

Report on the 2006 and 2007 excavations at Vaalkrans Shelter, De Hoop Nature Reserve, southern Cape

Report prepared for Heritage Western Cape and Cape Nature by:

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Introduction:

Excavation at Vaalkrans continued during February, 2006 and February, 2007. Details of the site location, layout and excavation methodology have been described in detail in previous reports and will not be repeated here. Here we report on the squares and units excavated during 2006 and 2007.

Sedimentology and stratigraphy

In 2006 the excavation was expanded eastwards to include quadrats N5b & d (Figure 1). From 2002 to 2007 a total volume of 0.49m³ has been excavated.

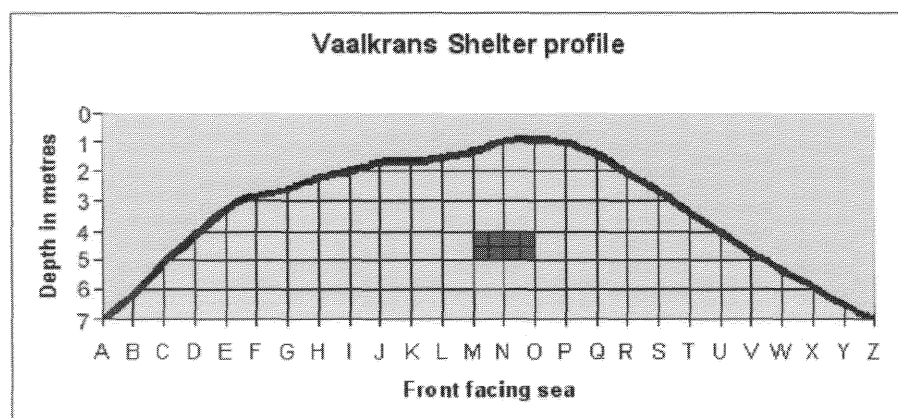


Figure 1. Vaalkrans shelter profile - excavated area indicated in dark grey.

During 2006 the following quadrats and units were excavated:

- In quadrats N5b and d the surface layer AA was removed, which consisted of loose, tan-coloured, fine-grained sand containing very little material.
- Unit AB was removed from N5b and d. It was slightly compact, darker than overlying AA, and contained shellfish, charcoal, halites, plant material and a quartzite manuport was found in N5d.

- Unit ABA was excavated in N5b and N5d, and consisted of quite compact dark grey-brown soil. In N5d the northern half was more compact than the southern half, and the unit slopes down slightly towards the northeastern corner. The southeastern corner of N5b contained many halites, and in the south-western to north-western corner of this quadrat a dense band of plant material was recovered. This unit was not completely removed from either quadrats during this season.
- Unit ACB was removed from M5c and in M5a excavation of ACB was continued from the October 2005 excavation. This unit consisted of compact grey to dark yellow/ brown sand with bits of charcoal, halites and broken shell throughout. In the western half of M5a unit ACB contained a compact layer of organic material, and more plant material occurred in the northwest than southwest of this quadrat. There appeared to be less plant material in ACB of the adjacent M5c.
- ACC in M5a and M5c consisted of loose, light-coloured sand containing charcoal pieces, some scattered pieces of wood and very few shellfish.
- Unit AD was completely removed from M5c, but only partially in M5a. It consisted of fine-grained soil which became darker and more compact further down the unit. It contained several large shells, large pieces of charcoal, and in M5c there was a distinct band of dark sand and charcoal of about 10cm wide along the western edge of the quadrat. Along the middle of the northern section of M5c there was a disturbed area where several shells were lying at odd angles, and in the middle of the southern edge is a large piece of roofspall (+/- 25x8 cm) that is resting on a unit further down with loose sand around it, mostly sterile.
- In quadrat N5c excavation of AJ continued from 2005. The northwestern corner continued to be compact and dark with burnt shell fragments, whereas the northeastern and southeastern corners consisted of looser sandy areas and sloped slightly towards the southeast. The southwestern corner also slopes down towards the southeastern part.
- The remnants of AK was excavated in N5a., which was limited to the northern part of the quadrat, with a small amount of material in the southeastern corner. AK sloped downwards towards the northeast from the southwest.
- Unit AL was excavated in N5a and continued from 2005 in M5d and M5b. Unit AL consisted of fairly loose, light-coloured sand with a lot of shellfish, particularly *P. perna*. AL was particularly thin in N5a and only present in the southwestern corner.
- Unit AM was completely removed from M5d and partially excavated from N5a. This unit has fairly compact grey-brown sand which becomes looser and lighter further down. AL is extremely densely packed with *P. perna* shells. The base of this unit in M5d is level with no clear sloping.

