UNIVERSITY OF TORONTO SCARBOROUGH

# A. Final Report for Spitzkloof B and Annual Permit Report for the 2015 excavation season

Prepared for:

## South African Heritage Resources Agency

25 May 2017

| | |
|---|---|
| **Original Permit No:** | **80/09/11/008/51b** |
| **SAHRIS Permit ID:** | **279** |
| **SAHRIS Case ID:** | **2035** |
| **SAHRA permit officer:** | **Mariagrazia Galimberti** |
| **Permit issue date:** | **31 May 2013** |
| **Permit expiry date:** | **31 May 2016** |
| **Report due date:** | **31 May 2017** |
| **Permit holder:** | **Dr Genevieve Dewar, University of Toronto** |
| **Site name:** | **Spitzkloof Rockshelter** |

Report prepared by:

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## B. Executive Summary

The fourth field season at Spitkzloof B focused on excavating a remnant sediment step/platform (50 cm x 2 m x 40 cm) that had been left *in situ* during the 2013 and 2014 seasons due to clear signs of snail burrowing. There were no new artefact classes to add to the assemblage from the same contexts excavated the previous year. The excavation of these four 50 $cm^2$ quadrants (J7SW and SE, K7SW and SE) produced a quartz flake dominated industry with quartz and CCS bladelets (with some retouch). Other artefacts types include charcoal, ostrich eggshell, and bone with tortoise clearly dominating the assemblage. Two zebra teeth at the base of the excavation are interesting and suggest that the region was wetter than today. There were no beads but an engraved ostrich eggshell fragment, flask mouth fragment, and a single black mussel (*Choromytilus meridionalis*) were found at the intersection with the unexcavated (red silt) layer below. Using a Nikon total station to piece plot every artefact over 2.5 cm in size meant that we were excavated very slowly. Based on the visual depth of the talus slope and the morphology of the shelter there is at least 1.3 m of material yet unexcavated. Spatial patterns were impossible to determine due to the presence of at least three rodent burrows located in the center and southwest quadrant. Numerous scientific studies are underway in order to identify past economic strategies and palaeoenvironmental signals including: geoarchaeology, botanical (phytoliths, pollen, and charcoal), lithics and faunal analyses. This is a multi-disciplinary research program including numerous international institutions.

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## C. SAHRIS Site Links

http://www.sahra.org.za/sahris/sites/spitzkloof-0

http://www.sahra.org.za/sahris/sites/spitzkloof

http://www.sahra.org.za/sahris/cases/radiocarbon-dating-spitzkloof-rockshelter-export

http://www.sahra.org.za/sahris/cases/temporary-export-3-boxes-bone-and-1-box-ostrich-egg-shell-excavated-spitzkloof-rock-shelter

http://www.sahra.org.za/sahris/objects/spitzkloof-assemblage

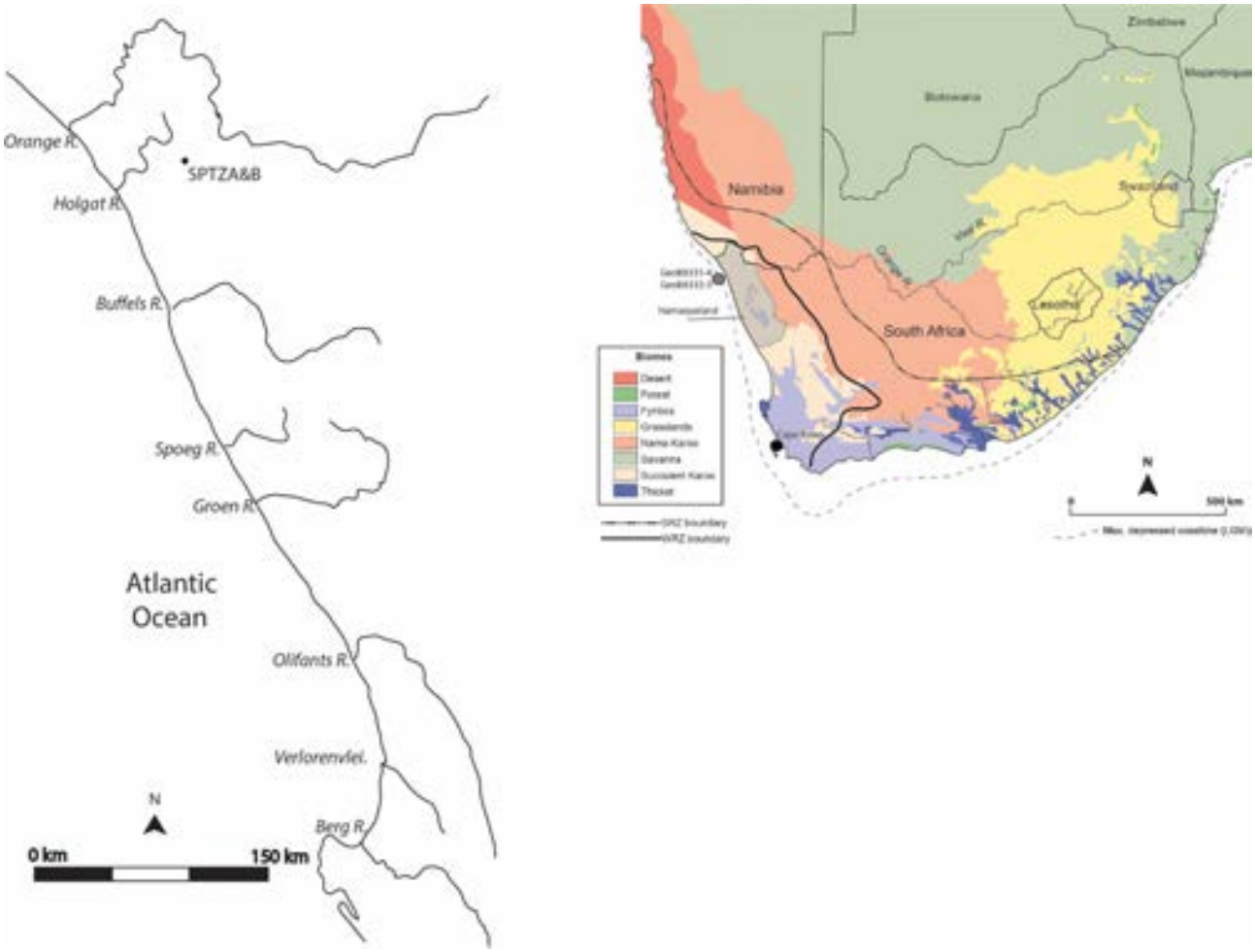
http://www.sahra.org.za/sahris/objects/spitzkloof-b-2015-lithics-and-oes

