

Voyaging Within Aotearoa New Zealand: Pre-Contact transport of resources to, from and within Te Tai Tokerau

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ABSTRACT

In certain periods of pre-Contact (pre-AD 1800) times, northern-New Zealand's Te Tai Tokerau was, arguably, as much connected by long-distance waka voyaging to other parts of Aotearoa as had islands of the Hawaiki Zone in the South Pacific been linked to the archipelago of Aotearoa early in its settlement. This korero summarises the evidence by examining transport into Te Tai Tokerau from the south of lithics such as obsidian and argillite, and the transport out of Te Tai Tokerau of lithics, as well as perishables like toheroa (*Paphies ventricosa*). Although it is seldom possible to categorically differentiate direct procurement of resources from long-distance down-the-line exchange, it is clear that early dispersal of bulky or weighty items at any significant scale to locations well-removed from where they naturally occurred would invariably have involved significant oceanic passaging. My results corroborate outstanding voyaging and navigational prowess among early Māori – skills as highly developed as those of any others in the world at the time. Further, there is compelling evidence for discourse between specific, geographically-well-separated 'bubbles' of interacting peoples, but more data are required in order to clarify the detail.

Keywords: early voyaging, Māori, Motutapu greywacke, Nelson/Marlborough argillite, nephrite, Northland gabbro, obsidian, Tahanga basalt, toheroa.

INTRODUCTION

New records, together with advances in secure identification-of-origin of certain resources – particularly lithics – facilitate updates to our understandings around pre-Contact (pre-AD 1800) movements of peoples and their materials within Aotearoa New Zealand. Te Tai Tokerau takes in the north of New Zealand's North Island as far south as the line Kaipara Harbour Mouth-Bream Tail (Figure 1). This in turn is near the political boundary between the northern tribes and those of Tāmaki (Auckland) generally relevant today and in at least the relatively-recent past (e.g. Campbell *et al.* 2018, 2019; Ladefoged *et al.* 2019). For Te Tai Tokerau there has been overview of its archaeological history (e.g. Davidson 1981, 1982, 1984; Maingay 1986; Turner 2000; Campbell *et al.* 2018), as well as more-specific enquiry into the transfer of certain lithics (e.g. Prickett 1989; Moore 2012a,b; Moore & Coster 2015; Ladefoged *et al.* 2019). Examination of the old data, together with those now available, confirms how 1) Te Tai Tokerau was, early on, arguably as much connected by long-distance waka voyaging to other parts of Aotearoa as had islands of the Hawaiki Zone (Cook Islands/French Polynesia) of the South Pacific, about 3500 km northeast, been linked to the archipelago

of Aotearoa early in its settlement; and 2) geographically-well-separated 'bubbles' of often-well-removed interacting peoples appear to have existed within Te Tai Tokerau, and between Te Tai Tokerau and certain peoples to the south. There are, however, too-few dated contexts from which to be sure about the timing, nature and extent of those associations.

Following 'several' return visits from Central East Polynesia that are understood through oral histories to have previously taken place, Aotearoa New Zealand was settled, in the early-AD 1300s, in a broad wave of East-Polynesian migration (Walter *et al.* 2017: 360–362). Several sites in Te Tai Tokerau (many notable ones being in the extreme north) were apparently among the earliest-settled (Davidson 1982: 19). Over the following 500 y, much of northern society transformed from relatively-autonomous village-based groups into larger territorial lineages, later forming large geo-political tribal associations (Ladefoged *et al.* 2019: 1). This transition seems to have coincided temporally with changes in the way adzes were fashioned – particularly for waka construction. From flaking as in Polynesia (using in particular Tahanga basalt from east-coast Coromandel Peninsula and Nelson/Marlborough argillite), it evolved to pecked and polished adzes where a tougher stone like gabbro was required (e.g. Best 1977: 309; Turner 2005: 60). Although not necessarily regionally contemporaneous, it is generally accepted that this change had taken place by 1500 and had affected essentially the entire country (Leach

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Submitted 16/4/21, accepted 22/11/21. First online 22/12/21

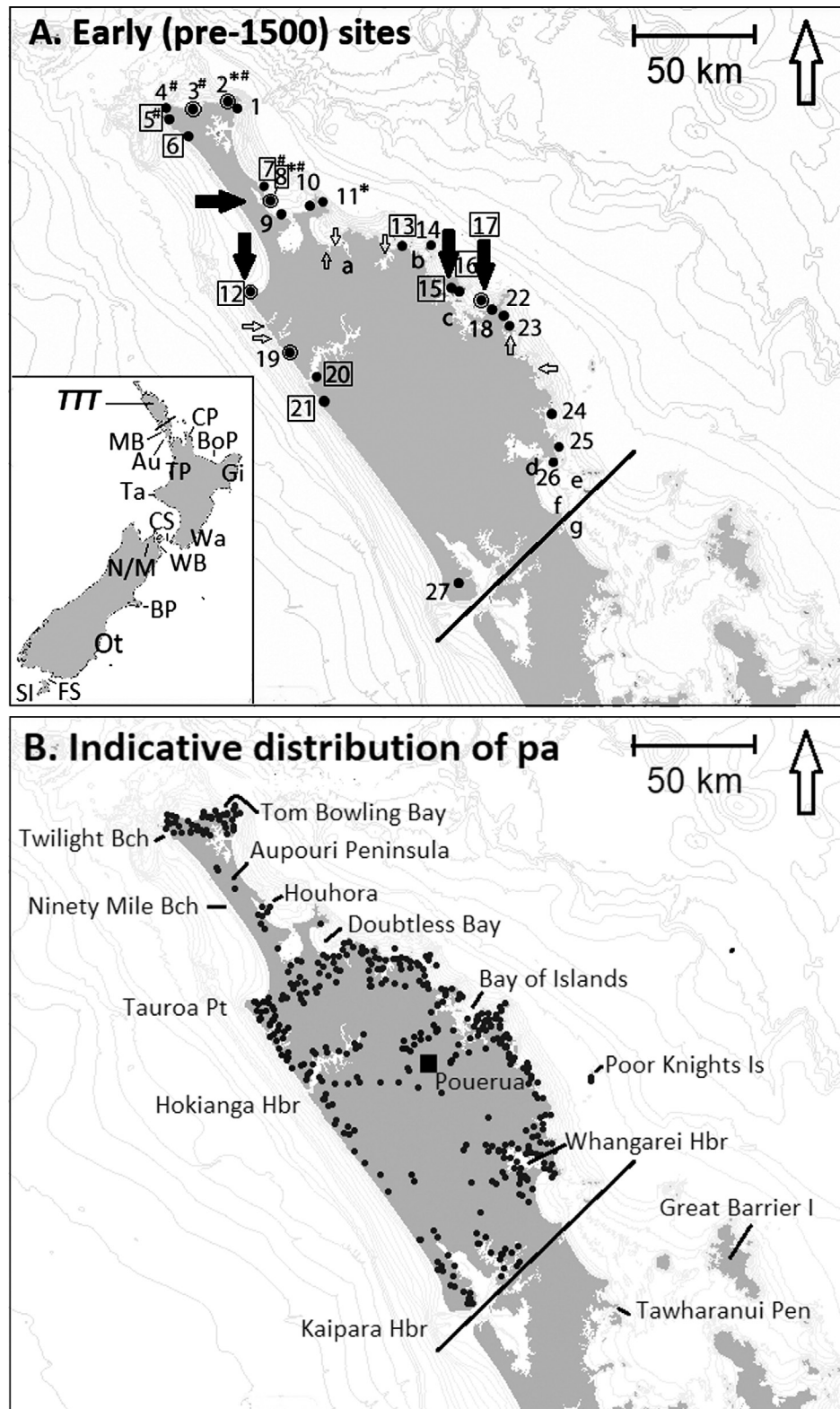


Figure 1. Dated, as well as putative, *Early Sites* – locations with evidence of significant pre-AD 1500 human occupation (filled circles with Arabic numerals, those boxed having been dated) in Te Tai Tokerau, in northern-New Zealand (see Appendix 1 [SM] for details). Those I considered many years (even a few generations) are circled; #, ‘Archaic’ site according to Davidson (1982: 19); *, ‘Moa-hunting site’ according to Anderson (1989: 111). Also shown (alphabetically) are sites of early occupation based on the New Zealand Radiocarbon Database, although none had information concerning scale or persistence: Mangonui (a) (WK1374), Mahinepua (b) (NZ6977), Waitangi (c) (Wk2773), Marsden Point Beach (d) (NZ1765), Taranga (Hen I.)

(e) (NZ4528), Mangawhero Hd (f) (NZ0392) and Mangawhai (g); several others were not included because of insufficient supporting other-evidence of significant age. Open arrows show sites additional to those of Turner (2000: 336–41) where early occupation was indicated, and filled arrows show the key dated sites. Au, Auckland; BP, Banks Peninsula; BoP, Bay of Plenty; CP, Coromandel Peninsula; FS, Foveaux Strait; Gi, Gisborne; MB, Muriwai Beach; N/M, Nelson/Marlborough; Ot, Otago; SI, Stewart Island; Ta, Taranaki; TP, Tirua Point; TTT, Te Tai Tokerau; Wa, Wairarapa; WB, Wairau Bar (A, with inset showing the location of Te Tai Tokerau, as well as places mentioned in the text). Distribution of pā in Te Tai Tokerau (<https://data.linz.govt.nz/layer/50308-nz-pa-points-topo-150k/>), and other places mentioned in the text (B).

1994: 248). It seemingly coincided with – even helped bring about – much-less long-distance voyaging on ocean-going sailing waka (double-hulled ‘waka hourua’; Hornell 1936: 195). Burgeoning populations around the motu after 1500 meant greater opportunity for land/river transport, with the role of long-distance acquisition/delivery becoming much-more difficult to distinguish from down-the-line transfer (e.g. Walter 1988; Scott 2007).

Significant alongshore voyaging early in Polynesian settlement is evidenced along essentially the entire east coast of the country, and within Te Tai Tokerau in particular, in the presence of lithics well beyond where they naturally occur, and even in the probable long-distance transfer of certain perishables (e.g. Davidson 1984; Ross *et al.* 2018). In Aotearoa New Zealand – like many other parts of the world – obsidian was key to initial understandings around human movements. In the first synoptic study of obsidian dispersal over time, Seelenfreund & Bollong (1989: 181–184) suggested that Mayor Island obsidian typically predominated in early (BP 630 and earlier) sites. In the mid-period (BP 630–350), the proportion from other sources became marked, replaced in the north by more-local obsidians; and then the predominance of Mayor Island obsidian disappeared altogether.

With new material and analyses at hand, such overarching models of lithic-acquisition and -dispersal are being increasingly reassessed at a more-fine-scale level, with growing evidence for the development and persistence of certain specific connections – some long-distance. This applied not only to obsidians (e.g. McCoy & Robles 2016: 285–286; Ladefoged *et al.* 2019), but to other lithics too (e.g. Campbell *et al.* 2018, 2019; Kneebone & McAlister 2019). Indeed, in what may apply broadly, the formation and maintenance of large tribal associations in northern-North Island possibly meant social considerations based on whakapapa (genealogy, with connections to the landscape too) became at least as important (e.g. Ladefoged *et al.* 2019: 1, 22), with distance and travel time between sites of occupation and lithic sources no longer necessarily being defining in source selection.

This contribution evaluates the role of voyaging in the pre-Contact transfer of resources to and from Te Tai Tokerau. It is based mainly on stone artefacts (many reliably provenanced using X-ray fluorescence [XRF]), but also on certain perishables, and corroborates outstanding voyaging and navigational prowess among early Māori within Aotearoa New Zealand that was at-least comparable

with that of the first colonisers of the country. It also points to discourse between certain specific, geographically-well-separated bubbles of networking peoples. Further, my analysis retains focus on Aotearoa New Zealand’s recent celebration of the navigational and seafaring achievements of early-Polynesians (and early-Europeans too) to and within New Zealand – much of it long-distance – underpinning the 2019 Tuia 250 activities. It broadens earlier archaeological reviews of Te Tai Tokerau by not only summarising the evidence for transport of resources, but also signposting precisely the source documentation and associated era information – detail that had not always been provided. Finally, with its focus on publications and reports rather than museum collections, this review should be seen as mahi in progress, to be supplemented as further artefact assemblages are formally reported, and more old records are added and new ones appear.

METHODS

Human-mediated dispersal of lithics and non-lithics into and out of Te Tai Tokerau was addressed by tracking down supportive evidence in published and other publicly-available documents.

Identification and source-assignment of lithics

Persistence in the landscape means rock invariably provides among the most obvious, enduring and reliable evidence of human-mediated transfer. It had wide use, in adzes and chisels, hammerstones, grinders, rasps, sanders, cutters and scrapers, saws and drill points – but also in ornamentation (particularly nephrite and kokowai [red ochre]) and in fishing-lure shanks. But of these only obsidian (used mainly to cut and scrape), and well-studied rocks used in tools like adzes/chisels (particularly argillite and basalt), are examined here in any detail.

