



MACDONALD RIVER HATCHETS: TRACKING SOURCES IN THE HAWKESBURY-HUNTER REGIONS

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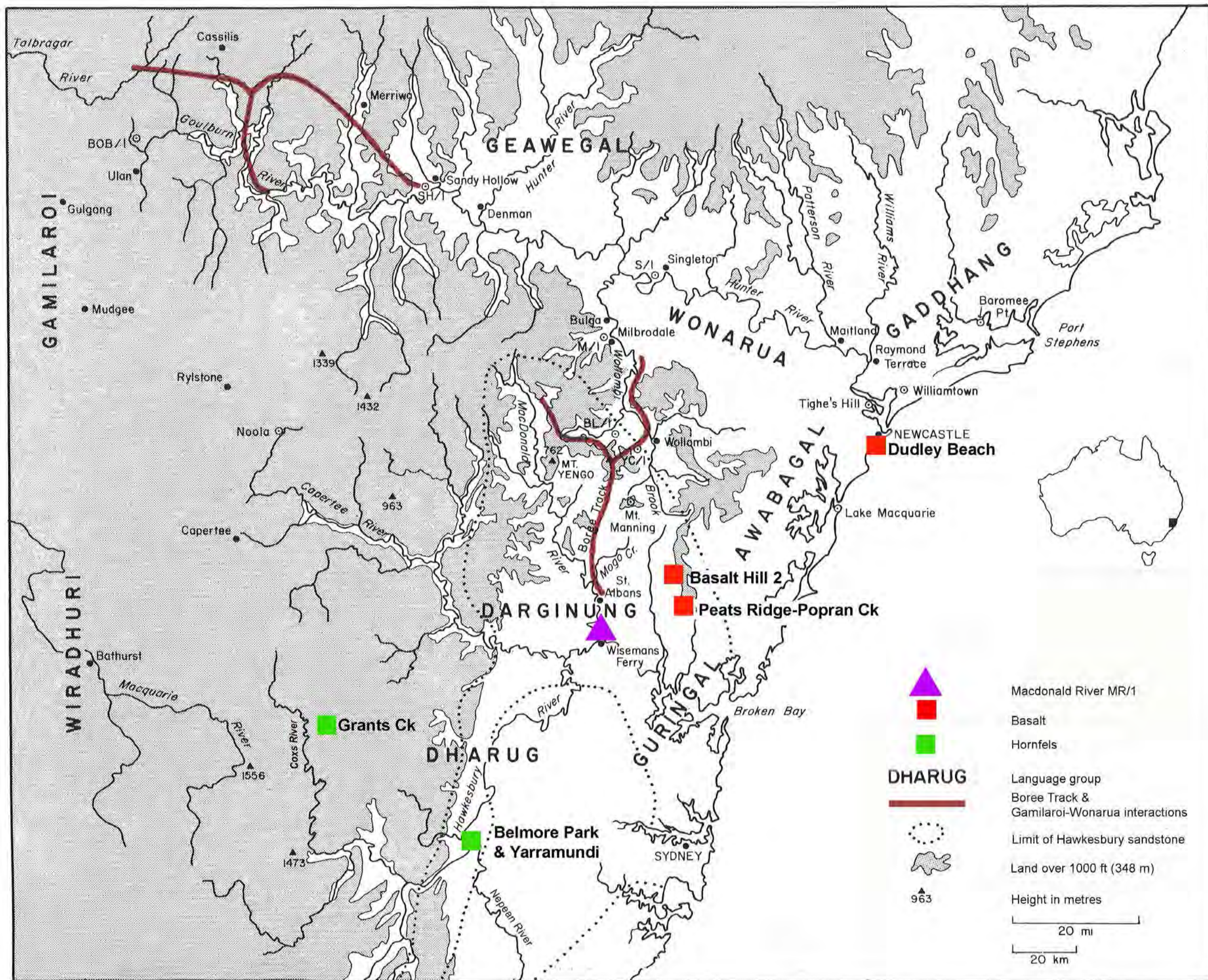


Figure 1. Location of MR/1 and geological sources marked onto Moore 1981 Figure 1. Reproduced with permission of the Australian Museum.