http://www.sahra.org.za/sahris/node/120618

http://www.sahra.org.za/sahris/node/117560

## D. Location details

| | |
|---|---|
| **Site name:** | **Spitzkloof Rockshelter** |
| **GPS coordinates:** | **28$^{o}$ 51' 47.4012'' S, 17$^{o}$ 4' 39.162'' E** |
| **Nearest town:** | **Lekkersing** |
| **Local District:** | **Richtersveld** |
| **Magisterial District:** | **Namakwa** |
| **Province:** | **Northern Cape** |
| **Age of excavated materials:** | **700 to 41,400 years Before Present** |




## E. List of all participating researchers

Project Director Dr Genevieve Dewar, PhD
University of Toronto

Research Assistant Mr Hugo Pinto
University of Toronto

+2 international undergraduate students – see attached formal report for names

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## F. Curation of materials

| | |
|---|---|
| **Institution:** | **McGregor Museum** |
| **Curator:** | **David Morris** |
| **Contact details of curator:** | **dmorris@museumsnc.co.za** |
| **Institutional address:** | **5 Atlas St. Herlear, Kimberley, 8301 RSA** |
| **Institution for post-ex. analysis:** | **University of Toronto** |
| **Institutional address:** | **1265 Military Trail, Toronto, Ontario M1C 1A4, Canada** |
| **2nd Institution for post-ex. analysis:** | **University of Cape Town** |
| **2nd Institutional address:** | **Department of Archaeology, Private Bag, Rondebosch,** |

The material is currently housed at the Department of Archaeology at UCT while it is being analyzed. The material will be shipped to the McGregor Museum upon completion of analysis. Artefacts have been divided according to material (lithics, animal bone, OES, marine shell, other organic remains, soil samples) and are stored in individual zip-lock plastic bags with respect to the excavation square, quadrant and context from where they were excavated, and artefact/ sample number for piece-plotted items. This information is written alongside the site code and excavation year on the outside of the artefact bag and on tags within small zip-lock plastic bags placed inside the labelled artefact bag.

For the purposes of temporary storage and transport prior to final accession at McGregor Museum, the artefact/ sample bags are kept in appropriate cardboard artefact boxes with different material types stored separately. Each box is labelled with the site code, excavation year, material type, squares and contexts of the artefact/ sample bags contained within.

## H. Archaeological research collection and excavation

| | |
|---|---|
| Responsible Person 1 | Dr Genevieve Dewar, University of Toronto |
| Responsible Person 2 | |
| Responsible Person 3 | |
| Number of participants | 4 |
| Duration of fieldwork | 4 weeks |
| Excavation equipment used | Leaf trowel, hand-pick, brush, hand-shovel, sieve (1.5mm mesh), Total Station (EDM). |
| Indication of volume excavated | 363 L, 0.363 $m^3$ |
| Samples | *See formal report attached* |
| Description of work/ Methodology | **Excavation Method:**<br>A 1 m by 1 m grid was laid out on site and tied-in to previous year's excavation grid using a Nikon Total Station (EDM). Excavation proceeded in 1$m^2$ units that |

were further sub-divided into four 0.5m by 0.5m quadrants (NW, NE, SW and SE quadrants). Individual grid squares are referenced by north-south 'columns' labelled alphabetically and numbered east-west 'rows'.
Archaeological deposits were excavated using hand tools (leaf trowels, brushes and occasionally geological hammer/ small pick) with respect to stratigraphic interfaces of archaeological features or between distinct layers of sediment differentiated by colour, composition, compaction and/ or inclusions. Site records were compiled using an adaptation of the Single Context Recording system (Museum of London Archaeology Service 1994) whereby each structure, deposit (layer or feature fill) and cut (post-hole, pit, etc.) was assigned an individual Context number from a running register. Stratigraphic layers were excavated in horizontal spits with a maximum depth of 30mm or to the interface with the underlying Context, whichever was reached first. Each Context was fully excavated within a $1m^2$ unit before proceeding with excavation of the next underlying Context. The sediment from each quadrant was excavated and sieved separately through a 1.5 mm mesh, with the sieved residue manually sorted to recover artefacts, faunal remains, charcoal and other macro-botanical or organic remains. Each artefact with a maximum dimension ≥25 mm was assigned an individual artefact number from a running register, piece-plotted *in situ* and its coordinates recorded using the EDM to an accuracy of ±10 mm on the Easting/ Northing axes and ±2 mm on the z-axis. Charcoal fragments with a maximum dimension ≥25mm identified in the course of excavation were also piece-plotted as individual samples for possible radiocarbon dating and botanical analysis. Complete flakes, retouched pieces and complete skeletal elements with maximum dimensions below 25 mm were also individually piece-plotted when identified in the course of excavation. The orientation and bedding planes of larger artefacts (≥ 50mm) were recorded as two or more coordinates if their *in situ* position was not disturbed in the course of excavation. All other archaeological material was collected in the sieved residue. All collected artefacts, ecofacts and samples were labelled according to the context, quadrant and grid square they were recovered from.
The EDM was also used to record depths of excavation spits and survey the exposed rock face, boulders and surface of deposit across the shelter. This spatial data will be used to generate 3D plots of excavated material and models of the site layout using GIS software packages such as Global Mapper™ and Geomagic®.
The 'opening' of each Context (or spit thereof) was photographed in plan with a digital camera, and stratigraphic interfaces between different exposed Contexts were illustrated in separate overlays onto these 'opening' photographs, thus producing plans of stratigraphic relationships. Excavation data for each Context (or spit thereof) was recorded on individual, standardised digital Context Record forms using the File Maker Pro 11 database software on Apple iPads. Context Record forms compile detailed descriptions of the excavated sediment (including colour, composition, compaction, inclusions, spatial dimensions, bucket volume excavated, etc.); stratigraphic relationships with surrounding contexts; observations by excavator and their interpretation on what the excavated Context represents.