Te Tai Tokerau was generally well supplied with obsidian (Moore 2012a) and basalts (Best 1977), including stone that fractured cleanly as was required in early-style adze manufacture (e.g. Turner 2005: 60). Nevertheless, obsidian from several southern sources, argillite from the D’Urville Island-Dun Mountain mineral belt (Walls 1974), and Tahanga basalt from eastern-Coromandel Peninsula (Moore 1975), are found in Te Tai Tokerau. The argillite and basalt occur in early sites in particular, typically as adze preforms or whole or broken-down finished items,

rather than as raw blocks or their flakes (Prickett 1989; Turner 2000, 2005). Another early-used adze-making stone, Motutapu greywacke, came from near Auckland (Davidson 1981:111). Nephrite came from the South Island, mainly in later times (e.g. Davidson 1981:112). Other lithic imports included Kuaotuna (Coromandel) siliceous sinter (Best 1977:318), Taranaki argillite, and (possibly Wairarapa) silicified limestone (Turner 2005:60) – but these were at small-scale and are not further considered in any detail. Finally, locally-sourced gabbro was used not only in the vicinity, but was exported too (Best 1977:323–325).

In this essentially desk-top study data were gleaned not only from the published literature, but also from consultant-archaeologist reports available on Heritage New Zealand's Archaeological Reports Digital Library (ARDL, at 13 September 2020) using the geographic and lithic-specific search terms *Barrier*, *Cooks*, *Coromandel*, *Fanal*, *Hahei*, *Huruiki*, *Kaeo*, *Knights*, *Mayor*, *Motutapu*, *Pungaere*, *Tahanga*, *Tairua*, and *Taupō*; and *argillite*, *basalt*, *gabbro*, *greenstone*, *greywacke* and *nephrite*. Also, the New Zealand Radiocarbon Database (NZRD) was examined (31 October 2020) for dates of human occupation associated with middens. Although presence of foreign lithics within a temporal context might better be considered in terms of mass of material, state of reduction, etcetera, presence/absence is the primary basis here, as in comparable studies (e.g. Ladefoged *et al.* 2019:8), irrespective of sample size. For each lithic, maps show reported occurrences, the details of which appear in the appendices in the Supplementary Material (SM).

Thresholds-of-acceptability of source assignments differed. For obsidian, only XRF determinations (Sheppard *et al.* 2011:48–49; McAlister 2019:133–136; McCoy *et al.* 2019:1) were accepted. (Ironically, the near-universal Mayor-Island obsidian – often presumed distinctive-enough not to require confirmation by XRF – tends to be underrepresented in northern XRF datasets.) In their early key, synoptic XRF study, Seelenfreund & Bollong (1989:178–183) could not allocate all obsidians to particular locations, there being a grouping of 'Northland' obsidian (Pungaere/Kaeo or Huruiki) (see Figure 3, Appendix 3). (There were further groupings such as 'Northland or Mayor Island' that are not considered here.) Subsequently, however, McCoy *et al.* (2014:470) resolved precise sources for obsidian from Pouerua, inland from the Bay of Islands.

For most non-obsidian lithics, more-or-less conclusive geochemical techniques that identify different rocks with certainty are at an early stage of development – let alone techniques that reveal with confidence their origins. (Significant exceptions include recent chemical assignments to source of Tahanga basalt and Motutapu greywacke: Phillipps *et al.* 2016; Kneebone & McAlister 2019.) In the apparent absence of anything more definitive, provisional identifications based on hand examination, sometimes backed by thin-section microscopy (e.g. Best 1977:315), reported by acknowledged specialists are accepted here,

they being most useful where labelled and provenanced objects are readily retrievable. Visual identification of nephrite (pounamu, greenstone), irrespective of precise origin, appears, however, to be generally acceptable to archaeologists today.

Dispersal of non-lithics

Current technologies seldom allow identification of the remnants of less-resilient goods, ethnographic accounts instead holding most potential for tracking human-mediated dispersal. Exceptions include the genetic and/or morphological characteristics of certain items (e.g. crops like taro *Colocasia esculenta*, and durable marine commodities such as shark teeth and toheroa [Bivalvia] *Paphies ventricosa* shells). Toheroa have particularly-anomalous spatial and temporal histories (Ross *et al.* 2017, 2018) that – with their genetics – may indicate strategic long-distance transport of live shellfish. There is also evidence for the export of subfossil toheroa shells. Together with published papers, reports on the ARDL website (20 December 2020) containing the search terms *toheroa* plus *midden* (refined by *Territorial Authorities*) and *toheroa* plus *radiocarbon* were examined for midden toheroa revealed within secure temporal contexts. Although small toheroa can be confused with tuatua (northern and southern species, both also *Paphies*), the harvested valves typically found whole in middens rarely present identification problems.

Temporal context

There has been no systematic sampling of temporal contexts within Te Tai Tokerau, datings instead having come from scattered investigations into sites of occupation. The dates provided by authors are taken at face value, enabling allocation of occupations to a particular period. Like other recent investigations (e.g. Walter *et al.* 2010; Anderson 2016; Ladefoged *et al.* 2019), I use AD 1500 as the temporal break between *Early Sites* and later occupations (*Late Sites*), but for a few sites sitting squarely over the break, I use an additional, but sometimes overlapping, *1400–1600 Sites* period.

There are many clearly-*Early Sites* – not necessarily dated – in Te Tai Tokerau, particularly to its north (Figure 1). These include the several 'Archaic' and 'Moa-hunting' locations of Davidson (1982:19) and Anderson (1989:111) respectively, and the fewer ancient sites referred to by Maingay (1986), Turner (2000:396,399 – although yet others were touched on), and Campbell *et al.* (2018:82). The number of these sites is greatly expanded here, they taking in much of coastal Te Tai Tokerau. Occupation was judged to be either multi-year/one or two generations (year-round or seasonal, with stone-tool manufacture; e.g. Houhora), transitory (e.g. Twilight Bay), or unknown (including several NZRD sites). Acceptance here of a site being considered early was based on one or more of the following (Appendix 1 in SM): radiocarbon date; presence of midden (not sub-

fossil) moa bone and/or marine-mammal bone; a broad variety of midden finfish and/or shellfish; and presence of early-style stone or shell artefacts (*sensu* Furey 2004: 38ff). Cook Strait limpets *Cellana denticulata* are typically indicative of early occupation (Rowland 1976) – but not in the mainland's extreme northwest where even today this shellfish persists.

Tracking down all Te Tai Tokerau's post-1500 radiocarbon dates was beyond this contribution. Instead, an indication of spatial occupation was derived from the distribution of pā, primarily a post-1500 societal feature (*e.g.* Schmidt 1996: 449) (Figure 1).

RESULTS

Import and export of lithics

OBSIDIAN

Of ~23 geographically-distinct sources of obsidian (mātā) (McAlister 2019: 132), those found in Te Tai Tokerau, and utilised, were Pungaere/Kaeo and Huruiki (Moore 2012a), and 'Poor Knights' (Robinson 2016). Additionally, several foreign obsidians have been revealed within Te Tai Tokerau.

Pungaere/Kaeo obsidian

The country's northernmost source-cluster of obsidian, near Kaeo, is comprised of the Pungaere and the (apparently-unutilised) Otoroa (Weta) sources (Moore 2012a: 260–263). Pungaere obsidian is referred to here as *Pungaere/Kaeo* to accommodate its frequent but unsatisfactory assignment to the less-specific locator 'Kaeo'.

Pungaere/Kaeo obsidian (Appendix 2) has been found mainly in the northern half of Te Tai Tokerau, and particularly in places close to source (Figure 2A). It has been less-frequently reported near Auckland and as far south as northern-Waikato (but excluding the Coromandel), and also at eastern-South Island localities as far south as Otago (Figure 2E).

Early Sites in Te Tai Tokerau containing this obsidian were only in the far north, and then in just 15% of them (Figures 2B,C); it was also used early along the eastern-South Island seaboard (Figure 2E). In *Late Sites*, Pungaere/Kaeo obsidian was being used more widely within Te Tai Tokerau, particularly along eastern shores (Whangarei north – although apparently not at the Poor Knights Islands), and near Auckland (Figure 2C–E).

An overall interpretation is that there was an early bubble of association between peoples close to source, but also with others along eastern-South Island, including Wairau Bar. Connections later extended to Auckland, but had ceased altogether with the South Island by 1500.

If little or none of the 'Northland' obsidian (*sensu* Seelenfreund & Bollong 1989) is from Pungaere/Kaeo, then the above inferences are little affected. But if most

or all 'Northland' obsidian is from Pungaere/Kaeo, then deductions around lifeways are very different: 1) early long-distance connections not only with west-central North Island, but also with eastern- and southern-South Island; 2) strong mid-period connections with eastern-Coromandel, and continued connections to the broader Cook-Strait area and even as far south as Heaphy River, and with Otago; and 3) later connections with, in particular, the northern-North Island south of Te Tai Tokerau (Figure 3).

Huruiki obsidian

Huruiki obsidian (Appendix 4) is reported mainly from Te Tai Tokerau's southeast, particularly near source; less frequently near Auckland and south to northern-Waikato (including east-Coromandel); and sporadically in south-eastern-North Island and southern-South Island localities (Figure 4A,E).

Huruiki obsidian was rarely reported in *Early Sites* within Te Tai Tokerau, but was present early further south, near Auckland and along the eastern-Coromandel (Figure 4B,C,E). It was also present early in southeastern-North Island, but not further south. In *Late Sites*, Huruiki obsidian was being widely used in southeastern-Te Tai Tokerau (Bay of Islands to Whangarei, including the Poor Knights Islands), and south to Auckland and on eastern-Coromandel (Figure 4C–E).

My interpretation is that Huruiki obsidian was being used (albeit patchily) in ancient times in Auckland and Coromandel, and even in southeastern-North Island – suggesting more-southern bubbles of association compared with those for Pungaere/Kaeo obsidian. Later it was being used mainly near source (but still including Auckland and Coromandel too, suggesting ongoing connection with sites well to the south).

If little or none of Seelenfreund & Bollong's (1989) 'Northland' obsidian is from Huruiki, then the inferences offered above are little affected. But if most or all 'Northland' obsidian is from Huruiki, then the synthesis above for Pungaere/Kaeo obsidian would apply here too.

The Huruiki source lies squarely within the long-established rohe of the mainly-coastal iwi Ngati Wai (Bay of Islands to Tawharanui Peninsula, including offshore islands, and its finding in *Late Sites* (Figure 4D) takes in a significant portion of this rohe. This – with the support that follows below concerning other nearby obsidian sources – raises the possibility of a post-1500 Ngati Wai trading network (*sensu* Walter *et al.* 2010).

'Poor Knights Islands' obsidian

The actual source of 'Poor Knights Islands' obsidian (Appendix 5) is yet to be identified (Robinson 2016: 309). Since it's being revealed as unique, McAlister (2019: 144) suggests that certain-similar obsidians allocated to other nearby sources had possibly, in fact, come from the Poor Knights.

