			2
Net Fragment			2		2					2
Net Needle			1		1					1
Net with Pumice Float	1				1					1
Paddle						1	1			1
Paddle Blade			1		1					1
Paddle Head						1	1			1
Parrot Stand	2				2					2
Paua Knife	1				1					1
Paua Shell	3	10	1		14	5	5			19
Paua Shell with Flax Loop			1		1					1
Peg			5		5					5
Pile	1				1					1
Plaited Flax			2		2					2
Plaited Rope			1		1					1
Plant Fragment			10		10	1	1			11
Points Lashed Together	6				6					6
Post			1		1					1
Post Butt			5		5	1	1			6
Pounder	5				5	2	2			7
Pounder Butt			1		1					1
Pounder Fragment			3		3					3
Pounder Grip			1		1					1
Pounder Handle			2		2					2
Sandal	3	1	3		7	3	3			10

Sandal Fragment		1			1	1	1			2
Shaft	1				1					1
Shell Button			1		1					1
Spar End						2	2			2
Spatula			1		1					1
Spear	6				6					6
Spear Point						2	2			2
Spear Shaft	1				1					1
Stake			1		1					1
Tab			2		2					2
Taiaha or Pou Whenua						1	1			1
Textile			4		4					4
Textile Bag	1		1		2					2
Textile Fragment			1		1					1
Textile Mat			2		2					2
Toy Mallet			1		1					1
Unworked Shell			3		3			1	1	4
Unworked Wood	7		24		31					31
Wooden Blade			1		1					1
Wooden Point			5		5	1	1			6
Worked Gourd Fragment			2		2					2
Worked Shell			5		5					5
Worked Stick to Keep Net Open	1				1					1
Worked Wood	7	14	60	1	82	18	18			100
Worked Wood, ochre stained			1		1					1
Composite Fishhook Shank Preform			1		1					1

Barracouta Fishhook Shank	1				1	3	3			4
Hapuku Fishhook	4				4					4
<b>Grand Total</b>	<b>82</b>	<b>43</b>	<b>255</b>	<b>1</b>	<b>381</b>	<b>118</b>	<b>118</b>	<b>1</b>	<b>1</b>	<b>500</b>





Unworked Bone		3	3			6												6
Winkle Picker	2					2												2
Worked Bone	1	4	25			30	19	19		1	6		1		8			57
<b>Grand Total</b>	<b>5</b>	<b>15</b>	<b>97</b>	<b>1</b>	<b>1</b>	<b>119</b>	<b>115</b>	<b>115</b>	<b>2</b>	<b>2</b>	<b>22</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>32</b>	<b>2</b>	<b>2</b>	<b>268</b>

Count of Stone Tools	Excavation Event by Site																											
	MBPC						MBPC Total	MBPC or RF or SBG	MBPC or RF or SBG Total	MC		MC Total	RF									RF Total	SBG		SBG Total	Grand Total		
Artefact Types	A	B	C	D	Fossicked	Unknown		Fossicked		Fossicked	V		Fossicked	G	H	J	K	K or L	M	N	R	T	Unknown		Fossicked	Unknown		
"Three-Armed" Object																						1	1				1	
"Tri-Back" Worked Stone																1								1				1
Adze	2	12	42		3	3	62	6	6	1	51	52	4		2		13		1				1	21	1	51	52	193
Adze Blade			15		21		36				3	3					17		2					19		1	1	59
Adze Blade Fragment			2				2										3		2					5				7
Adze Butt	2	1	2		1		6	1	1		3	3					16			3				19		1	1	30
Adze Fragment	5	6	51		1		63				2	2			3		23							26		4	4	95
Adze Fragment or															1									1				1







Scraper			5				5									15				2			17				22	
Scraper or "hand axe"														1									1				1	
Scraper or Cleaver																	1						1				1	
Scraper, ochre stained			1				1																				1	
Sharpener																1							1				1	
Sinker		1	2		1		4			4	4					1						1			2		10	
Sinker preform		1					1																				1	
Stopper																						1		1			1	
Tool Preform														1										1			1	
Unidentified Tool													5	2									7	1		1	8	
<b>Grand Total</b>	<b>15</b>	<b>36</b>	<b>259</b>	<b>1</b>	<b>32</b>	<b>8</b>	<b>351</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>95</b>	<b>96</b>	<b>26</b>	<b>5</b>	<b>21</b>	<b>1</b>	<b>193</b>	<b>5</b>	<b>47</b>	<b>10</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>317</b>	<b>2</b>	<b>80</b>	<b>82</b>	<b>853</b>





Count of Unknown Material Artefacts	Excavation Event by Site								
	Moa Bone Point Cave		MBPC Total	Moncks Cave	MC Total	Redcliffs Flat		RF Total	Total
Artefact Types	B	C		V		I	K		
Awl				1	1				1
Barracouta Fishhook Point				4	4				4
Barracouta Fishhook Shank				3	3				3
Bird Spear Tang				1	1				1
Blade of a Weapon				1	1				1
Bowl				1	1				1
Comb Fragment				5	5				5
Composite Fishhook Point		1	1	8	8				9
Composite Fishhook Preform				2	2				2
File						1		1	1
Fishhook Preform				1	1				1
Food Dish		1	1						1
Gouge				1	1				1
Hapuku Hook Point				2	2				2
Harpoon End							1	1	1
Minnow Lure Point				5	5				5
Needle							1	1	1
One Piece Fishhook	1	1	2						2
One Piece Fishhook Shank				1	1		1	1	2
Pounder				2	2				2
<b>Total</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>36</b>	<b>36</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>44</b>

## Appendix C: Redcliffs Site Complex Material Culture Inventory