**Description of work:**
As there was only four of us on site we worked very slowly but we excavated the pedestalled step of sediment that was left remaining from the 2014 season due to snail disturbances. Specifically, we worked on the SW and SE 0.5 $m^2$ units of J7 and K7. We successfully excavated the four quadrants down to a total depth of 0.85 m and we were able to expose a single context (red silt layer) across all four $1m^2$ units of J7, K7, K8 and J8. In effect, we were preparing the site so that we

could evaluate spatial patterns while we excavate during the next field season scheduled for 2017.

Site management

At the completion of the fieldwork season, exposed archaeological deposits along the base and vertical profiles of excavated squares were covered with permeable plastic sheeting and protected with sandbags placed along the base and against the vertical sections. All excavated squares were then backfilled to the level of the surrounding ground surface with sieved sediment and sand from the dried riverbed at the base of the valley. Special care was taken to ensure that no plastic sheeting was visible and that sediment on the ground surface was blended-in to disguise the presence of excavation trenches.

2015 Research Excavation:

Table listing stratigraphic units (contexts) and approximate volume excavated:

| context | Square | bkts | bone | lithics | charcoal | OES | ochre | pottery | other |
|---|---|---|---|---|---|---|---|---|---|
| 4010 | k7 | 0.2 | | x | x | x | | | |
| 4032 | K7 | 0.8 | | x | x | x | | | |
| 4033 | k7 | 0.2 | | x | x | | | | |
| 4034 | K7 | 0.6 | | x | x | x | | | |
| 4034:2 | K7 | 1.2 | | x | x | | | | |
| 4035 | K7 | 0.3 | | | | | | | |
| 4035:2 | K7 | 0.6 | x | x | x | x | | | |
| 4036 | K7 | 0.8 | x | x | x | x | | | |
| 4036:2 | K7 | 1.1 | x | x | x | x | | | |
| 4036:3 | K7 | 1.2 | x | x | x | x | | | x |
| 4036:4 | K7 | 0.7 | x | x | x | x | | | |
| 4037 | K7 | 1 | x | x | | x | | | |
| 4038 | K7 | 0.1 | x | x | x | x | | | |
| 4039 | K7 | 0.1 | | x | x | | | | |
| 4037:2 | K7 | 0.6 | x | x | x | x | | | |
| 4040 | K7 | 0.2 | | | x | | | | |
| 4040:2 | K7 | 0.4 | | x | x | | | | |
| 4040:3 | K7 | 0.4 | | x | x | | | | |
| 4036:5 | K7 | 0.1 | x | x | x | x | | | |
| 4037:3 | K7 | 0.1 | | | | | | | |
| 4037:4 | K7 | 0.1 | | | | | | | |
| 4040:4 | K7 | 0.1 | | x | x | | | | |
| 4041 | K7 | 0.3 | | x | x | x | | | |
| 4042 | K7 | 0.4 | x | x | x | | | | |
| 4040:5 | k7 | 0.05 | | x | x | | | | |
| 4042:2 | K7 | 1.3 | x | x | x | x | | | |
| 4042:3 | K7 | 0.5 | x | x | x | | | | |
| 4043 | K7 | 0.7 | | x | | x | | | |
| 4044 | K7 | 0.9 | x | x | x | x | | | |
| 4046 | K7 | 0.4 | x | x | x | | | | |
| 4043:2 | K7 | 0.2 | | x | x | x | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1028 | k8 | 0.7 | | | x | | | | |
| 1029 | k8 | 0.5 | | | x | | | | |
| 1030 | k8 | 1.2 | x | x | | x | | | |
| 1031 | k8 | 0.1 | | | | | | | |
| 1031 | k8 | 0.1 | | | | | | | |
| 4045 | K7 | 1.6 | x | x | x | x | | | |
| 1031 | K8 | 1.7 | | | | x | | | |
| 1031 | K8 | 0.4 | | | | | | | |
| 3028 | J7 | 1.3 | x | x | x | x | | | x |
| 3029 | J7 | 0.5 | x | x | x | | | | |
| 3030 | j7 | 1.6 | x | x | x | x | | | |
| 3031 | j7 | 1.3 | | | | | | | |
| 3032 | j7 | 0.1 | x | | | | | | |
| 3033 | j7 | 0.7 | x | | x | x | | | |
| 3034 | J7 | 0.7 | x | | | x | | | |
| 3033 | J7 | 0.2 | | | x | | | | |
| 3034 | j7 | 0.8 | x | | | x | | | |
| 3034 | j7 | 0.5 | | | | | | | |
| 3035 | J7 | 0.3 | x | | | x | | | |
| 3036 | j7 | 0.4 | x | | x | x | | | |
| 3036 | j7 | 0.3 | | | | x | | | |
| 3036 | j77 | 0.8 | | x | x | x | | | |
| 3036 | J7 | 1.2 | | x | | x | | | |
| 3036 | J7 | 0.5 | x | x | | | | | |
| 3037 | J7 | 0.1 | x | | | x | | | |
| 3037 | J7 | 0.05 | | | | | | | |
| 3038 | j7 | 0.6 | | | | | | | |
| 3039 | j7 | 0.2 | | | | | | | |
| 3039 | j7 | 0.3 | x | x | | | | | |
| 3039 | j7 | 0.4 | x | x | | | | | |
| 3040 | J7 | 0.2 | x | | | x | | | |
| 3040 | J7 | 0.2 | | | | | | | |
| 3040 | J7 | 0.1 | | | | | | | |
| 3041 | J7 | 0.5 | | | x | | | | |
| 3041 | J7 | 0.4 | | x | | | | | |
| 3042 | J7 | 0.1 | x | | | | | | |