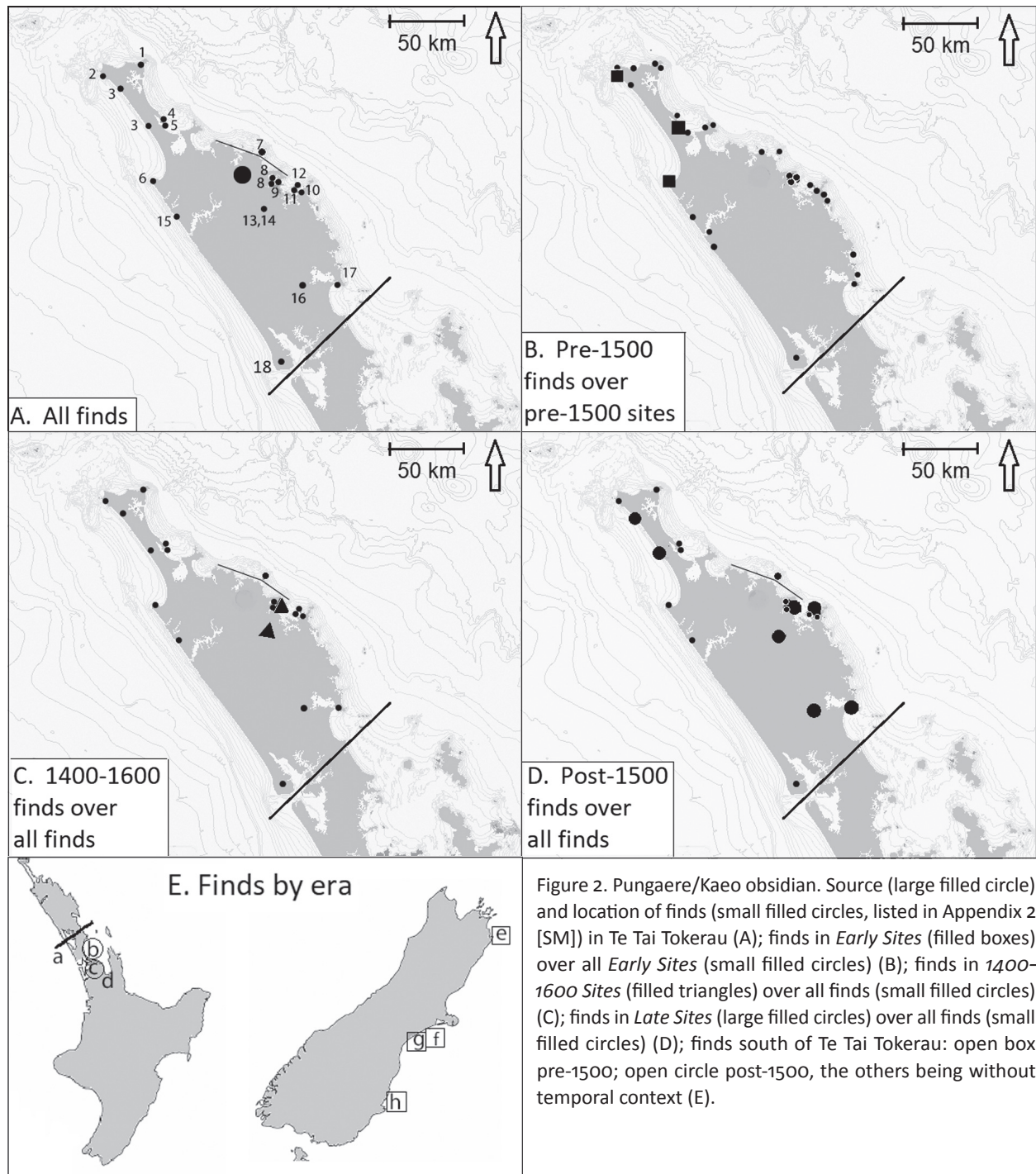


Figure 2. Pungaere/Kaeo obsidian. Source (large filled circle) and location of finds (small filled circles, listed in Appendix 2 [SM]) in Te Tai Tokerau (A); finds in *Early Sites* (filled boxes) over all *Early Sites* (small filled circles) (B); finds in *1400–1600 Sites* (filled triangles) over all finds (small filled circles) (C); finds in *Late Sites* (large filled circles) over all finds (small filled circles) (D); finds south of Te Tai Tokerau: open box pre-1500; open circle post-1500, the others being without temporal context (E).

Although sample sizes are small, ‘Poor Knights’ obsidian appears to have been fairly-widely but sporadically distributed in Te Tai Tokerau, from near the mainland’s extreme north, and – particularly – as far south as Auckland (Figure 5). Scarcity of Mayor Island obsidian on the Poor Knights led Robinson (2016:316) to conclude that colonisation there took place late in the piece, so the pre-1500 (1430–1485) provenance of 10 pieces (4% of total obsidian count) of ‘Poor Knights’ obsidian at Long Bay (b in Figure 5A, the other two northern obsidians being absent

[Campbell *et al.* 2019:32]), may indicate early associations with Tāmaki people. The southeastward distribution of this obsidian is in line with a possible Ngati Wai trading network.

Fanal Island and Great Barrier Island obsidians

These obsidians (Appendices 6 and 7) emerge almost entirely post-1500, mainly from eastern-Te Tai Tokerau sites within Ngati Wai’s rohe, as far north as the Bay of Islands

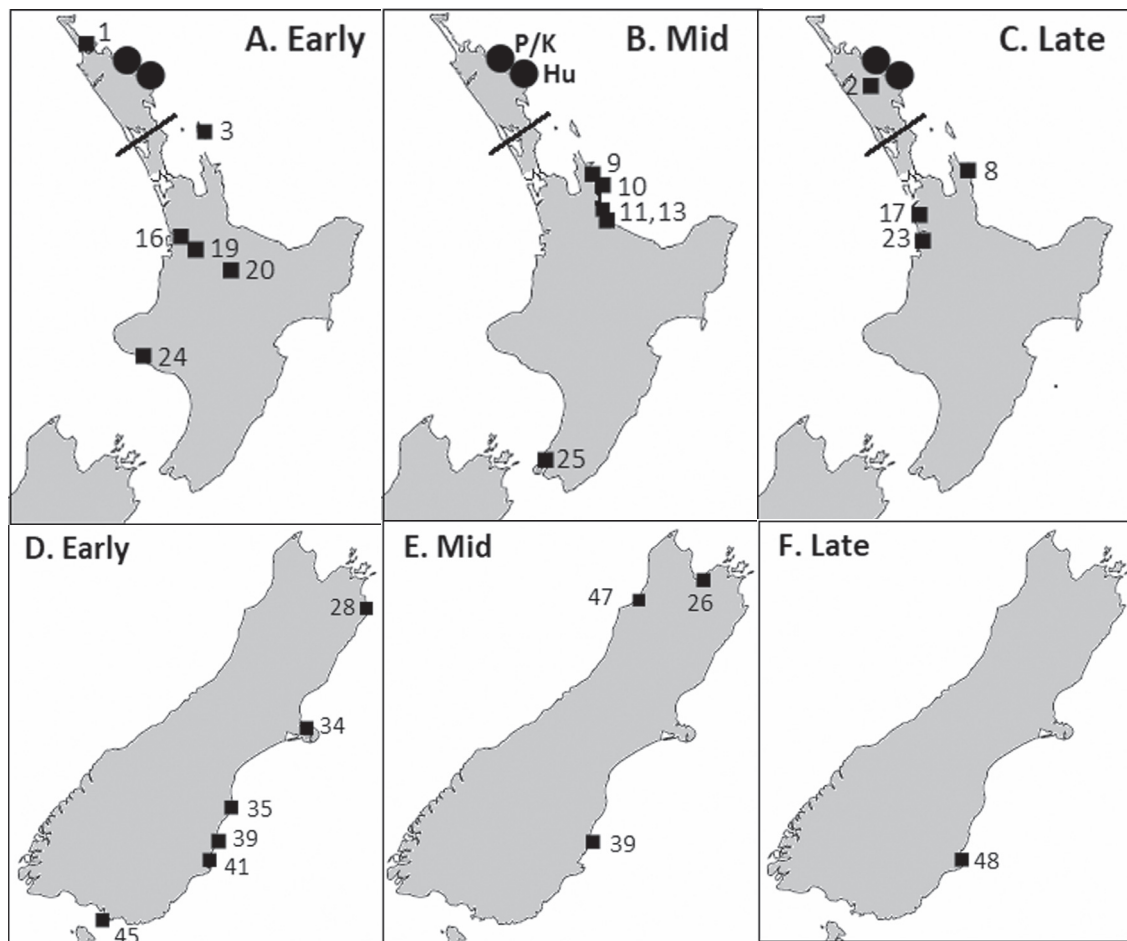


Figure 3. ‘Northland’ obsidian (Pungaere/Kaeo or Huruiki) from Seelenfreund & Bollong (1989:178–183) (Appendix 3 [SM]). Sources (large filled circles) and location of finds (filled boxes, the Arabic numbers giving locations from Seelenfreund & Bollong 1989:171) in early (BP 630 and earlier), mid (BP 630–350), and later sites (A–C, North Island; D–F, South Island). P/K, Pungaere/Kaeo obsidian; Hu, Huruiki obsidian.

and including Pouerua (Figures 6 and 7). The similarities in distribution suggest commonality in resource-acquisition and -dispersal for obsidians from Fanal and Great Barrier islands.

Coromandel obsidian

This obsidian’s reasonably-wide *Late* distribution in Te Tai Tokerau (apart from in the southwest) (Appendix 8) suggests relatively-strong, later links with eastern-Coromandel (Figure 8). There are similarities in distribution to the ‘Ngati Wai’ obsidians above, but note that Coromandel obsidian is also found much further south, at least as far as the line between Tirua Point and western-Bay of Plenty (Moore 2012b:24).

Mayor Island obsidian

The near-universal Mayor Island obsidian has been found widely throughout Te Tai Tokerau (Figure 9A).

Mayor Island obsidian was in only a handful (15%) of the *Early Sites* of Te Tai Tokerau, all Bay of Islands north (Figure 9B). It was much-more-often associated with *Late Sites* (44%; Figure 9B,D), particularly in the southeast of the region.

One interpretation is that Mayor Island obsidian was scantily accessed in early times, mainly by peoples of ancient sites in the far north – in turn suggesting early links with Bay of Plenty. Later, rather than declining, Mayor-Island obsidian usage became more-widely distributed, supplies presumably being topped up.

Taupō obsidian

Taupō obsidian (Appendix 10) has been reported in the Bay of Islands region (Figure 10), but not within secure temporal contexts. Nevertheless, its presence represents contacts with south-Waikato, however indirect.

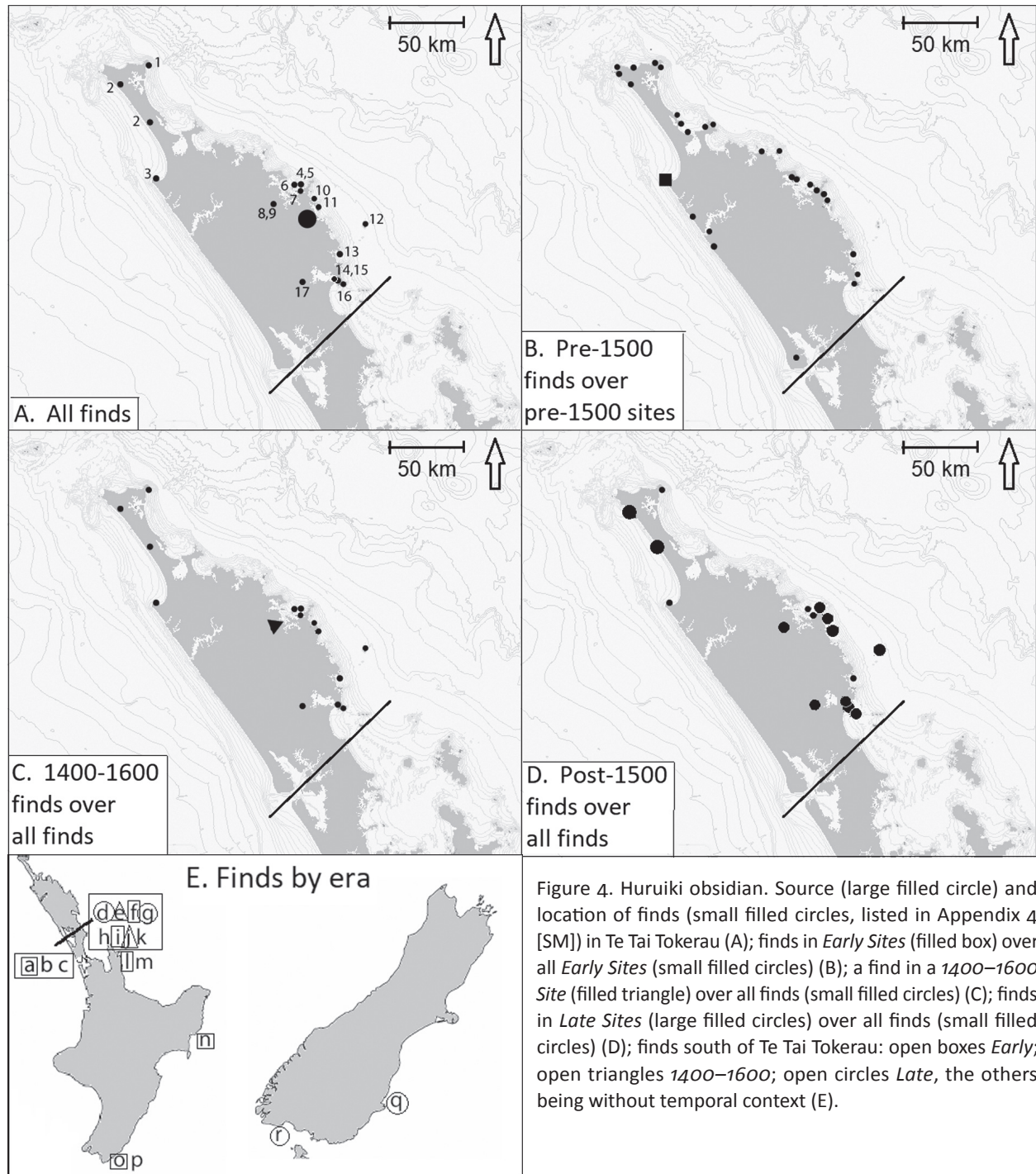


Figure 4. Huruiki obsidian. Source (large filled circle) and location of finds (small filled circles, listed in Appendix 4 [SM]) in Te Tai Tokerau (A); finds in *Early Sites* (filled box) over all *Early Sites* (small filled circles) (B); a find in a *1400–1600 Site* (filled triangle) over all finds (small filled circles) (C); finds in *Late Sites* (large filled circles) over all finds (small filled circles) (D); finds south of Te Tai Tokerau: open boxes *Early*; open triangles *1400–1600*; open circles *Late*, the others being without temporal context (E).

