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# The faunal remains from Bundu Farm and Pniel 6: Examining the problematic Middle Stone Age archaeological record within the southern African interior

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ABSTRACT

Open-air and interior sites are not prominently featured among models of Middle Stone Age (MSA) subsistence behavior in southern Africa. Thus, the current view of MSA subsistence reflects adaptations interpreted predominantly from coastal rockshelter locations. An attempt to address this gap is presented here with the analysis of the faunal assemblages from Bundu Farm and Pniel 6, two early MSA open-air sites located well within the interior of southern Africa in the Northern Cape, South Africa. Zooarchaeological and taphonomic signatures of the Bundu Farm assemblage suggest some primary access to animal carcasses, while the same measures imply secondary scavenging by early MSA hominins at Pniel 6. A number of other open-air interior sites include similarly ambiguous evidence for the role of hunting and/or scavenging in hominin subsistence during the MSA. Due to the lack of archaeological surveys directed at finding open-air sites and several taphonomic factors that disproportionately obscure indications of hominin behavior in open-air settings, the archaeological records between open-air interior sites and coastal rockshelter sites are fundamentally incomparable. From an ecological perspective, MSA subsistence was a product of behavioral adaptations to environmental factors and resource availability, the influences of which were likely different between interior and coastal ecosystems. Much like historical hunter-gathers of the region, MSA hominins inhabiting the more marginal environments within the southern African interior may have relied more heavily on gathered plant foods rather than hunting for subsistence.



## 1. Introduction

Broadly defined, the Middle Stone Age (MSA) in southern Africa extends from roughly 300–20 ka (Lombard, 2012; Lombard et al., 2012; Dusseldorp et al., 2013; Wurz, 2013), but it is becoming increasingly apparent that this span of more than 250,000 years encompasses a number of recognizable technological entities. Precise chronometric dating techniques have enabled a division of the MSA cultural sequence into a series of distinct phases based on lithic technologies and other cultural materials. Much of this research has been focused toward the latter phases of the MSA at coastal and near-coastal rockshelters, where the recovery of early symbolic artifacts, or archaeological patterns otherwise suggestive of advanced cognition, has inspired an ongoing campaign to chronicle the origins and evolution of anatomically and behaviorally modern humans in southern Africa (e.g., Henshilwood, 2009, 2012; Henshilwood and Dubreuil, 2011; McCall and Thomas, 2012). As few of these symbolic artifacts or spatial arrangements have been identified at sites far from the coast, the archaeological record of the southern African interior has received less attention, and the widely regarded features of MSA hominin behavior are likely biased toward adaptations to coastal environments.

Among these evolving behaviors are systematic and specialized hunting practices, of which there is clear evidence at coastal sites (see reviews in Klein and Cruz-Uribe, 1996; Faith, 2008; Lombard and Clark, 2008; Dusseldorp, 2010, 2012; Thompson, 2010; Weaver et al., 2011b; Clark and Kandel, 2013), but considerably less within the more marginal environments of the southern African interior. Evidence compiled for review often compares the hunting prowess of MSA hominins in relation to their Later Stone Age (LSA) successors, and the sites detailed are overwhelmingly dominated by coastal or near-coastal rockshelter localities. A recent assessment of MSA hunting strategies and diet breadth in southern Africa by Clark

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and Kandel (2013) included 60 assemblages from eight sites, with only one (Florisbad) originating from the southern African interior; moreover, 57 of those assemblages date to 140 ka and later, or Marine Isotope Stages (MIS) 6–3. With such a focus toward coastal sites and the latter phases of the MSA, much is still to be resolved about hominin subsistence behaviors for the early MSA (300–130 ka), or during the Fauresmith technocomplex transition from the Earlier Stone Age (ESA) to the MSA (600–200 ka). This is particularly relevant as the use of hafted hunting technology may have been in place by 500,000 years ago at the open-air site of Kathu Pan 1 within the southern African interior (Wilkins and Chazan, 2012; Wilkins et al., 2012).

Here I present an investigation of the large mammalian faunal remains from Bundu Farm and Pniel 6, two open-air sites dating from early MSA contexts and located far within the interior of southern Africa in the Northern Cape Province, South Africa (Fig. 1). The primary objectives are to evaluate the zooarchaeological and taphonomic characteristics of these faunal assemblages and to assess the role of early MSA hominins in their accumulation. New data from Bundu Farm and Pniel 6 can provide insight into the paleoecological relationships between hominins and their environments within the relatively undocumented Northern Cape region during the ESA/MSA transition. I conclude with a discussion about the apparent disparity between the MSA archaeological records of the coast and interior of southern Africa, and between rockshelter and open-air localities.

## 2. Background

Previous accounts of Bundu Farm and Pniel 6 have been limited to preliminary field reports and general inventories of archaeological remains, and I direct the reader to works by Kiberd (2001, 2002, 2005, 2006) on Bundu Farm and Beaumont (1990, 1999) on Pniel 6 for full descriptions of the sites. What follows is a brief review, including information relevant to the geographic location, depositional contexts, associated lithic assemblages, and age of the faunal remains.