Background

In Australia, ground-edged stone hatchets (axes) were noted historically as being amongst items exchanged at meetings associated with religious ceremonies which play a vital role in maintaining Aboriginal networks.

In SE New South Wales the 'Boree Track' (Fig 1), with its numerous associated engraved and pigment images, was documented by early European settlers as an important Aboriginal ceremonial and trade route between the Hawkesbury and Hunter Valleys (Sim 1966). A large rock shelter site (MR/1) beside the Macdonald River at the southern end of the Boree Track (Fig 1) was excavated by David Moore to find evidence of these connections (Moore 1981).

Aims

The project presented here, which is part of a larger ARC funded program (Grave et al. 2012), aims to identify the source/s of material used in hatchet making at MR/1 and to determine whether the rock sources used changed over time



Figure 2: MR/1 rockshelter, Macdonald River, during excavation in 1976. David Moore standing. (Photo Tessa Corkill)

The site MR/1

Occupation in MR/1 extends back almost 7000 years (5820+/-110 BP [SUA564]; 6397-6897 Cal BP). The excavated assemblage includes many stone artefacts with ground surfaces, recognized as being from ground-edged implements. Geologist David Branagan identified them as being made of diorite and dolerites; he suggested their sources were in the northern Hunter Valley and/or New England (Moore 1981:416).

The MR/1 assemblage and geological reference collection

The MR/1 assemblage comprises 53 artefacts with a ground surface and 48 unmodified flakes and flaked pieces of basaltic and hornfels materials, assumed to be from making/maintaining ground-edged hatchets. These 101 artefacts were found in levels dating to the last 3000 years of occupation. The geological reference collection contains 286 specimens from 146 locations in and adjacent to the Sydney Basin.