NON-OBSIDIAN LITHICS

In contrast to obsidian, where focus was on all modes of occurrence, from chips to blocks, reporting for non-obsidian lithics was biased towards adzes (and parts), largely ignoring possibly-insightful-other items like scrapers and drill points. Nelson/Marlborough argillite, Tahanga basalt and Motutapu greywacke (mainly for adzes), and South Island nephrite (adzes and ornaments), were the main lithics

imported into Te Tai Tokerau. Northland gabbro appears to have been the only significant non-obsidian lithic export from Te Tai Tokerau.

Nelson/Marlborough argillite

Nelson/Marlborough metasomatised argillite was the supreme adze-making stone of early times (Prickett 1989:135). Derived from ~40 sites (e.g. Davidson 1984:199), its systematic exploitation started early in Polynesian settlement

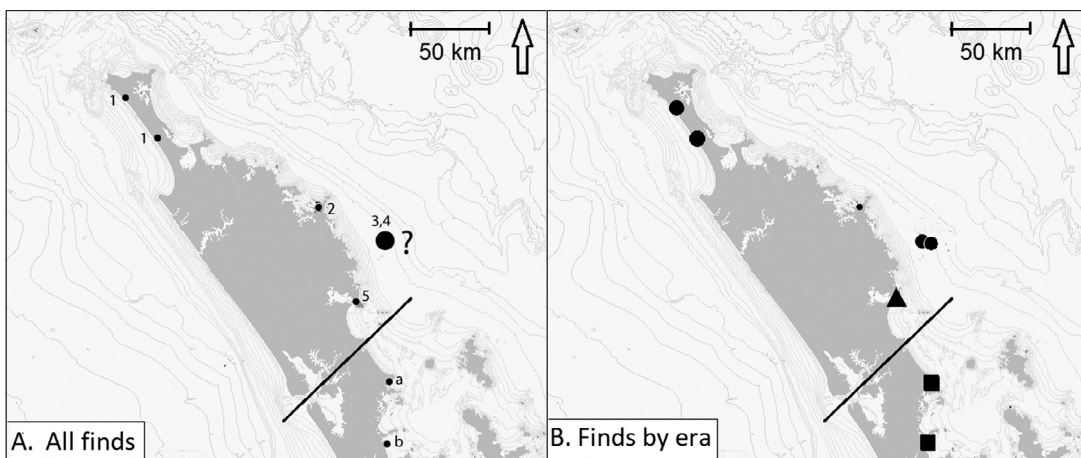


Figure 5. ‘Poor Knights Islands’ obsidian (actual source unknown). Poor Knights Islands (large filled circle) and location of finds (small filled circles, listed in Appendix 5 [SM]) (A); finds in *Early Sites* (filled boxes), one *1400–1600 Site* (filled triangle), and in *Late Sites* (large filled circles) over all finds (small filled circles) (B). Apparently, no finds have been reported south of Auckland.

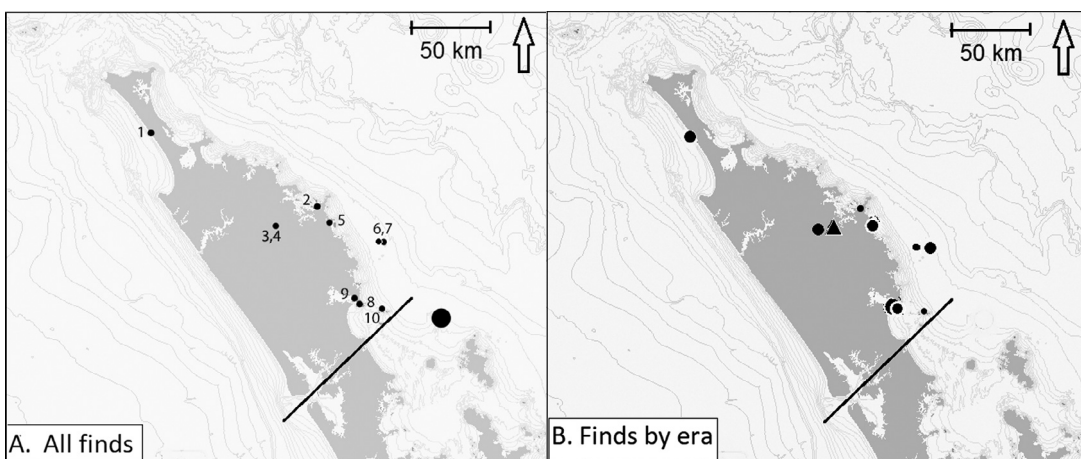


Figure 6. Fanal Island obsidian. Source (large filled circle) and location of finds (small filled circles, listed in Appendix 6 [SM]) in Te Tai Tokerau (A); and finds in a *1400–1600 Site* (filled triangle) and in *Late Sites* (large filled circles) over all finds (small filled circles) (B).

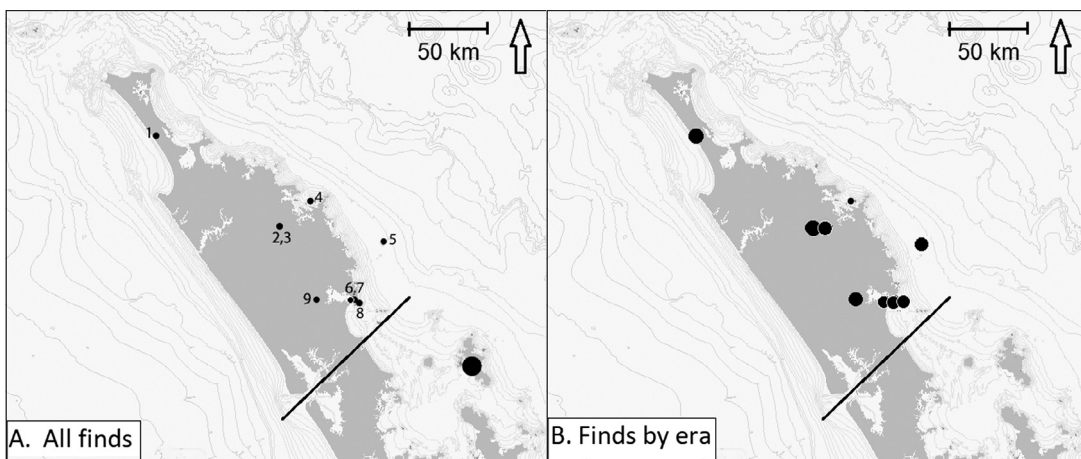


Figure 7. Great Barrier Island obsidian. Source (large filled circle) and location of finds (small filled circles, listed in Appendix 7 [SM]) in Te Tai Tokerau (A); and finds in *Late Sites* (large filled circles) over all finds (small filled circles) (B).

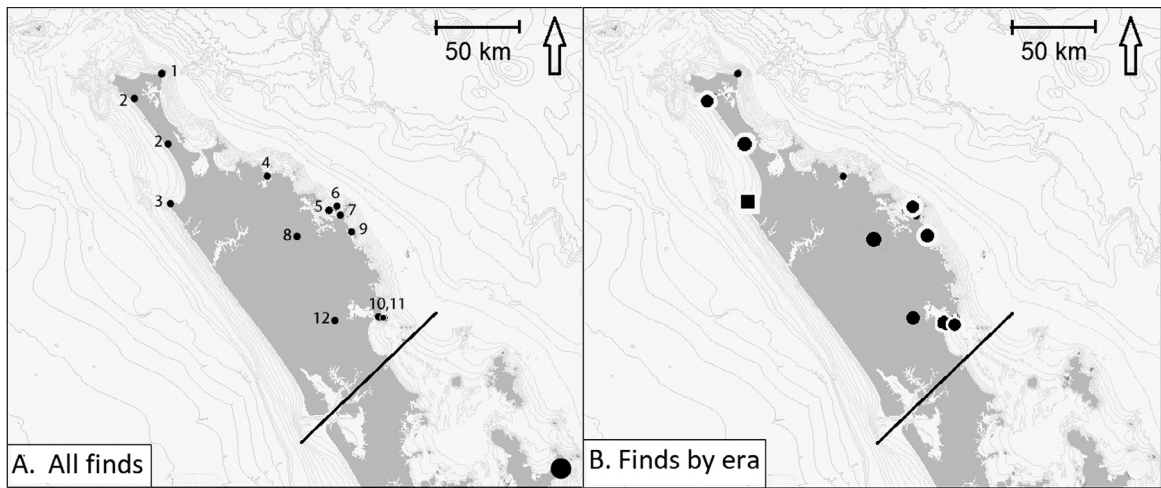


Figure 8. Coromandel obsidian. Source (large filled circle) and location of finds (small filled circles, listed in Appendix 8 [SM]) in Te Tai Tokerau (A); finds in *Early Site* (filled box) and in *Late Sites* (large filled circles) over all finds (small filled circles) (B).

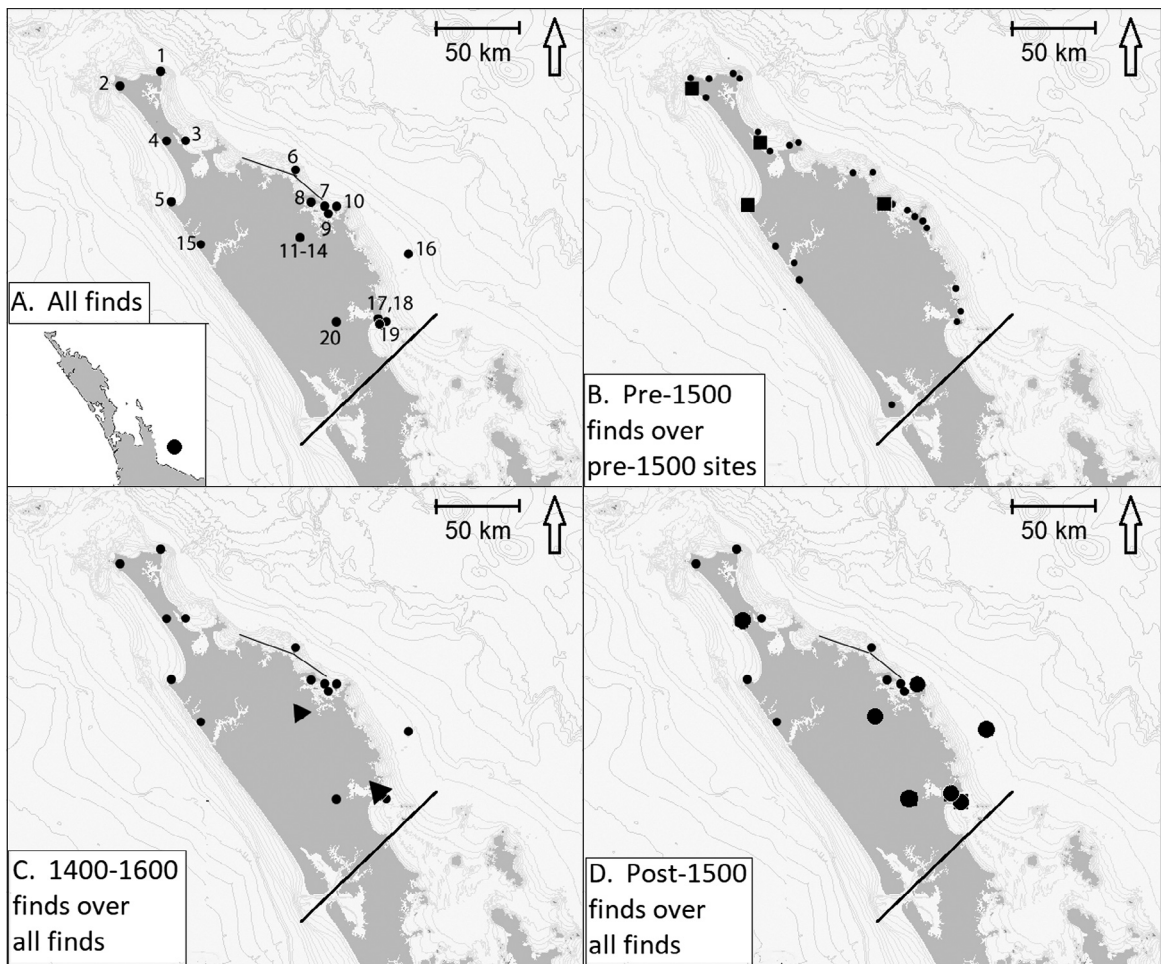


Figure 9. Mayor Island obsidian. Source (large filled circle) and location of finds (small filled circles, listed in Appendix 9 [SM]) in Te Tai Tokerau (A); finds in *Early Sites* (filled boxes) over all *Early Sites* (small filled circles) (B); finds in *1400–1600 Sites* (filled triangles) over all finds (small filled circles) (C); and finds in *Late Sites* (large filled circles) over all finds (small filled circles) (D).