# 1. Introduction

This is the report for the fourth excavation season at Spitzkloof B Rockshelter (28° 51.79' S 17° 04.65'E) that occurred from July to August 2015. The site is located 30 km inland from the Atlantic Ocean and 30 km due south from the Orange River in the Richtersveld Municipality, Northern Cape, South Africa (Fig. 1). Spitzkloof B is the middle of three eroded shelters within a folded outcrop of quartzite in the Stinkfontein subgroup (Frimmel 2003) overlooking quartzitic gravel plains in Northern Namaqualand. Immediately in front of the shelter is a dry tributary of the Holgat River (Fig. 2).

The primary research questions of the project called 'Adaptations to Marginal Environments in Middle Stone Age' (AMEMSA) are: When, where and how did early *Homo sapiens* develop the adaptive plasticity required to colonize and continuously occupy environments where resources are unpredictable in space and time? Did they develop new social-economic strategies and technology *in situ* or were these creative solutions developed elsewhere. Ultimately this research project is aimed at contributing to the evidence for the migration of early humans 'Out of Africa' and eventually colonizing the old world and ultimately the deserts of Australia. The Spitzkloof shelters are a very important component of this research program as they represent the arid environment within the larger research project (Dewar & Stewart 2012, Dewar & Stewart 2016a, 2016b, Stewart et al. 2012, Stewart et al. 2016).

# 2. Background

*2.1 Environment*

The Spitzkloof Rockshelters are located in the winter rainfall zone that receives greater than 66% of its precipitation during the austral winter months (Dewar & Orton 2013). The region is a semi-arid desert and the southern extension of the Namib Desert on the west coast of South Africa. The area is desolate with the coastal strip consisting of Holocene white sand dunes and older red sands in the interior (Le Roux and Schelpe 1981, Acocks 1998). Drainage is westward toward the Atlantic Ocean but low rainfall ranging from 50 to 150 mm per annum mean that rivers rarely flow (Mucina et al. 2006). The biome is classified as Succulent Karroo and temperatures in the vicinity of the site exceed 30 °C during the summer while winter minimums are below freezing. The region is a diversity hotspot for some succulent and reptilian species (Mucina et al. 2006) but prey species are low in diversity, species richness, and evenness. All flora and fauna are arid adapted specialists and obtain the majority of their water intake through coastal fogs (*Malmokkies*) that range up to 90 km inland. The vegetation is Lekkersing Succulent Shrubland (Mucina et al. 2006), dominated by dwarf shrubbery while larger species such as *Acacia karoo* can be found along dry riverbeds in front of the shelter.

*2.2 Previous Archaeological Investigations*

Relative to most regions in South Africa, very little archaeological research has been conducted in Namaqualand because a large proportion of the area was previously inaccessible diamond mining territory. However over the past 20 years the Archaeology Contracts Office and others have begun to survey the region for various projects including Heritage, Environmental, and Archaeological Impact Assessment's. Over 1500 open sites have been catalogued with surface material identifying occupation of the area from the Early Stone Age through to the historic period (Dewar 2008, Halkett 2002, 2003, 2006a, 2006b; Halkett and Dewar 2007; Halkett & Hart 1997, 1998; Halkett & Orton 2004, 2005a, 2005b, 2007; Orton 2007a, 2009a, 2012; Orton

& Halkett 2005, 2006; Webley 1992, 2002, 2007, 2009; Webley & Orton 2013). More rare is the presence of shelters with archaeological deposits that allow for the development of chronological sequences providing context for open sites. Currently there are two academic research projects addressing this, the Vaarsch River project in southern Namaqualand (Mackay et al. 2010, Steele et al. 2012) and this project at Spitzkloof in northern Namaqualand (Collins et al. in prep, Dewar & Stewart 2012, Dewar & Stewart 2016a, 2016b).

*2.2.1 Northern Namaqualand*

Spitzkloof A was excavated from April to May 2010 and again in 2011 (Dewar and Stewart 2012, 2016a, 2016b). After two field seasons units G3 and F3 are 1.9 m deep while F4 is 50 cm deep. The second field season was cut short when a large termite void was discovered one meter down the face of the south profile in unit G3. The void was 1 x 2 meters in size and extended through what would have been unit G4.

After discovering the dangerous nature of this void, the sections were shored up with sand bags and sediment samples were collected along the north wall of unit G3.

2.2.1.1 Continuing results from Spitzkloof A

Radiocarbon dates obtained from ostrich eggshell are presented in Table 1 and range from 14 to 52 $^{14}$C kBP. The bottom most layers are beyond the scope of radiocarbon dating and OSL samples were sent to Dr Zenobia Jacobs at the University of Wollongong. Unfortunately after attempting to use both the quartz and feldspar methods, Dr Jacobs informed us that the crystal traps are indeed full, preventing the dating of these samples. However, Dr Jacobs informed me that she is currently working on a new method that may work for the lowest sediments. We continue to explore the possibility of using radiocarbon in conjunction with amino acid racemization of ostrich eggshell (University of Wollongong) to date the lower aspects of the site. The geoarchaeology samples were analyzed Dr. Mike Morley (University of Wollongong) and we are just awaiting his final report. I believe the delay is based on his moving his lab from Oxford to Australia. The sediment samples intended for phytolith analysis are currently with Dr Adrian Parker at Oxford Brookes University but he has yet to analyse them. Dr Judith Sealy at the University of Cape Town conducted an isotope study on the sediment column in order to identify the dominant vegetation type during the Pleistocene. The results are being interpreted now and will be published with the geoarchaeology data. The faunal remains have been analysed by Genevieve Dewar and are being summarized in a paper comparing the pre- and post Last Glacial Maximum occupations dating from 23 cal ka and 19-17 cal ka (Dewar et al. In Prep). This paper is being written with three graduate students from the University of Toronto through my zooarchaeology graduate class. There is a clear focus on the locally available species that are present in the region today but of interest is the increase in the presence of large grazing bovids/equids during the pre- and post Last Glacial Maximum layers (LGM). This indicates that the region was likely more efficient in evapotranspiration during these periods (Dewar & Stewart 2016a, Dewar et al. *In Prep*). I have a student who is working on a strontium isotope project who will be focussing on the ostrich eggshell body sherds and beads from Spitzkloof A to attempt to identify local vs non-local eggshells.