### 2.1. Bundu Farm

Bundu Farm is an open-air pan site located in the Northern Cape Province, South Africa, roughly 60 km south of Marydale and 70 km west of Prieska (see Fig. 1). Systematic excavations conducted from 1998 to 2003 uncovered *in situ* bone and stone artifact concentrations contained within relict pan deposits (Kiberd, 2001, 2002, 2005, 2006). Concentrations of faunal remains associated with early MSA and transitional Fauresmith lithics occurred within the lower portion of the profile within excavation Groups 4–6. The overlying horizons yielded no faunal material and the underlying deposits were archaeologically sterile. Groups 4–6 included laminar calcretes and calcrete/silcrete hardpans transitioning down into various layers of calcreted gravels, powdery calcrete, calcified sands, and calcified clays. The uppermost laminar calcrete (Group 4) shows evidence of deposition under rapid fluctuations in surface water related to pan formation (Nash, 2005), and gaps in the hardpan calcrete may indicate the existence of a former spring. Overall, Groups 4 and 5 may represent distinct paleo-landsurfaces upon which much of the preserved faunal assemblage was deposited, with the possibility of vertical displacement of archaeological materials into the upper portion of Group 6 (Kiberd, 2005).

Lithic raw materials are dominated by quartzite and quartz, with rare pieces made from cryptocrystalline silicate, all of which are locally abundant. The material for two basalt or banded ironstone cores may have been brought to the site from a distance of 60 km (Kiberd, 2002, 2006). Overall, the lithic assemblage from Groups 4–6 represents a transitional period between the ESA and MSA, with one large bifacial cutting tool, Levallois prepared cores, and flake-blades indicating a probable association with the Fauresmith Industry or early MSA (Kiberd, 2005, 2006). Unmodified flakes constitute the bulk of the lithic assemblage, but modified flakes and other tools are also relatively abundant. The limited preparation of cores and minimally retouched flake tools imply the production of a rather expedient tool kit at the site, followed by use and immediate discard.

An equid tooth from the top of Group 4 returned a coupled electron spin resonance (ESR)/uranium-series date of 145.7 ± 16 ka (Kiberd, 2006; University of Heidelberg sample number T7/98/4), indicating that the lower horizons predate approximately 130 ka. Five further ESR dates from bones assigned to Groups 4/5 yielded an age range of ~226–144 ka based on early uranium uptake and ~394–248 ka using the linear uptake model (Kiberd, 2006; Australian National University sample numbers 1312a–1316a). With unknown uptake histories, the true ages of these samples is

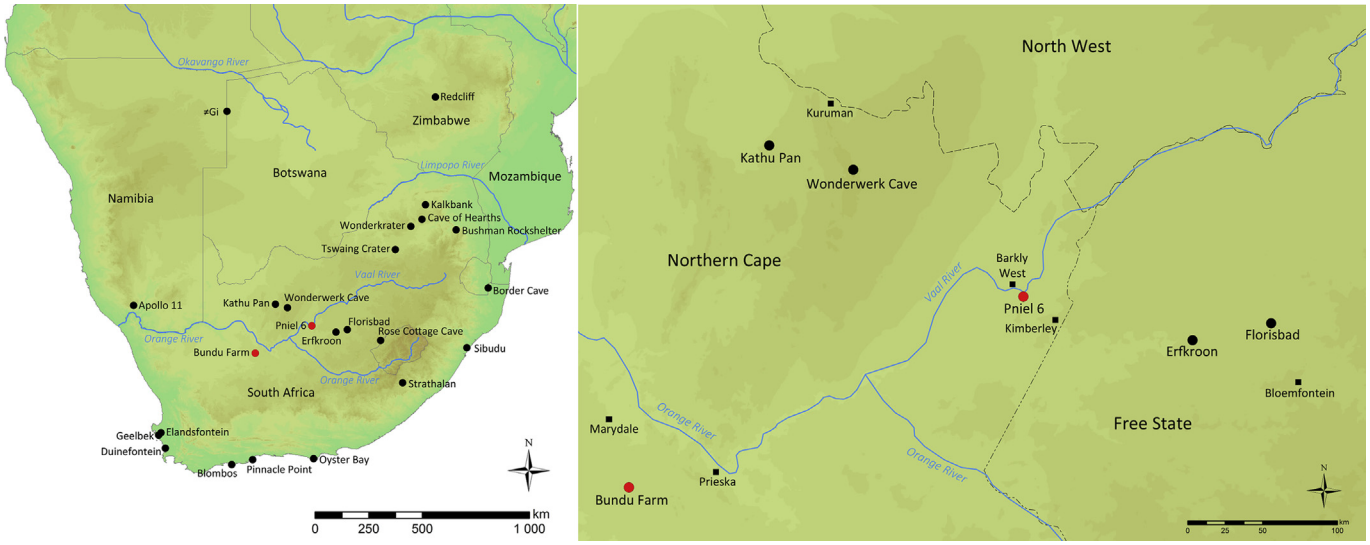


**Fig. 1.** Maps showing the locations of Bundu Farm and Pniel 6 in relation to other Middle Stone Age sites throughout southern Africa (left) and in Northern Cape and Free State Provinces, South Africa (right).

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