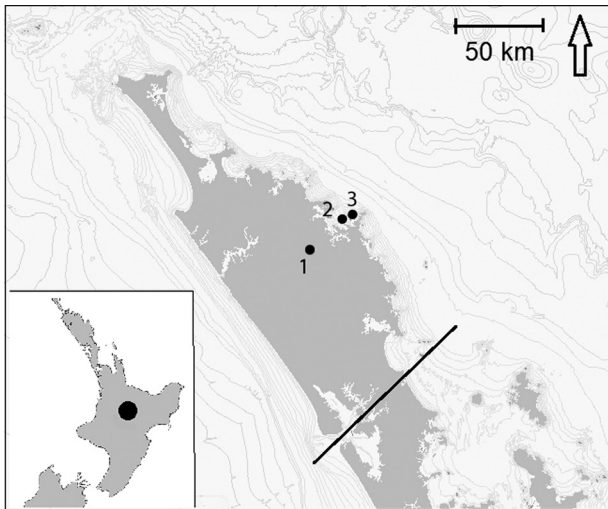


Figure 10. Taupō obsidian. Source (large filled circle in inset) and location of finds (small filled circles, listed in Appendix 10 [SM]) in Te Tai Tokerau. Era information is unavailable.

but had ended by 1450–1500 (Davidson 1984:195; Turner 2000:407). So valued was it that damaged primary adzes were reworked into smaller and smaller adzes, changing altogether in form and potentially being deposited in the archaeological record in an entirely-different context and location (Turner 2000:281). In contrast, the uncommon primary adze would generally have survived to enter the archaeological record only under exceptional circumstances, side-lined, for example, as burial goods or as the result of loss while in storage (Turner 2000:261). This means the presence of primary adzes is crucial to the original context of the lithic's acquisition.

Prickett (1989:135) identified 36 adzes or significant adze-pieces of Nelson/Marlborough argillite in Auckland Museum, all from northern-Te Tai Tokerau (including Three Kings Islands). Several were early, primary adzes. These categorically demonstrated the significant northward transport of this stone heralded in earlier, regional overviews (Appendix 11). Turner's extensive adze investigation, in which 388 of the 1863 Te Tai Tokerau early-style finished and well-formed preform adzes examined were of Nelson/Marlborough argillite (Turner 2000:428; Turner 2005), affirmed this, but her analyses are encumbered: 1) the critical find locations for individual items – examined and recorded in detail by subregion (Turner 2005:61) – could not be traced; and 2) Turner's (2000:428) Table 6.2 is equivocal, its caption referring to all adzes being early 'finished and well-formed preforms', yet the columns separate early adzes from all adzes, implying late forms were also included.

Different conclusions concerning the dispersal of Nelson/Marlborough argillite adzes (Figure 11) emerge depending on whether or not Turner's (2000) subregional data are included. Without Turner, the impression is that this argillite was most-commonly encountered coastally

north of Bay of Islands-Hokianga, and was rare or absent in the south, particularly in southwestern-Te Tai Tokerau (Figure 11A). About half of *Early Sites* – again, mostly north of the Bay of Islands – contained early-style adzes or preforms, but many also had late-style adzes (Figure 11B–E). Few *Late Sites* contained this stone (Figure 11C).

Incorporating Turner's (2000:428) subregional data places far-more emphasis on early argillite adzes and preforms in southern-Te Tai Tokerau (Figure 11A,D). Her summary graphic, however, shows the Nelson/Marlborough-argillite exchange network (formalised rather than random transfer of resources) reaching no further north than Raglan (Turner's 2000:422; also Moore *et al.* 1979:77). These are irreconcilable without Turner's locality data.

My evidence supports Prickett's (1989) assertion of an early and strong, mainly-northern (particularly northern-Aupouri Peninsula) connection with Nelson/Marlborough, with the late-style (reworked) adzes finding their way further afield – but still mainly Bay of Islands-Hokianga north. Prickett's (1989:143) proposal that there was ongoing relationship between northern-Te Tai Tokerau and specific parts of Nelson/Marlborough after ~1500 was not supported by Turner (2000:280–281), who had access to many more adzes (including Prickett's) (also see Leach 1994:249), and is without evidence here too.

Tahanga basalt

Tahanga basalt (Appendix 12) is from near Opito Bay on east-coast Coromandel (Moore 1975, 1976; Best 1977:315), apparently only local people having had direct access. Again, the quarries had closed by 1450–1500 (Turner 2000:407). Moore (1975:33) and Best (1977:317) showed wide distribution of probable/possible Tahanga-basalt adzes in the North Island, including within Te Tai Tokerau. Flake assemblages show the production zone extended along the coast and offshore islands from Great Barrier Island south to Mount Maunganui (Turner & Bonica 1994; Turner 2000:420), so the presence of Tahanga basalt in a foreign context suggests links with any portion of an extensive coastline.

Setting aside Turner's (2000) data, Tahanga-basalt artefacts were widespread in (mainly coastal) Te Tai Tokerau (Figure 12A). *Early sites* containing Tahanga basalt were Bay of Islands-Hokianga north (Figure 12B,C), as were finds of both early- and late-style adzes (Figure 12D,E). There were similar numbers of find locations in Te Tai Tokerau for Tahanga basalt as there had been of Nelson/Marlborough argillite, yet not only were *Late Sites* less numerous, so were late-style adzes (Figure 12C,E). This may mean there had been less reworking of Tahanga-basalt primary adzes than for argillite.

Incorporating the subregional data of Turner (2000:428, with 850 early Tahanga-basalt finished and well-formed-preform adzes), places emphasis more evenly over Te Tai Tokerau (Figures 12A,D).

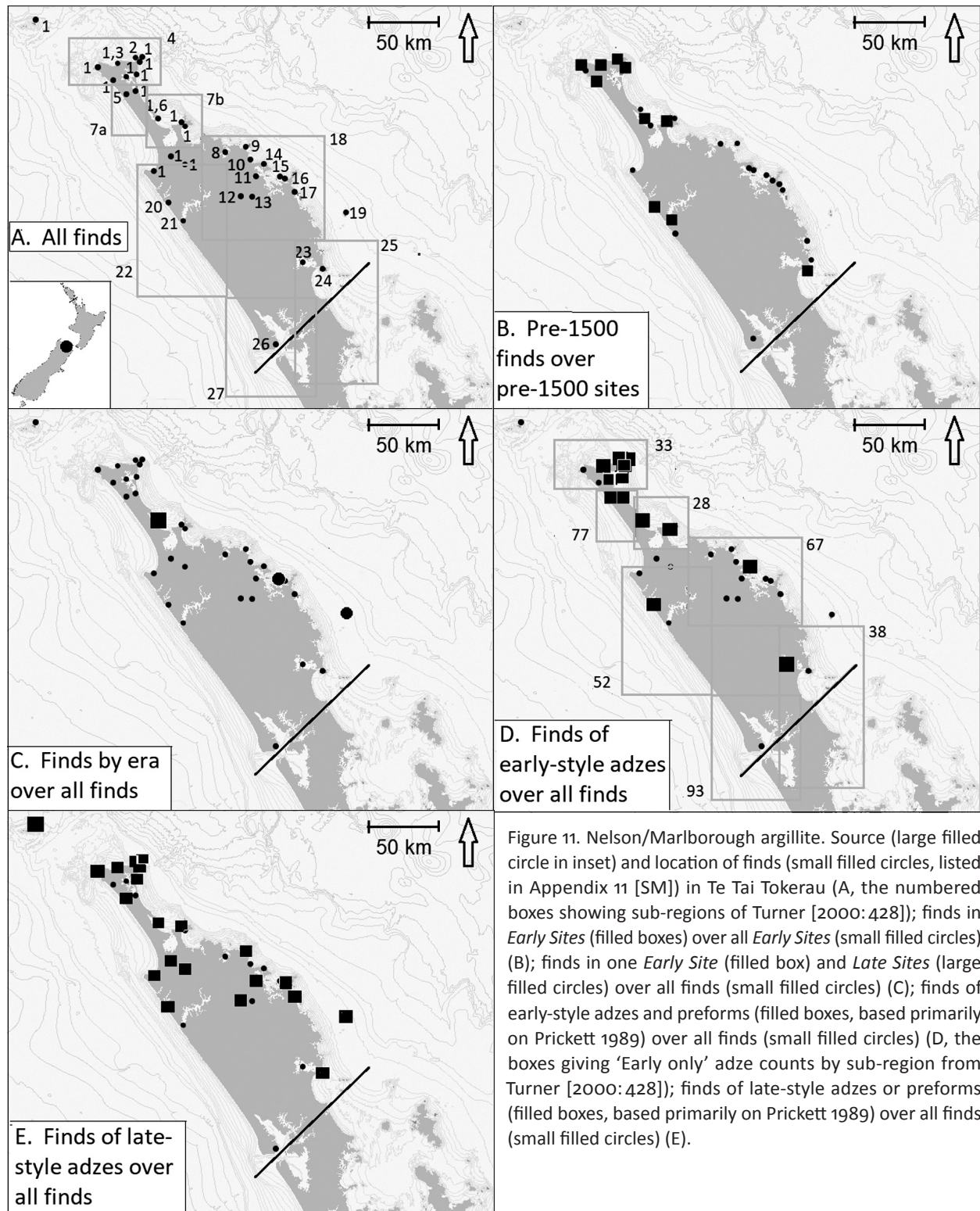


Figure 11. Nelson/Marlborough argillite. Source (large filled circle in inset) and location of finds (small filled circles, listed in Appendix 11 [SM]) in Te Tai Tokerau (A, the numbered boxes showing sub-regions of Turner [2000:428]); finds in *Early Sites* (filled boxes) over all *Early Sites* (small filled circles) (B); finds in one *Early Site* (filled box) and *Late Sites* (large filled circles) over all finds (small filled circles) (C); finds of early-style adzes and preforms (filled boxes, based primarily on Prickett 1989) over all finds (small filled circles) (D, the boxes giving ‘Early only’ adze counts by sub-region from Turner [2000:428]); finds of late-style adzes or preforms (filled boxes, based primarily on Prickett 1989) over all finds (small filled circles) (E).

The overall impression is that there were direct early contacts with eastern-Coromandel, not only by the people of Houhora (e.g. Best 1977; Davidson 1981; Turner 2000), but also by those further north, and others possibly as far south as the Bay of Islands.

Motutapu greywacke

‘Motutapu’ greywacke (Appendix 13) is a high-quality adze-making stone found on – but not confined to – Motutapu Island, near Auckland (Davidson 1981:111; Turner 2000:43–

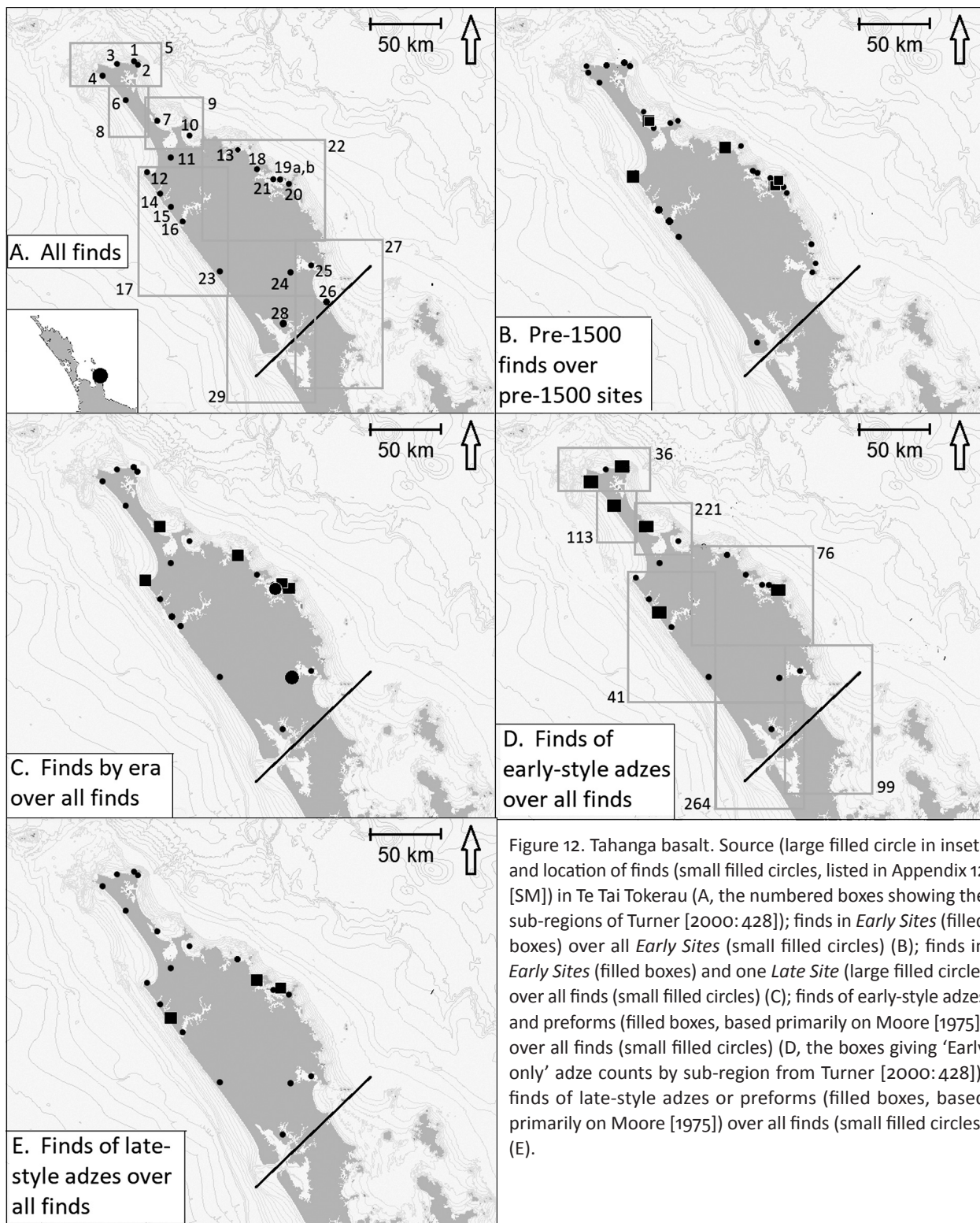


Figure 12. Tahanga basalt. Source (large filled circle in inset), and location of finds (small filled circles, listed in Appendix 12 [SM]) in Te Tai Tokerau (A, the numbered boxes showing the sub-regions of Turner [2000: 428]); finds in *Early Sites* (filled boxes) over all *Early Sites* (small filled circles) (B); finds in *Early Sites* (filled boxes) and one *Late Site* (large filled circle) over all finds (small filled circles) (C); finds of early-style adzes and preforms (filled boxes, based primarily on Moore [1975]) over all finds (small filled circles) (D, the boxes giving ‘Early only’ adze counts by sub-region from Turner [2000: 428]); finds of late-style adzes or preforms (filled boxes, based primarily on Moore [1975]) over all finds (small filled circles) (E).