Dr Alex Mackay will be analyzing the lithics from Spitzkloof A and we are waiting for him to be available for this project. We have already discussed the potential of shipping the lithics to the University of Wollongong. Dr Mackay has had a preliminary look at the lithics and confirms it is a quartz dominated industry throughout the sequence regardless of time period.

Dr Jayson Orton is currently analysing the lithics from the uppermost layers of shelter A in addition to the Holocene lithics from Spitzkloof B.

2.2.1.2 Spitzkloof B

In July 2012 we returned to Spitzkloof with an extended permit to work in shelter B. The site was surveyed and drawn using a Leica total station and tied into the datum established in 2010. The mouth of the shelter is twenty-five meters wide and six meters deep facing northeast. A four-meter square grid was surveyed onto the deposit with care to avoid the back wall and the edge of the drip line (Fig. 3).

The units were labelled J8, K8, J7 and K7. The sediment was excavated in 50 $cm^2$ quadrants using small leaf trowels and brushes and processed through a 1.5 mm dry sieve. All bucket counts (10 L buckets) were recorded to estimate density of material. Organic rich deposits including all hearths and ash dumps were floated and the fine fraction was collected separately. The site was excavated stratigraphically using a modified single context method. Every context was excavated in 3 cm spits or by single context whichever was thinner. All data were recorded on single context recording sheets using a File Maker Pro 11 database on iPads. Each quadrant had a dedicated tablet and the data were uploaded to a laptop. Each one $m^2$ unit was given a different numbering system to avoid biasing the interpretation of the contexts during excavation: K8 is recorded as 1000's, J8 is 2000's, K7 is 3000's and J7 is 4000's. For the first season, plan drawings of every context were recorded using grid paper and pencil. During excavation season two, three, and four we drew the opening of the context on the iPads using the application iDraw. We also photographed the opening of every new context / feature with a digital camera. Depths were measured using both the total station and a line level with a measuring tape. All material 2.5 cm and over was piece plotted *in situ* using the total station and bagged and numbered separately. All sorted material was bagged by relevant artefact categories on site. We used hatpins and white plastic botanical labels to mark the boundaries of the contexts in the profile walls (Dewar 2013). While the material will ultimately be stored at the McGregor Museum in Kimberley, the artefacts are temporarily housed at UCT for continued analysis with the exception of the 2015 lithics which have been sent to the University of Toronto for analysis.

## 3. Current Excavations

In July 2015 we returned to Spitzkloof B with a small team (four individuals) to remove the step/platform [40 cm (depth) x 2 m (east-west) x 50 cm (north-south)] and expose the same context across the site. Due to the low artefact frequencies of the 2014 season, we realized that without the four southernmost quadrants we may not have a statistically significant sample. In 2013 we had stopped excavating the southernmost 50 $cm^2$ quadrants (K8SW and SE, K7SW and SE) due to heavy snail disturbance leaving a step that was eventually 40 cm deep.

We were successful in excavating through the primarily disturbed deposit which also included rodent burrows, particularly in the K7SW and SE quads.

We excavated the step following the same methods as noted above reaching a total depth of 85 cm across the entire excavation unit (Fig. 4) removing 355 L (0.355 $m^3$).

We continued the labelling system piece-plotting every artefact/ecofact over 2.5 cm giving them a number in sequence of its discovery.

Based on the sediment descriptions and the profile, we believe that we have excavated down through two major layers (grey sandy silt with roof spall and brown sandy silt) and have

potentially exposed a new major layer (red silt) across all four squares (Fig. 4).

*3.1 Dating*

This year we obtained two additional radiocarbon dates from the 2012 uppermost contexts to confirm two late Holocene occupations at 700 BP and another at 1400-1500 BP (Table 2). One new date at the base of this excavation (at the interface with the red silt) returned a date of 41 ka (Table 2). This means we now have evidence for a pulsed occupation of the site that is not contemporary with any of the Spitzkloof A deposits. As this must surely be a depositional/site formation issue we have an interesting opportunity to study these processes in twin sites from the same location.

*3.2 Micromorphology*

As the excavation remains quite shallow we have not yet taken sediment samples for the B shelter.

## 4. Artefacts

*4.1 Bone*

The organic preservation is fairly good at Spitzkloof B allowing for the preservation of organic material including bone. The faunal remains from the Holocene layers were analyzed by Dr Benjamin Collins (University of Toronto) at the University of Cape Town and will be published soon (Collins et al. *In Prep*). The bone from the 2014 and 2015 excavation seasons will be analysed in 2017/2018 by a new Masters student at the University of Toronto. It is not yet clear if he will travel to Cape Town or we will export the material to the University of Toronto.
In total 72 elements ranged from 2.5 to 5 cm in length and were individually piece plotted. A further 25 bones were greater than 5 cm and received two spatial identifiers. The vast majority of the identifiable bone is from *Chersina angulata* followed by size 3 bovids (likely *Oryx gazelle*), a size 4 ungulate (cf. zebra: Brain 1981), small bovid, and small snake. Thus, the diversity of species in the step is very low compared to the samples collected from the same contexts in the previous year. These species are present in the overlying layers indicating continuity or similarity of environment through time. Of interest is the low density of micromammal bone considering the evidence for rodent burrows. Importantly, as we excavated down to the layer interface (to red silt) the bone began to dramatically improve in preservation and the next layer should be very promising for organic preservation.