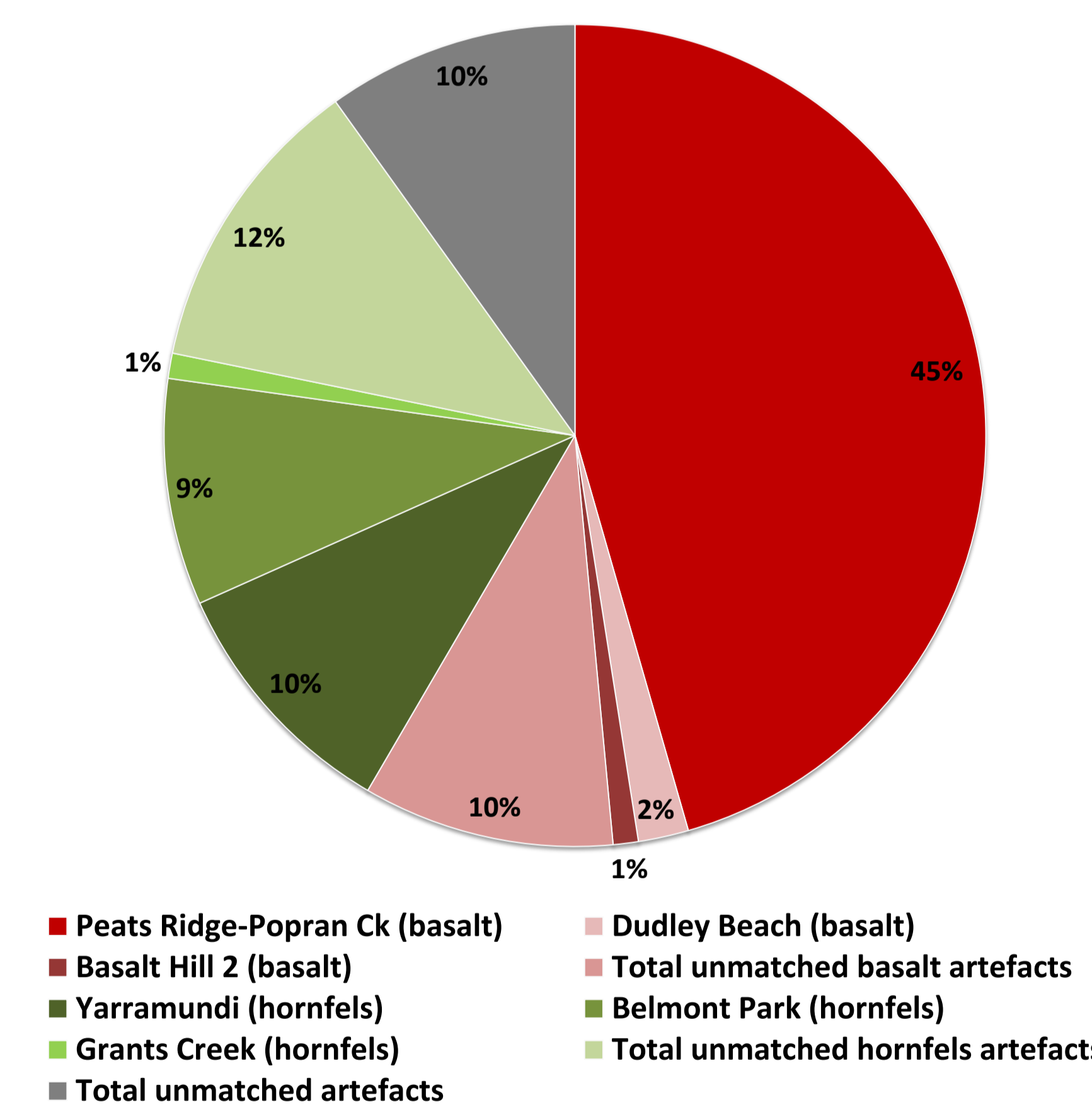


Figure 3: Percentage frequency of hatchets matched to geological sources.

Methods

Non-destructive portable X-Ray Fluorescence (pXRF) technology (a Bruker IV SD instrument) was used to obtain elemental compositions of the MR/1 artefacts and geological specimens.

PXRF data for artefacts and geological specimens was combined and evaluated for matches using standard multivariate methods (Hierarchical Clustering, 3D Scatterplots and Discriminant Function Analysis), as well as principal components analysis. Rubidium, strontium, zirconium and niobium, known to differentiate volcanic materials, were the principal elements used (Grave et al. 2012).

