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## Moving past the ‘Neolithic problem’: The development and interaction of subsistence systems across northern Sahul

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### ABSTRACT

The ‘Neolithic problem’ refers to forager/farmer interaction in northern Australia, where despite a shared environmental inheritance with their New Guinea neighbours, Indigenous Australians seemingly rejected both the domesticates and the practices of the Melanesian horticultural economy (White, 1971). This ethnographic example is often used to suggest that hunter-gatherers elsewhere may have chosen not to adopt agriculture. However, the premise of the ‘Neolithic problem’ has been criticised for its over-reliance on the ethnographic record and on an anachronistic notion of cultural evolution, which exaggerates the dichotomy between New Guinean agriculturalists and Australian hunter-gatherers. In this paper we review the historical and theoretical treatment of the ‘Neolithic problem’ and the archaeological evidence for subsistence practices in northern Sahul spanning the past 50–60,000 years. Using niche construction theory (Rowley-Conwy and Layton, 2011) to re-examine the archaeological and ethnohistoric record, it is possible to observe the development and expansion of a variety of subsistence systems. Contrary to the premise of the ‘Neolithic problem’, the past 50–60,000 years of occupation in Sahul has seen the development of a varied array of food-producing subsistence practices in both New Guinea and Australia. However, the archaeological evidence for the expansion of horticultural practices and cultivars outside of highland New Guinea suggests a spatially and temporally narrow window for the adoption of agriculture by Indigenous populations in Cape York. Instead, the interaction between different subsistence systems in northern Sahul may have centred on the New Guinea lowlands and the Bismarck Archipelago, where, in the late Holocene, local communities interacted with other Melanesian and Austronesian populations. Whilst further archaeological investigation is required, it is clear that the image of culturally-static Indigenous Australian populations often implied in the consideration of forager/farmer interactions belongs to another era of archaeological thought.

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### 1. Introduction

“Many recent hunter-gatherers in rich potential farmlands were in contact with farmers, were not encapsulated, yet never showed the slightest interest in adopting agriculture. These include the peoples of California and the Northwest Coast, and of course much of northern Australia ... Such examples, of course, make us wonder just how frequently hunter-gatherers would have adopted agriculture in the deeper past,” (Bellwood, 2001, pp.192).

Do hunter-gatherers choose to adopt agriculture? Perhaps the most well-known ethnographic example implying otherwise is that of northern Australia, where Indigenous populations, despite a shared environmental inheritance with their New Guinea neighbours, seemingly rejected both the domesticates and the practices of the Melanesian horticultural economy. The ‘Neolithic problem’, as it was termed by White (1971), the apparent aversion of Indigenous Australians to the adoption of agriculture, has generated speculation since its European ‘discovery’. However, with the incorporation of this ethnographic observation into the realm of archaeological research in the 1970s, the premise upon which it is based has been called into question (Harris, 1977, 1995; Lourandos, 1980, 1983; Gosden and Head, 1999; Denham et al., 2009b, 2009c; White, 2011). Attacked on theoretical and archaeological grounds, the once clear dichotomy between Australian hunter-gatherer and New Guinea agriculturalist has been eroded. If Australasian

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archaeology is to provide an accurate representation of interaction between different populations and subsistence systems in this region, it is time to move past the 'Neolithic problem' and examine the 50–60,000-year record of human-environment interaction afresh.

In this paper we review the historical and theoretical treatment of the 'Neolithic problem', as well as the archaeological evidence for 50–60,000 years of subsistence practices in northern Sahul (see Fig. 1; Clarkson et al., 2015). We propose a new framework, using niche construction theory (Rowley-Conwy and Layton, 2011) to consider this record, and re-examine the development, expansion and interaction of subsistence practices evident in this region.

## 2. The 'Neolithic problem' and its revision

For Australia's European colonisers, the apparent rejection of agriculture by its Indigenous populations suggested the rejection of 'progress'. Agriculture, characterised by the eighteenth century theory of unilinear cultural evolution, was considered the first step towards Western civilisation, undeniably allowing a better way of life. As Moresby (pp.18) wrote in 1876, "it is strange that these people ... remain content to wander about, living precariously ... whilst their Papuan neighbours in the near Torres Strait islands build good huts, supply themselves with constant vegetable food and have fine canoes for fishing." The population of Australia was argued to be culturally-static and was classified in comparison to its agricultural neighbours and observers as hunter-gatherer: pre-domestication, pre-sedentism and pre-civilisation (Hiatt, 1996).