48). Although artefacts of Motutapu greywacke are apparently found over an area comparable to that for Tahanga basalt (Turner [2000: 439]), few specific references for it in Te Tai Tokerau were found. With such small samples, mainly from the north (Figure 13), and Turner’s locations being unknown, little can be said.

Northland gabbro

With changes in adze-making from about 1500, the tough, basalt-like Northland gabbro became almost-as-broadly distributed as Tahanga basalt (Best 1977: 324; Davidson 1981: 109). (Turner’s [2000: 48, 428] combining of gabbro

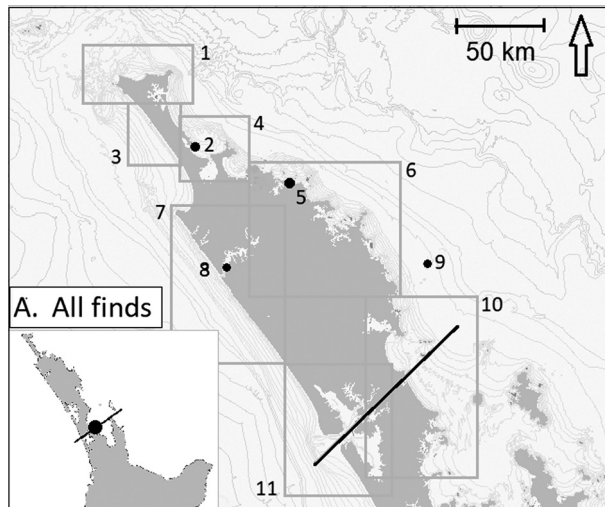


Figure 13. Motutapu greywacke. Source (large filled circle in inset), and location of finds (small filled circles) listed in Appendix 13 [SM] in Te Tai Tokerau, the boxes giving 'Early only' adze counts by sub-region from Turner [2000:428].

with Northland altered basalt in most analyses restricts the use of her data here.) Understood to have come from inland ranges south of the Bay of Islands, it was widely used in Te Tai Tokerau, and was also exported as far south as eastern-Bay of Plenty (Best 1977:324) (Figure 14). No dated contexts for this rock were found within or beyond Te Tai Tokerau, apart from probably-post-1500 single adzes at the Poor Knights (Robinson 2016:324, although the lithic identification was provisional) and Hokianga (Frederickson 1990:63).

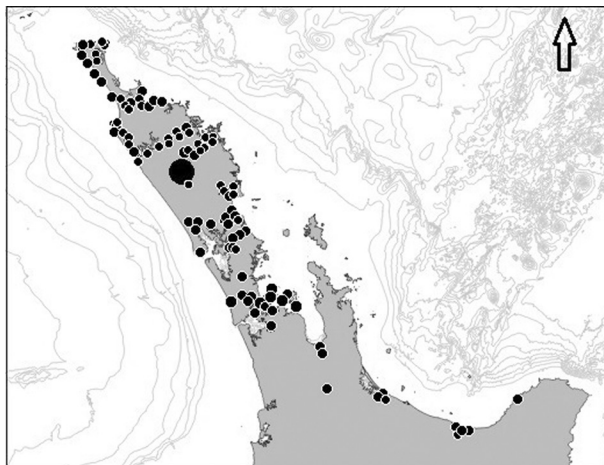


Figure 14. Northland gabbro. Likely region of source (large filled circle), and indicative locations of finds (small filled circles, based on Best 1977:324).

Nephrite

Nephrite, found in six places in the South Island (Ritchie 1984:186), has been revealed widely in Te Tai Tokerau, particularly as adzes/chisels and ornaments. Apparently it had been mainly in later archaeological sites (Davidson 1981:112), not being found, for example, at Houhora. Similarly, a little south near Auckland, Kneebone & McAlister (2019:170) recovered nephrite artefacts from contexts dating only to the latter part of their 1300–1800 sequence. So it is not surprising that the one nephrite artefact from a dated context revealed in the present study – a broken adze at Puwera, near Whangarei – came from a layer that dated to 1500–1700 (Turner *et al.* 2010:80,87).

Transfer of other resources

Non-lithics distributed within Aotearoa New Zealand included foodstuffs, cloaks, ornaments including shark-tooth pendants, feathers, tapa cloth, leaves (including flax), seeds and aromatic sachets (*e.g.* Firth 1929:284,396,399; Davidson 1984:195). Because most of these typically leave little or no signature currently decipherable, oral and ethnographic accounts come to the fore. For example, early-nineteenth century Bay of Islands Māori apparently procured white gannet feathers exclusively for trade (Nicholas 1817:398). Early living exports from Te Tai Tokerau would almost certainly have included those organic items staple in the economy of Tropical Polynesia that were being consistently and widely grown in the north (*e.g.* Furey 2006) – particularly taro and aute (paper mulberry, *Broussonetia papyrifera*, used to make tapa cloth). Although the archaeological evidence for their dispersal is scant (a possible example for aute being the finding in 1894 in a rock shelter near Hyde in Central Otago of a 2 m long piece of tapa cloth [Hiroa 1924:38]), phenotypic and genotypic profiles of living plants help in tracing dispersal. For example, northern varieties of taro, as well as aute, were found growing well south of East Cape by early-Europeans (Furey 2006:13,16). Confirmed through starch and pollen grains (Smith 2019:63), this suggests extensive southern dispersal – although not necessarily by sea because little plant material would have been required. And to exports south from Te Tai Tokerau might be added speciality perishables unavailable or uncommon elsewhere, such the dried meat of certain warm-water fishes (tuna, marlin and so on) – and toheroa (*Paphies ventricosa*).

A likely early, long-distance export from Te Tai Tokerau were toheroa, mainly as living and preserved shellfish but possibly as subfossil valves too. Large populations of toheroa have existed along the west coast of Te Tai Tokerau south to Muriwai, in southwestern-North Island (Ōtaki to Foxton), and in Foveaux Strait (Te Waewae Bay and Ōreti Beach) (Ross *et al.* 2017:2) (Figure 15A). A fundamental food item and traded commodity for Māori, they were dried or smoked, and, it seems, transported live. Genetic diversity is high in the North-Island populations, but

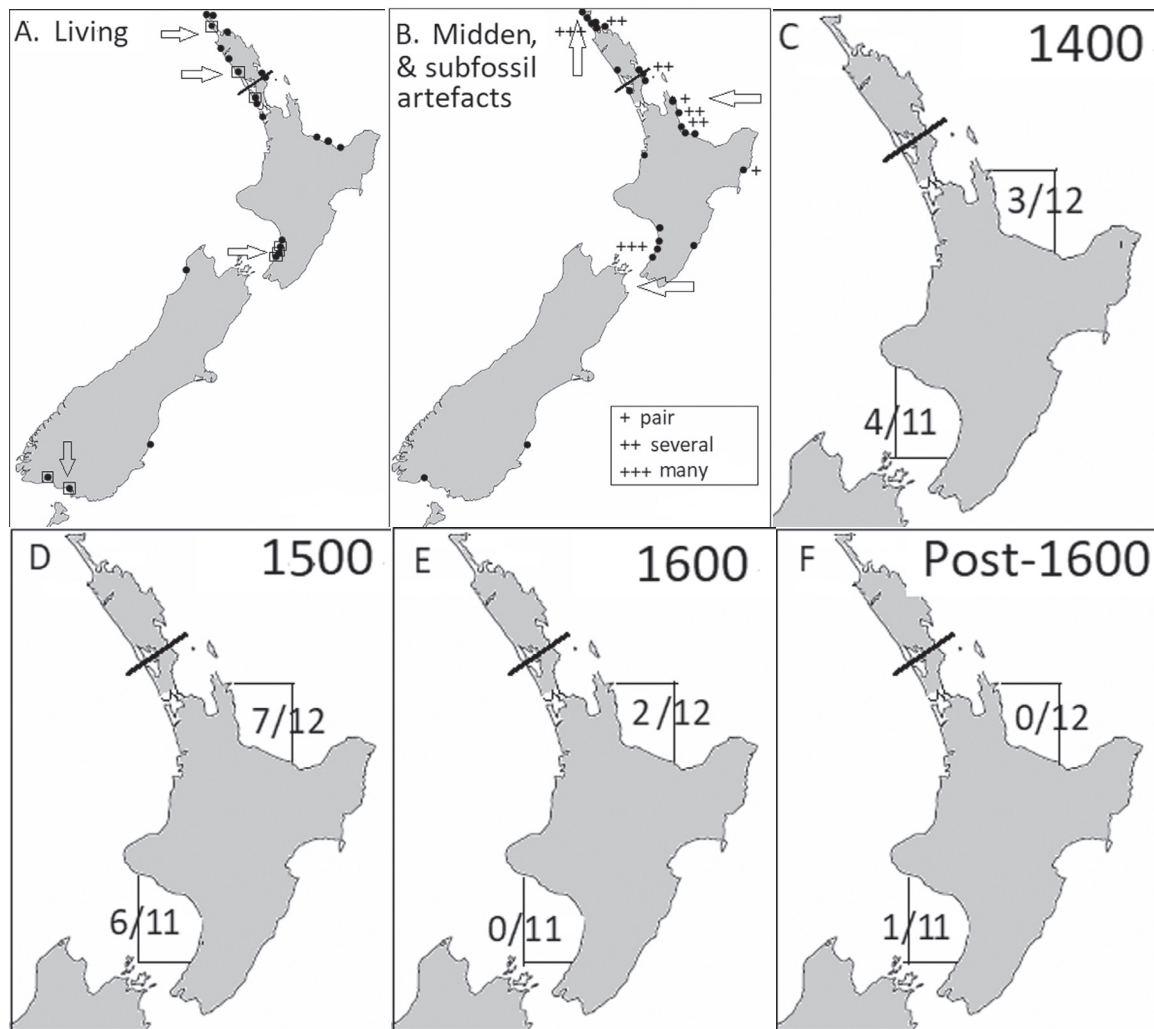


Figure 15. Toheroa. Locations where major living populations have been present at some time during the twentieth century (boxed filled circles); sites where toheroa have been anecdotally reported or where shells or small numbers of living toheroa have been reported (filled circles); and location of toheroa-genetics sampling (arrows) (A, based on Ross *et al.* 2017:2). Distribution of midden toheroa, the frequency of toheroa-containing middens being based on separate and independent reports, and often involving more than one midden (filled circles and +); and locations of (probably-subfossil) toheroa-shell artefact finds (arrows) (B, based mainly on archaeologist reports). Proportions of middens south of Te Tai Tokerau containing toheroa within dated contexts centred on the century closest to the estimated median age of the midden (C–F).

virtually absent in the south, suggesting recent isolation – translocation being the likely explanation (Ross *et al.* 2017, 2018). Furthermore, small populations have established from time to time – without persisting – on other North Island and South Island beaches, lending support for far-ranging attempts at translocation. Attempts at establishing new populations are known to have taken place relatively recently (Ross *et al.* 2017:6), but they possibly occurred in earlier times too. In addition, subfossil toheroa shell – which appears in nature to be confined to the west coast from Muriwai north, has been found well south too.

Toheroa have been widely reported within North-Island middens, mostly in the far north, in western-Bay of Plenty, and in the southwest (Figure 15B). Of the *Early*

Sites in Te Tai Tokerau shown in Figure 1, only a certain few in the far north were reported to contain toheroa valves.