*4.2 Charcoal and Botanicals*

Charcoal was rich throughout the step deposit with a total of 59 pieces greater than 2.5 cm piece-plotted with an additional 11 pieces >5 cm, receiving two point locaters at each end. There was only one botanical sample, a small piece of wood. The density of these artefacts is however lower than the previous excavation, likely due to bioturbation.

*4.3 Lithics*

The majority of lithics from the site consist of milky-quartz flakes although some quartz crystal, heat treated CCS, tabular quartzite and silcrete was observed. Bladelets are the most common artefact after flakes. A total of 183 lithics were over 2.5 cm in length, receiving a piece-plot number, although this means we may not have plotted all the bladelets unless they were counted as special finds. There was little evidence of retouch but there was some present and analysis

has not yet been completed. Dr Jayson Orton has the lithics and is in the process of identifying them. So far the lithic signature seems to represent a Robberg-like industry. At the base of the excavation, when we were coming down onto the red silt layer we saw large broken 'generic' MSA type blades.

*4.4 Ostrich eggshell (OES)*

Ostrich eggshell is present in these contexts with a total of 68 body sherds large enough to piece plot. The external aspect of the shell reflects a range of colours: sunny yellow to light brown, dark red, and white. This is not quite what we had seen in Spitzkloof A assemblage that produced a great range of colours from a sunny yellow to bright red and turquoise. The OES sample is actually more frequent in this sample than the previous year but this is most likely due to heavy fragmentation, increasing the number of fragments.

*4.5 Ostrich eggshell artefacts*

There were no ostrich eggshell artefacts as we excavated through the step material. However, we did find one broken flask mouth, a ground/rounded body sherd, and one sherd with a single line of engraving at the interface with the red silt layer (context 3033). Once again, this is a lower frequency of these types of artefacts compared to the previous sample.

*4.6 Shell*

One *Choromytilus meridionalis* shell fragment was found at the base of the excavation and could belong to the next red silt layer. Currently the Ocean is > 30 km to the west but as this interface is dated to 41 ka, the coastline would have shifted. While it is possible that a bird of prey brought the marine shell to the site it is unlikely given the low frequency of rodents in the deposit, their preferred diet.

There were also many *Trigonephrus sp.* land dune snails that are common in the region today. This is the source of the major disturbance in this step material.

## 5. Discussion & Conclusion

The excavation of the step did not add any new artefact types to the corresponding assemblage and compared to previous years the artefact density is lower with the exception of the OES fragments. The excavation did allow us to increase the sample size of Robberg-like bladelets from the 2013 and 2014 excavations and to expose a single, non-disturbed red silt context across the whole unit. The artefact signatures from the step (qtz flakes and Robberg-like bladelets in qtz and CCS) and the radiocarbon dates (9ka to 41 ka) indicate that we are currently working within the late Pleistocene period (cf. Mitchell 1995). We need to get a better handle on the dates of the layers to determine if the bladelet industry is present in both the 9 ka layers and the 30-41 ka layers as this will have an important contribution to the identification of where and how the microlithic LSA begins.

The faunal species brought to the site are locally available today and reflect a palaeoenvironmental signal that suggests the region was similar to the current semi-arid desert environment. The prevalence of *Chersina angulate*, *Oryx taurotragus*, a small bovid, and size 4 ungulates suggests an opportunistic economic strategy focussed on locally available species from the surrounding foothills (Skinner & Chimbimba 2005). Marine shell indicates some contact with the coast that is currently 30 km west of the site.

## 6. FINAL SUMMARY AND CONCLUSIONS

First, as the excavation and analysis of the material from SPTZB is ongoing this is a preliminary final report that will be updated with a future report. To date the radiocarbon dates (Table 2) indicate that the site was used infrequently and occupation of the shelter was pulsed, with dates in the Holocene (700 BP, 1400 BP, 4200 BP, and 9000 BP) and late Pleistocene (30 ka BP, 33 ka BP, and 41 ka BP). While the lithic analysis is still underway some basic patterns were observed: the late Holocene deposits (700 and 1400 BP) consist of an ad hoc quartz flake industry while the 4200 BP deposit is a typical Wilton industry with qtz and CCS segments and backed tools. The 9 ka to 33 ka deposit has a qtz flake based industry with bladelets including some with retouch. The 41 ka deposit (interface with red silt) began to produce broken MSA blades.

The fauna from the 700 BP and 1400 BP layers consist primarily of tortoise bone with *Chersina angulata* dominating, followed by size 2 and size 3 bovids. There are no sheep in the assemblage nor is there any pottery (see Collins et al. In Prep). However, a single decorated pot sherd was found in the surface layer of SPTZA with a double line of incised punctates typical of the late Holocene in Namaqualand. Overall the fauna represents an opportunistic hunting strategy focussing on hunting local animals. For now, there is no direct evidence for the presence of herders at the site. While the diversity of species is low it is the highest in the assemblage so far. There are numerous ostrich eggshell beads and bead preforms of both the large (~10 mm) and small variety (~4-5 mm) indicating the manufacture of beads on site. There was an interesting spatial pattern in the 1400 BP layer: there is a 1 $m^2$ hearth (10 cm deep) in the southeastern corner of the site (Feature 6) that was surrounded by hearth stones and nearly complete, burnt tortoise carapaces. The tortoises were all on the same floor context and likely represent a single occupation event, effectively representing a drop zone (cf. Binford 1978).

The fauna from the 4200 BP Wilton layers have been identified by Dr Ben Collins but have not yet been analyzed. There was an *in situ* neonatal steenbok (sp?) burial (feature 7) that is of interest from a ritual point of view and deserves further study. Dr Judith Sealy is looking at the ZooMS proteins from this individual to identify it more securely to species. Small ostrich eggshell beads ~ 4 mm are present.