In 1971, White's description of the 'Neolithic problem' contested the perception of the Australian Neolithic-revolution-that-wasn't by suggesting Indigenous Australians had chosen not to adopt agriculture. White argued that the Indigenous Australian rejection of agriculture occurred not because of a purported inferiority, but because agriculture was not necessarily advantageous. He, therefore, suggested a primary economic barrier to agriculture: Indigenous Australians were simply "too well-off ... to bother" with the horticultural practices of New Guinea (White, 1971, pp.184). To this he added secondary social and ecological barriers: the supposed conservative nature of the totemic religion of Indigenous Australians, and the literal barrier of the Arafura Sea, respectively. Whilst

White redefined the role of Indigenous Australian populations within the 'Neolithic problem', his acceptance of Moresby's observation framed his perception of subsistence practices in Sahul: New Guinea populations seen as forming "an (expansive) agricultural frontier", resisted by northern Australian hunter-gatherers (Harris, 1995, pp.852).

Since White's redefinition of the 'Neolithic problem', its premise – the existence of an expansive agricultural/hunter-gatherer frontier in the Torres Strait – has been the subject of critique, focusing on two interrelated elements. First, that the interpretation of the subsistence practices underlying this premise has been over-reliant on the ethnohistoric record, allowing present patterns of subsistence to dominate interpretation of past practices (Harris, 1995; Denham et al., 2009b, 2009c). Second, that the interpretation of the ethnohistoric record, itself, has relied too heavily on an anachronistic notion of cultural evolution, exaggerating the dichotomy between New Guinea agriculturalists and Australian hunter-gatherers (Harris, 1977; Lourandos, 1980; Gosden and Head, 1999).

This second critique has stimulated a series of publications since the early 1980s, which have, by focusing on the complexities and categorisation of Indigenous Australian subsistence practices, highlighted the similarities between New Guinea and Australia. This process has led to the successive redefinition of Indigenous Australian populations as socially and economically complex hunter-gatherers (Lourandos, 1980, 1997, 1983; Williams, 1987), hunter-gatherers practicing agronomy (Yen, 1989), and even proto-agriculturalists and agriculturalists (Gerritsen, 2008; Gammage, 2011; Pascoe, 2014). Heavily focused on the reinterpretation of the Australian ethnohistoric record, these alternative interpretations of subsistence practices in Sahul have both fueled the former critique and remained within the framework they sought to overcome. Even with the extreme reclassification of Indigenous Australian populations as agriculturalists the 'Neolithic problem' has remained. New Guinea and Australia have been interpreted as separate entities, the latter not adopting the still-divergent subsistence practices of the former. As Harris (1995, pp.69) so succinctly stated, "to redefine the problem is not however to define it away."

In 2011, White (pp.90), revisiting his seminal work, wrote that

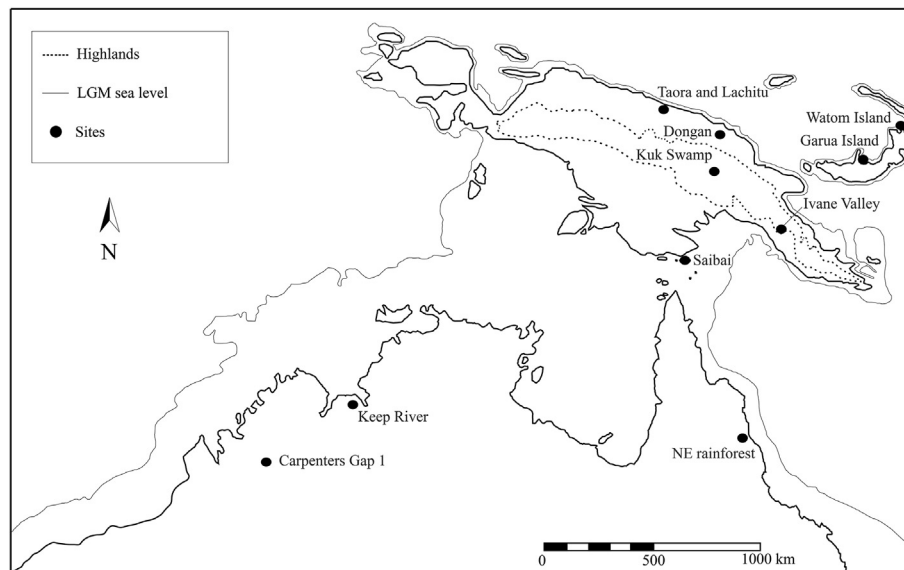


Fig. 1. Map of study area, displaying key archaeological sites mentioned in-text. Base map is redrawn from van der Kaars (1991, Fig. 20). Sea-level at Last Glacial Maximum (18,000 BP). Drawn by X. Carah.

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