Many of the dated middens containing toheroa were investigated recently – so age estimates are likely dependable (Figure 15C–F). Although results are no more than indicative, midden analyses by no means having been uniform across the landscape, and shells in middens not necessarily having been living toheroa, they potentially extend significantly the shellfish's distribution shown in Figure 15A, particularly into western-Bay of Plenty. The low frequency of midden toheroa in southern-South Island is striking. For example, despite middens being widespread there, those at Ōreti Beach contained few shells, even though the region is well known, even today, for its relatively-high abundance

of large, living toheroa (Ross *et al.* 2017:13).

For the North Island, the impression is that – except in the far northwest where toheroa are found even in recent middens – the shellfish was most-abundantly harvested early on, in the 1400s–1500s, with much less subsequently (Figure 15C–F). This is consistent with already-well-established toheroa populations at Polynesian arrival – although some of the populations having resulted from purposeful, very-early and/or ongoing seedings cannot be ruled out. For South Island's Foveaux Strait, with low frequencies of midden toheroa, and where toheroa genetics are most consistent with isolation, a human-mediated, self-recruiting population may well be the explanation.

Further, there is evidence that valves of subfossil toheroa were used locally (Booth *et al.* 2017:34–36), as well as exported (Figure 15B), in the manufacture of fishing-lure shanks. It was possibly used in surrogate for the pearl oyster *Pinctada* widely employed in fishing gear in Tropical Polynesia. Subfossil shells (up to 150 mm or longer) are much more chunky (up to 10.5 mm or more thick) than midden- or living-toheroa. They are frequently found in the north (John Coster, Heritage consultant, Tauranga, pers. comm.) and at least as far south as Muriwai (Cassie 1955), but apparently not elsewhere (Phil Ross, University of Waikato, pers. comm.). What appear to be items of subfossil toheroa shell (including Canterbury Museum #E199.785; Eyles Catalogue 1166) were among early artefacts from Wairau Bar, and there is at least one trolling-lure shank of what looks like subfossil toheroa shell found in an early east-Coromandel site (one of them A(?)R5469, from Whitipirorua near Whangamata; Louise Furey, Auckland Museum, pers. comm.).

To summarise, the spatial distribution and genetic profile of living toheroa fit with probably-early connection between northwest-Te Tai Tokerau and Foveaux Strait. The subfossil artefacts – although few – suggest early northern links with at least east-Coromandel and Wairau Bar.

DISCUSSION

This korero concerning human-mediated transfer of resources into and out of Te Tai Tokerau over time has built on and updated Davidson's (1981, 1982, 1984) and Maingay's (1986) regional overviews, and made use of a variety of lithic-specific enquiries. Relying mainly on plain presence, and utilising data from previously-unavailable or often-overlooked material, this contribution has also investigated the evidence for particular bubbles of interconnected peoples. There are, however, shortcomings: 1) within the obvious limitation that apparent absence of certain materials at a site (or apparent absence of sites of occupation within a particular period) is not the same as actual absence, simple presence may not be the most-appropriate approach; 2) certain lithics may have been misidentified and/or their occurrence poorly-aged, meaning that seemingly-outlier occurrences might be questionable; 3) not all of Seelen-

freund & Bollong's (1989:178–180) crucial 'Northland' (and similar-such groupings) obsidian seems yet to be determined to source; 4) for non-obsidian lithics, adzes have been the main artefacts investigated, largely passing over others; 5) the so-few dated contexts for Te Tai Tokerau severely constrain temporal interpretations; 6) a divisional AD 1500, with two or more centuries each side, each century representing at least four generations, is so coarse as to potentially conflate any number of significant societal forays within Te Tai Tokerau, or into or from the south; 7) there will have been the essentially-inevitable errors in transcription and mapping; and 8) based largely on the literature, this is still mahi in progress, many records (including most museum holdings) having not been examined, and there will be new data within as-yet-unavailable accounts. Further, dispersal of lithics is generally better known than that of non-lithics, by dint of their endurance in the landscape – almost certainly leading to bias around what voyaging waka might have been stocked with at departure and return. Indeed, possibly 80% of the material objects used in pre-Contact times were of organic origin (Kirch & Green 2001). Such has potentially led to misrepresentation here of incentives, resources and destinations associated with long-distance voyaging.

Early Sites within Te Tai Tokerau

Dated, as well as putative, *Early Sites* (pre-1500) have been identified at 27 localities (Figure 1, many comprised of >1 archaeological site) within Te Tai Tokerau (Appendix 1). Most are in the far north, but they are also present along the east coast, and on the west coast south to the Hokianga. Long-occupied sites (many years/perhaps a few generations) were mainly associated with Aupouri Peninsula and its immediate vicinity.

The concept of an 'Archaic gap' between the ancient, probably long-occupied sites of the far north and the rich and well-documented archaic sites of the Coromandel region, in particular, gained currency late last century. However, it was generally viewed as being more apparent than real, with further long-used ancient sites expected (Davidson 1982:13,26). Although the numbers of places of early occupation for Te Tai Tokerau has greatly grown (Figure 1), we still cannot categorically reject an Archaic gap. Indeed, the evidence is now more in favour of such a distributional break in early human settlement and occupation, the passage of >30 y since the last review having not revealed any strong evidence for further substantial, long-standing, early communities. There are indeed ancient sites dotted along the east coast of Te Tai Tokerau south of Aupouri Peninsula, but, with the possible exception of Mangahawea Bay (17 in Figure 1A, an early site in the Bay of Islands yet to be fully reported; Robinson *et al.* 2019), none has yet been demonstrated to be anything much more than outposts of brief/seasonal occupation. Without significant quantities of bird (particularly moa) bone, and/or substantial levels of

activities like stone-tool making, none appear to have been long-lasting/generational living sites. However, because of still-low levels of archaeological investigation and reporting in Te Tai Tokerau, this might yet change.

In the meantime, the impression remains that the main early, long- and well-established habitations within Te Tai Tokerau were significantly associated with Aupouri Peninsula and its immediate environs. That the probability distribution of early radiocarbon dates from the northern half of the North Island showed a different early population-growth trajectory for the far north (mainly Bay of Islands north), compared with further south (Brown & Crema 2019: Figure 7), may represent corroborative evidence for this.

Bubbles of association within Te Tai Tokerau

Spatial patterns of occurrence over time for specific resources found in sites of occupation offer insight into connections between geographically-separated peoples (e.g. Campbell *et al.* 2019; Kneebone & McAlister 2019; Ladefoged *et al.* 2019). Although its source is geographically close to that of Huruiki obsidian, Pungaere/Kaeo obsidian appears to have been much-more an early northern-Te Tai Tokerau resource than was Huruiki. In early times, only Pungaere/Kaeo obsidian was represented to any extent, and only in the north. In dated *Late Sites*, Pungaere/Kaeo obsidian had become more-generally dispersed within Te Tai Tokerau, possibly through down-the-line trade – and only by then had Huruiki obsidian become significant, and only in the southeast. There and further south, Huruiki obsidian joined the ‘Poor Knights’ and other ‘Ngati Wai’ obsidians (Figures 16 and 17).

It appears that late (post-1500) occupation of Te Tai Tokerau was not dissimilar to that early (pre-1500) in being mainly coastal, the main area seemingly without significant occupation – especially post-1500 – being the exposed west coast between the Hokianga and Kaipara harbours. However, arguably this region had always been relatively-sparsely populated and had simply become more so (Figure 1), rather than it ever having been socially isolated. Always an exposed shoreline underpinned by vulnerable sandy soils, it probably became largely uninhabitable once coastal forest had been destabilised (e.g. Turner 2000: 402).

Bubbles of association between Te Tai Tokerau and the south

These bubbles of association necessarily take into account both exports and imports. For dated *Early Sites*, Pungaere/Kaeo obsidian export was most associated with the east coast of the South Island, whereas for Huruiki obsidian it was Auckland, Coromandel and southeast-North Island (Figure 16). And the third Te Tai Tokerau obsidian, from the Poor Knights, was found early on well to the south, towards Auckland. Post-1500, only Huruiki obsidian had found its way well south. However, allocation of the ‘Northland’ obsidian to discrete sources – irrespective of whether Pungaere/Kaeo or Huruiki – would greatly extend Te Tai Tokerau’s associations with the south: 1) early long-distance connections not only with the South Island, but also with west-central North Island; 2) strong mid-period connections with eastern-Coromandel; and 3) late connections with northern-North Island peoples south of Te Tai Tokerau. Somewhat surprisingly, little if any new material seems to have emerged since Seelenfreund & Bollong

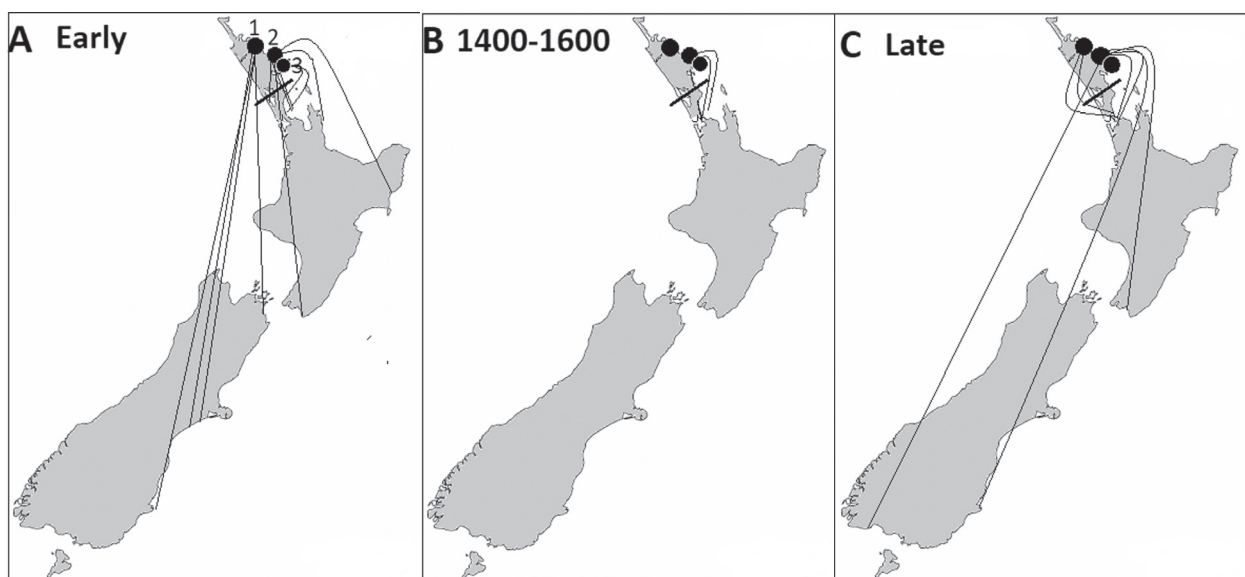


Figure 16. Obsidian exports from Te Tai Tokerau sources (filled circles) to dated contexts. 1, Pungaere/Kaeo obsidian; 2, Huruiki obsidian; 3, Poor Knights Islands obsidian.

(1989) that would help clarify this gap in our knowledge. The apparent lack of connection throughout between the Pungaere/Kaeo obsidian source and the peoples of eastern-Coromandel is striking, but this is possibly also because not all 'Northland' obsidian has yet been allocated, and/or Mayor Island obsidian was not only preferred by Coromandel people, but was also readily obtainable.

Based entirely on XRF-determined material, Mayor Island obsidian was present in few (15%) of the *Early Sites* of Te Tai Tokerau, whereas 44% of all finds were in *Late Sites* (Figures 9 and 17). (It is doubtful that – because of its visual distinctiveness – conclusions around its temporality would have been much different had non-XRF data been included.) Perhaps unsurprisingly then, history informs us that northern peoples had access to Mayor Island obsidian during voyages south in the early-nineteenth century (Davidson 1984:198). Such observations are in apparent contradiction with conclusions from Pouerua and elsewhere (e.g. Seelenfreund & Bollong 1989:184; Moore 2012b:17; McCoy *et al.* 2014:474) that Mayor Island was mainly an early-obtained resource for Te Tai Tokerau.

Imports of 'Ngati Wai' obsidians (Great Barrier and Fanal islands) into Te Tai Tokerau were predominantly late in the piece, although Coromandel obsidians reached the far north both pre- and post-1500.

For non-obsidian lithic imports, Tahanga basalt (and Nelson/Marlborough argillite) was much-more associated with dated *Early Sites* in northern-Te Tai Tokerau than further south (Figure 17). This picture is, however, somewhat muddled by Turner's field data being unavailable, and by the repurposing of adzes. Because Te Tai Tokerau had local sources of adze-quality rock, yet Tahanga basalt and Nelson/Marlborough argillite dominated most early samples, it is clear that basalt and argillite adze-blanks were fairly-readily acquired (Turner 2000:439). And when the importation of these lithics into undated, putative *Early Sites* is considered, the much-stronger connections indicated between northern-Te Tai Tokerau and Nelson/Marlborough for argillite, in particular, emphasise how critical the dating of more sites is in furthering understanding around societal connections (compare Figures 17A–B with Figure 17F).