The fauna from the 9 ka to 41 ka layers have not been identified or analyzed but are scheduled to be looked at in 2018 by a new Masters student. We are ultimately hoping to study the various hunting strategies that people used to survive in this arid environment and to look at the diachronic change associated with shifting environments pre- and post Last Glacial Maximum (18 to 21 ka). There are very few small beads ~ 4 mm in diameter, a crayfish mandible, and a black mussel shell. The frequency of artefacts was the lowest in these layers as the preservation of the bone was poor compared to the layers above and below while the ostrich eggshell was more numerous. The presence of the snail and rodent burrows is the likely explanation for the drop is artefact preservation as these animals would have moved the sediment and further fragmented fragile elements.

The large MSA blades, the engraved ostrich eggshell and the improved organic preservation at the interface with the unexcavated red silt layer below (41 ka) is exciting as it suggests that samples will improve in quality and quantity. Next season (2017) has great potential to collect well preserved organic remains, assess spatial patterns, palaeoenvironments, and produce a late Pleistocene MSA lithic assemblage. Our research goals for the next season is to evaluate the Marine Isotope Stage 2 and 3 deposits through continued excavation (MIS 3 deposits) and the analysis of the material collected in the previous excavations. We are also keen to begin tying

in the cultural and raw material signatures from Spitzkloof with the many open air sites between the valley and the coastline.

## 7. Future Work

Immediate future work will include the excavation of the red silt layer using the same methods as outlined above. We predict an additional 1.3 m of deposit is present based on the morphology of the shelter. This excavation is planned for July/August 2017 and funding has been obtained from SSHRC (Social Science and Humanities Research Council of Canada). We also need to continue systematic survey of the region in order to identify other sites and raw material sources. This will be done using standard survey methods and high-resolution GPS handheld units. Additionally, we are looking into the prospect of obtaining a sediment core of the dry lakebed 8 km northwest of the site for palaeoenvironmental samples. We currently have one graduate student who is interested in palaeoenvironmental and geoarchaeological questions (using strontium isotopes), which will contribute to the overall understanding of how this ancient landscape was used. The piece-plotted data will also potentially contribute to the fine-grained analysis of occupation pulses and hiatuses, to be used in conjunction with a rigorous dating program based on amino acid racemization and radiocarbon.

## 8. Team

| | |
|---|---|
| Report: | Genevieve Dewar |
| 2015 Fieldwork team: | Genevieve Dewar<br>Hugo Pinto<br>Lauren Sewell<br>Angie Feak |

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Table 1. Radiocarbon ages of ostrich eggshell from Spitzkloof A, Namaqualand, South Africa. The $^{14}$C dates were run at the $^{14}$Chrono Centre at Queens University Belfast. Dates are calibrated using the software Calib 7.0 and the calibration curve Shcal13.14c for the southern hemisphere (Hogg et al. 2013). Note that the geological layers Dave, Mark and Julie represent a single chronological layer.

| **Lab No.** | **Context** | **Date in $^{14}$C BP** | **Calibrated dates in calBP** |
|---|---|---|---|
| UBA-17609 | Layer Nick | 14,350 ± 10 | 17,274 - 17,093 |
| UBA-17610 | Layer Nick | 14,400 ± 70 | 17,391 - 17,134 |
| UBA-17611 | Layer Nadja | 15,200 ± 50 | 18,304 - 18,108 |
| UBA-17612 | Layer Jaird | 16,250 ± 60 | 19,457 - 19,237 |
| UBA-17613 | **Layer Dave** | **19,550 ± 60** | **23,415 - 23,132** |
| UBA-17614 | **Layer Mark** | **19,750 ± 80** | **23,671 - 23,393** |
| UBA-17615 | **Layer Julie** | **19,550 ± 60** | **23,415 - 23,132** |
| UBA-17616 | Layer Brian | >59,250 | N/A |
| UBA-17617 | Layer Brian | 52,150 ± 800 | N/A |
| UBA-17618 | Layer Brian | 51,150 ± 850 | N/A |

* Experiments have shown that fossil ostrich eggshell is typically 180 ± 120 years too old (Vogel et al. 2001) and so 180 yrs was subtracted

before calibration.

Table 2. Radiocarbon ages of charcoal from Spitzkloof B, Namaqualand, South Africa. The AMS $^{14}C$ dates were run at Direct AMS Radiocarbon Dating Services.

| **Lab No.** | **Context** | **Date in $^{14}C$ BP** |
|---|---|---|
| D-AMS 005181 | Feature 1 | 718 ± 25 |
| D-AMS 005182 | Feature 6 | 1,473 ± 30 |
| D-AMS 015299 | 3003A spit 1 | 1,411 ± 20 |
| D-AMS 015302 | 4034 spit 2 | 4,615 ± 30 |
| D-AMS 015300 | 3003 spit 3 | 8,923 ± 35 |
| D-AMS 010598 | 4023 | 29,991 ± 145 |
| D-AMS 010599 | 2023 | 33,203 ± 150 |
| D-AMS 015301 | 2029 | 41,330 ± 30 |