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Acknowledgements

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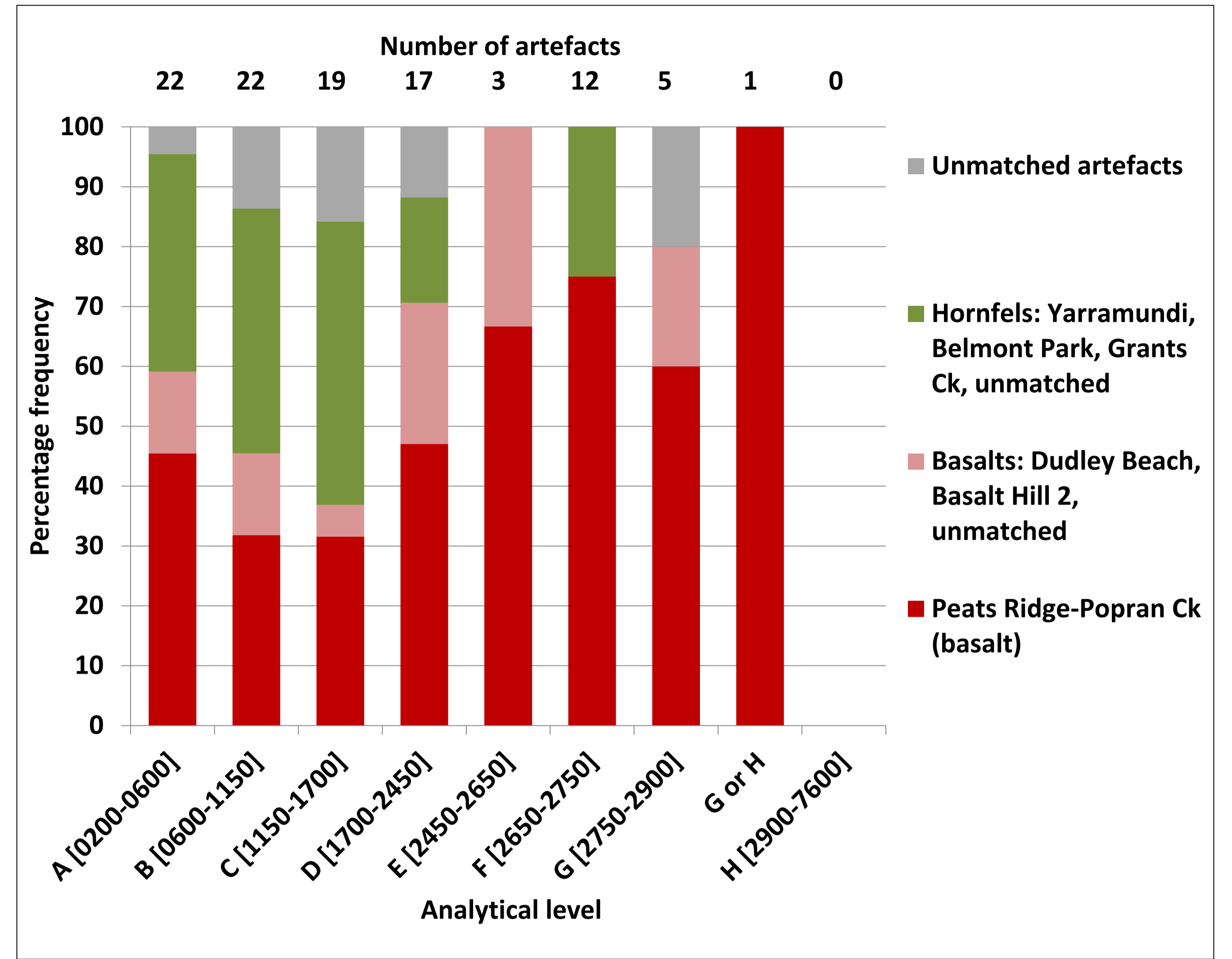


Figure 4. Percentage frequency of basalt, hornfels and non-basalt artefacts in each analytical level of MR/1.

Matches between hatchets and geological sources

Basalt and hornfels were commonly used for hatchet-making at MR/1 (Fig 3). The matched sources were relatively local (within 120 km of MR/1), although outside the Macdonald River Valley.

Most hornfels artefacts matched cobbles from the Nepean River gravels at Yarramundi and Belmont Park. The Nepean gravel beds were noted in 1791 as a place where Aboriginal people collected 'the stones where of they make their hatchets' (Phillip in Hunter 1793:519). The hornfels artefact matching the Grants Creek reference specimen (near Little Hartley) could have come from a cobble that traveled downstream via the Coxs River into the Nepean River.

Basalt artefacts matched Peats Ridge-Popran Creek and Basalt Hill 2 near Kulnura, and Dudley Beach near Newcastle. Peats Ridge-Popran Creek, which is in the adjacent Mangrove Creek Valley, was identified many years ago as a source used by Aboriginal people for hatchet making (McCarthy 1936:2). It was present in levels dating to the last 3000 years of occupation at MR/1 indicating it was a source used throughout the hatchet-making period in southeastern Australia.

Affiliations and connections

Historically these matched sources were in different language areas to that of MR/1 (Darginung) - (Darug to the south and Awabagal to the north-east), though it is unknown how far back in time these groups and their historically-recorded boundaries existed.

The increased frequency of hornfels relative to basalt from 1,150-1,700BP to contact in MR/1 (Fig 4) coincides with an increase in ground fragments in other archaeological sites in southeastern Australia (Attenbrow 2004:74,241). This may reflect a common cultural shift transmitted via social connections within and across language group boundaries. Future analysis of artefact assemblages at the northern end of the Boree Track should clarify whether connections identified above extended into the Hunter Valley.