There are few dated contexts for other lithics, but it appears Northland gabbro was being exported south well after 1500, at least as far as eastern-Bay of Plenty (Best 1977:324) (Figure 14). Although this could have been achieved primarily via either down-the-line exchange, or by vessel, to have been on any significant scale, extensive sea journeying was likely. In fact, later in post-1500 times, a broad contact/trade network seems to have been in place between Te Tai Tokerau and several areas to the south in-

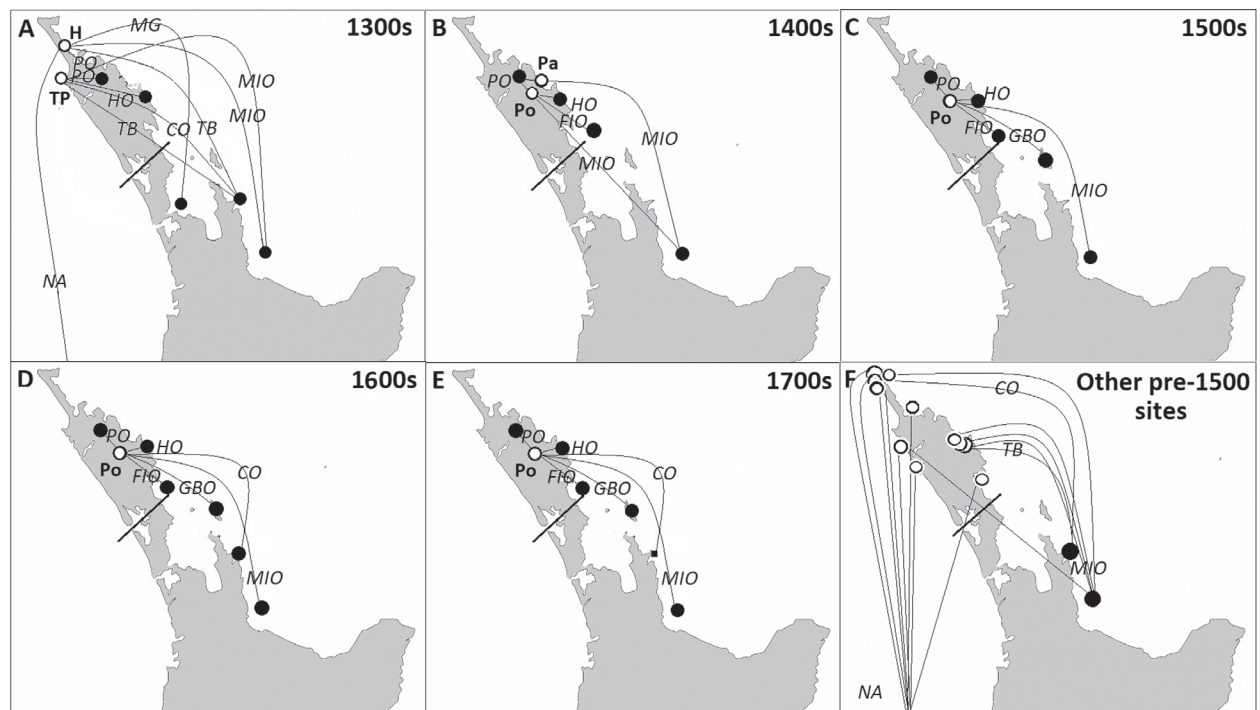


Figure 17. Lithic sources (filled circles) for Te Tai Tokerau dated finds (unfilled circles) (A–E). Other undated – but presumably *Early* – Te Tai Tokerau sites with foreign lithics (F). H, Houhora; Pa, Patunui Bay; Po, Pouerua; TP, Tauroa Point. CO, Coromandel obsidian; FIO, Fanal Island obsidian; GBO, Great Barrier Island obsidian; HO, Huruiki obsidian; MG, Motutapu greywacke; MIO, Mayor Island obsidian; NA, Nelson/Marlborough argillite; PIO, 'Poor Knights' obsidian; PKO, Poor Knights Islands obsidian; PO, Pungaere/Kaeo obsidian; TB, Tahanga basalt. Note these cannot take into account Turner's (2000) samples.

cluding Waikato, central-North Island, Taranaki, Bay of Plenty, and the lower South Island (e.g. Ngāpuhi Nui Tonu Claim 2019: 37,48), and more generally between many parts of the country (e.g. Leach 1978: 391).

Not surprisingly, with their sources close to that of the widely-distributed northern-Te Tai Tokerau obsidians, living northern toheroa appear to have also been transported to the very south of the country (Figure 15). Determination of the radiocarbon age of the shells present in Foveaux-Strait middens and shorelines would help elucidate the timing of any initial successful translocations, an expectation being that they would have been early. For subfossil-toheroa shell, there appear to have been early connections between the only source, in the far northwest, and ancient sites in east-Coromandel and Wairau. Although samples so far are miniscule (but with many museums containing worked, unidentified shell from early sites that might include subfossil toheroa), it appears that the use of toheroa shell in fishing gear may have been early, localised and short-lived. Indeed, subfossil toheroa shaped for fishing gear may represent items from settlement as early as any in the country (Campbell *et al.* 2018: 83). The shellfish was presumably not utilised long term for reasons of lack of resilience and/or iridescence (Booth *et al.* 2017: 39), being replaced mainly by Cook's turban *Cookia sulcata* and paua *Haliotis iris*.

Overarching considerations around associations between peoples

Even though data (particularly from dated occupational contexts) from Te Tai Tokerau are sparse, certain overall patterns of association can be offered. Among them are that early Te Tai Tokerau was separable into 1) the Aupouri Peninsula (focussed particularly on Houhora and, with its many ancient sites, also the Tom Bowling Bay/Spirits Bay area) but with connections – however transitory – south to take in the Pungaere/Kaeo obsidian source, and 2) the district's southeast and associated with the Huruiki obsidian source, with main societal associations being from eastern-Bay of Islands south. In fact, the line Bay of Islands to Hokianga Harbour appears to offer a convenient boundary between these two zones, it being towards the south of the supply-zone of Pungaere obsidian, and the northernmost part of the supply/contact-zone of Huruiki and other 'Ngati Wai' obsidians (Booth 2016; Booth *et al.* 2018). This line was also near the southern boundary of early use of Nelson/Marlborough argillite and Tahanga basalt.

The significant presence of lithics imported early from the Coromandel and Nelson/Marlborough, and the broad early dispersal of Pungaere/Kaeo obsidian, supports the far north possibly having been the main region of archaic settlement in Te Tai Tokerau, possibly being comparable with the ancient settlements of the Coromandel in particular. Transfers with eastern-Coromandel included Tahanga basalt, Kuaotuna siliceous sinter, and sub-fossil toheroa shell.

That Pungaere/Kaeo and Huruiki obsidians were possibly the first obsidians discovered and dispersed in Aotearoa-New Zealand adds weight to Belich's (1996: 30) hypothesis (supported by evidence in Anderson *et al.* 2014: 80) that early-Polynesian settlement of the country might have begun first in the far north.

The idea that the far north was the main area of early settlement in Te Tai Tokerau is not new (e.g. Davidson 1982: 19,26). Turner (2000: 341–342) went further: '...in the early period, the whole of the Aupouri Peninsula appears to have been the major centre of settlement in the Far North with smaller enclaves at harbour mouths and peninsulas on both coasts of the much larger area to the south.' The reason offered for the subsequent exodus of people was 'When the deforested fragile dune soils of Aupouri lost their fertility and began to break down, the majority of the population moved south.' This was supported by adze distributions, with the level of reworking of argillite adzes, in particular, suggesting that much of Aupouri Peninsula had been abandoned before the marked technological change to a 2B adze had occurred (Turner 2000: 341–342).

Mainly-early associations have been demonstrated between Te Tai Tokerau and many other districts of Aotearoa New Zealand. But not everywhere. There appears to be little, if any, direct evidence for links with Gisborne (apart from the presence of northern strains of taro) and the Wairarapa (possibly apart from the acquisition of silicified limestone; Turner 2005: 60), much of the West Coast of the South Island, and Stewart Island.

The convenient divisional year of AD 1500 in the evolution of Aotearoa New Zealand's social fabric appears to have become widely accepted in the literature (e.g. Davidson 1994; Turner 2000; Ladefoged *et al.* 2019). This cusp may have represented the time when people changed from long-distance exchange networks to a very-different supply system involving fully-fledged trade/commerce – exemplified particularly by nephrite (Walter *et al.* 2010: 497). Whereas imports of argillite and basalt into Te Tai Tokerau had well-ceased by 1500, several new northern – nevertheless foreign – lithics conspicuously appeared in Te Tai Tokerau soon after, the most-obvious connections suggested being for obsidians associated with the rohe of today's long-existing east-coast iwi, Ngati Wai. Was this evidence for inter-hapū/iwi trade in the north having by this time become formalised, in a manner similar to that suggested by Walter *et al.* (2010) for nephrite?

These overarching patterns in association for peoples in the north of the country, based to a large extent on the distributions of XRF-determined lithics, can be compared with results from the several other, recent (last decade) similarly-directed such studies. However, none of these investigations used the same geographical area or examined precisely the same variety of lithics as here, and temporality was not always directly analogous.

For Pungaere/Kaeo obsidian, Moore (2012b: 23–25) and Moore & Coster (2015: 14–15) confirmed a similar

early, primarily northern-Te Tai Tokerau distribution as indicated here, although my study (like others) greatly extends south its distribution, and also that of Huruiki obsidian. Both studies also showed similar levels and extent of northern dispersal of Mayor Island, Great Barrier and Coromandel obsidians as the present paper. But in contrast to my results for Te Tai Tokerau, Moore (2012b:17) suggested mainly-early importing of Mayor Island obsidian. The social-network analysis by Ladefoged *et al.* (2019), which incorporated results from McCoy *et al.* (2010, 2014) and McCoy & Carpenter (2014), considered obsidian dispersal mainly within southern-Te Tai Tokerau and south into the Waikato. Their site communities partially corresponded to the rohe of Ngati Whanaunga and Waikato that became clear only after 1500 (Ladefoged *et al.* 2019:1,21) – but these were iwi beyond my study area. Phillips *et al.* (2016:113,114,117) confirmed pre-1500 Tauroa-Point connections mainly with Pungaere/Kaeo and Mayor Island for obsidian, and east-Coromandel for Tahanga basalt – these results having been incorporated into my analyses.

Extent of voyaging

The medium of transport – land or sea, each with its particular merits (*e.g.* Walter 1988; Scott 2007) – can seldom be categorically known. But certainly in early times (at least up to about the late-1500s, after which populations and alternative byways had expanded), dispersal at a significant level over short time-frames of bulky or weighty items away from their locations of natural occurrence would invariably have involved oceanic passaging by ocean-going waka. And the people of Te Tai Tokerau were apparently as much involved in this as anyone. Undoubtedly, connections between often-distant localities were in large part based on, and facilitated by, whakapapa – but the details of this were not readily accessible to me. Of particular note in early times (pre-1500) was the transfer of Nelson/Marlborough argillite and Tahanga basalt to the very north of the country – minimum straight-line sea-distances of 730 and 340 km respectively. (Remarkably, the early exchange network for Nelson/Marlborough argillite, which took in almost the entire country, had possibly been established as early as 1350; Walter *et al.* 2017:357.) The dispersal of Mayor Island obsidian reached its zenith there too, the far north of Te Tai Tokerau being 420 km from source. And for nephrite – although possibly a late arrival through trade (Walter *et al.* 2010:508) – it is 930 km along the west coast from the Westland source.

But Te Tai Tokerau was also the source of materials. Huruiki obsidian found its way as far south as Foveaux Strait – a minimum sea-distance of almost 1800 km; and Pungaere obsidian to Otago (1580 km) and possibly even further (Seelenfreund & Bollong 1989). And the transfer of live toheroa from Te Tai Tokerau as far south as Foveaux Strait is around 1500 km if along the west coast, and 1900 km for the east coast.

A return straight-line voyage from central-Te Tai Tokerau along the east coast to Foveaux Strait of 3800 km is on par with the distance from the centre of the Hawaiki Zone to Te Tai Tokerau (~3500 km). And on top of that, passaging around Aotearoa New Zealand inevitably meant dealing not only with winds and swells of unlimited fetch and the occasional cyclone, but also with the powerful, often serendipitous currents associated with a divided landmass blocking global current patterns. Overall, these conditions would have been more threatening to nearshore mariners than those further from shore. Accordingly, East-Polynesian navigational and distant-voyaging feats around Aotearoa New Zealand, particularly early in its settlement, were as noteworthy as anything in the world at the time – and even in today's terms.

Acknowledgments

Data from consultant reports held in the Archaeological Reports Digital Library and used extensively here exist through the determination and expertise of their authors, and I am grateful for access to them. I acknowledge with awe the great contribution to the temporal understanding of lithic dispersal in Aotearoa New Zealand brought to us by Dr Marianne Turner in her 2000 PhD thesis *The function, design and distribution of New Zealand adzes* (University of Auckland). I may not have been able to track down her original field data, but I was certainly able to revel in her insightful interpretation of what they meant. My thanks to Bill Edwards, Heritage New Zealand Kerikeri for an insightful review of an early draft of this manuscript. I am grateful for suggestions for its further improvement offered by two unknown referees.

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