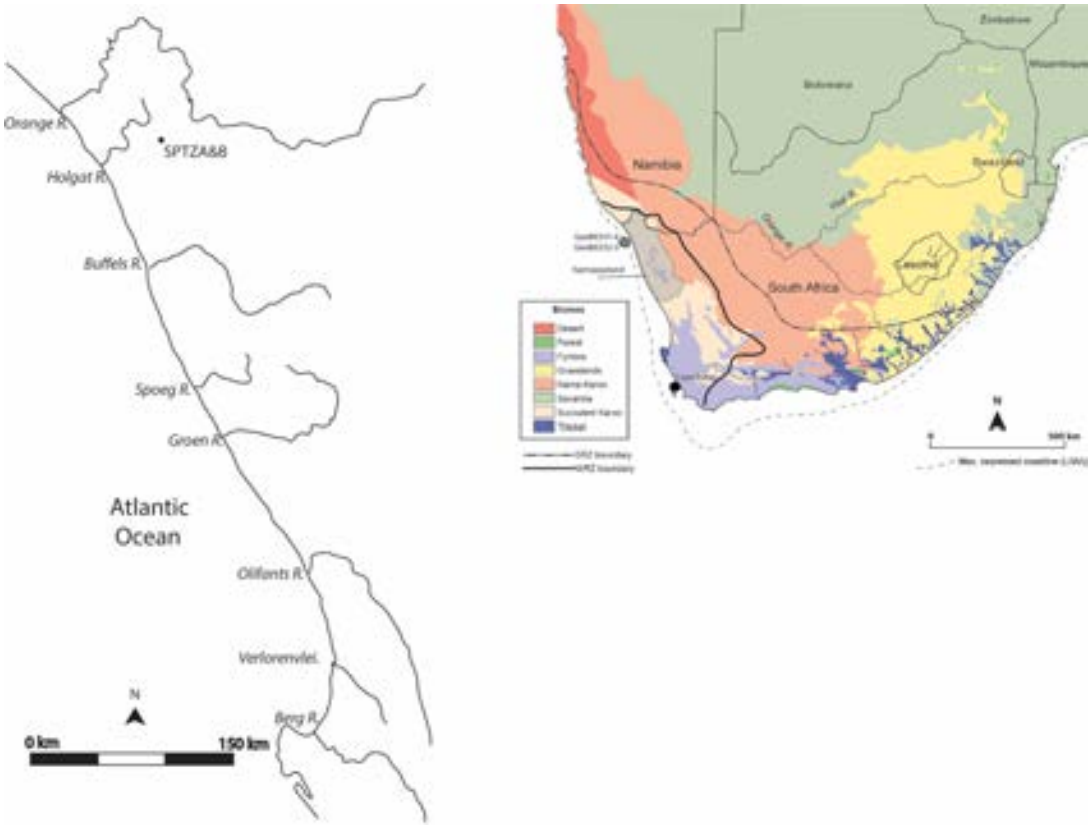


Figure 1. Map showing the location of the Spitzkloof A and B near the Holgat River in the Richtersveld, Northern Cape, South Africa.

Figure 2. Photograph of Spitzkloof A on the right and B on the left, taken facing south from the outcrop across the dry tributary from the site. (Photo taken by Michael Korchok)

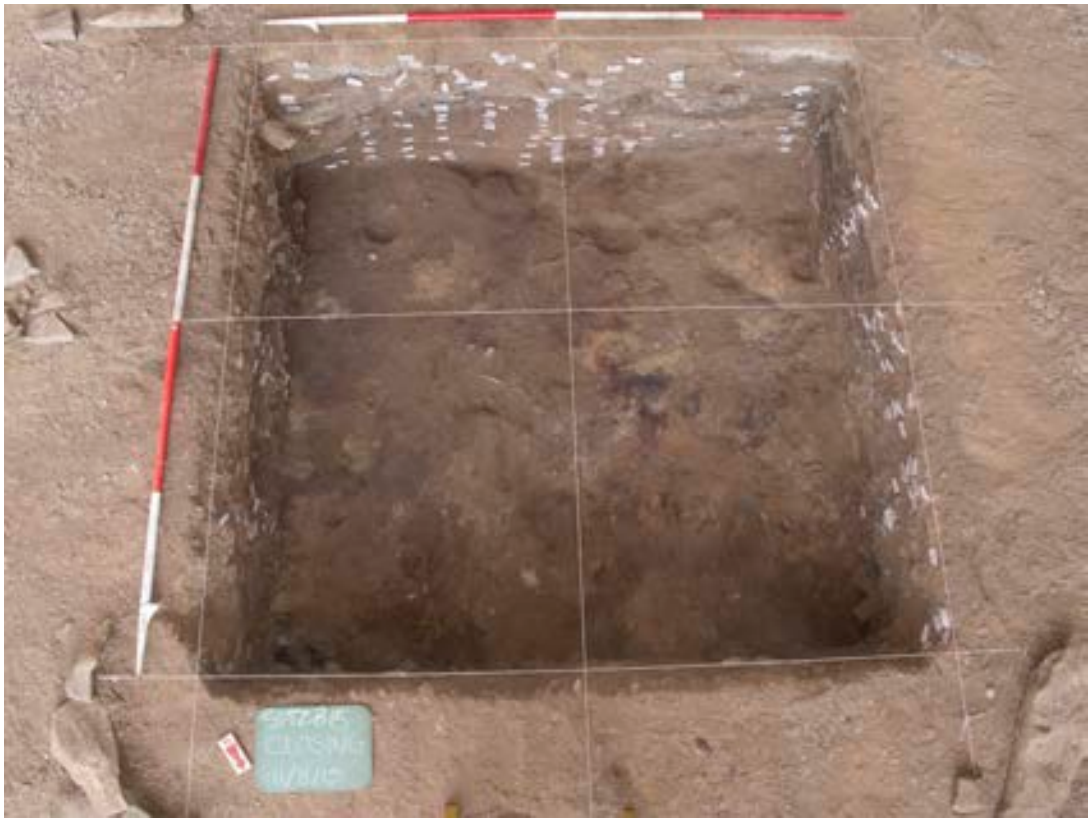

Figure 3. Plan view Top left: Pre-excavation at Spitzkloof B, facing southwest looking into the back of the shelter. Below: End of the 2015 excavation season exposing the red silt layer on the floor of the unit. Facing south (Photo taken by Genevieve Dewar)

Figure 4. South wall profile at the end of the SPTZB 2015 excavation season. The step has been removed exposing a red silt layer across the unit. The grey roof spall, sandy silt layer is visible near the surface while the brown sandy silt layer sits below the grey and above the red silt at the floor. The unit is 2 m across and 85 cm deep.