During 2007 the following quadrats and units were excavated:

- The remnants of unit ABA were removed from N5b and N5d.
- Unit AC was removed from quadrats N5b and N5d. It consisted of light, loose yellow sand. AC was very thin in N5d, and only occurred in the southwestern part of N5b. The unit sloped downwards in the northeastern corner of N5d.
- ACB was excavated in both N5b and N5c. It consisted of very dark, compacted and sticky soil. This unit was rich in plant remains and charcoal, and sloped sharply down towards the

northeastern corner in N5d. and southwestern corner of N5b. This unit was not completely removed from N5b during this season.

- ACC was removed in quadrat N5d. The soil was lighter and less compact than that of ACB, containing large amounts of shell fragments and charcoal. The unit was thick along the western edge and thinned out towards the eastern edge. The unit slopes down towards the northeastern corner.
- Excavation of unit AD in M5a continued from 2006. The remainder of the unit consisted of slightly darkened sand which sloped gently from the south and west towards the north and east.
- Unit AE was excavated in quadrats M5a and M5c. It consisted of loose, light sand containing very little material. The unit became slightly darker lower down with charcoal flecks. In the northern section of M5c there is a patch of shells that are lying at odd angles, most likely a continuation of the disturbed area evidenced in this quadrat in unit AD which was excavated in 2006. The large roofspall block noted in AD in 2006 in this quadrat is still in situ, and the sand around this block, as well as around the disturbed shell area is very loose. A single ostrich eggshell bead was found in M5a.
- Unit AF was removed in M5c and was restricted to the eastern third of the quadrat. It is a continuation of AF in M5d which was a designated hearth. The soil was dark, ashy with charcoal and fairly compact. It was darkest and most compact at the centre of the eastern section. It is mostly the edge of the hearth, rather than the hearth itself. The roofspall block has been removed and the soil around it was very loose.
- AK was removed from quadrat N5c. The unit consisted of dark, compact soil which sloped down towards the south and southeast. The soil in the southern part was not quite as dark as that in the rest of the quadrat. There was a hearth in the northwestern corner, and charcoal occurred throughout the unit.
- Unit AL was removed from N5c, and consisted of a thin layer of light, very loose sand. It was very thin in the northwestern corner and thickened out slightly towards the southeast. The unit slopes slightly downwards towards the southeast.
- AM was excavated in quadrats M5a and N5b. It consists of loose medium brown sand containing some charcoal, halites, and a very dense concentration of *P. perna* shells, with some other shellfish species appearing occasionally. In M5b the unit slopes slightly towards the northeastern corner. In N5a the sediment slopes eastwards and there is a thick patch of burnt shellfish with charcoal below it along the middle of the northern section. The sand in this area was much darker and more consolidated.

Cultural artefacts

Ostrich eggshell

A single broken ostrich eggshell bead has been recovered from M5a unit AE (Fig. 2). Fragments of OES are rare and only two fragments were found in N5b ACB (2007) and M5a ACB (2006). Neither of these latter pieces showed signs of modification.



Figure 2. OES bead from M5a AE

Lithics

The lithic collection excavated thus far is small and informal (Fig. 2). The dominant raw material is quartzite, with chunks and flakes being the most common. A single quartz core was found in ACB (not shown in Table 1). Silcrete and quartz are rare but does occur in small numbers throughout the assemblage. During the 2002 to 2007 excavations a total of 46 chunks, 41 flakes (of which 9 were cortical), 16 manuports, 3 hammerstones, 2 grinders and 1 core were recovered. A hammerstone recovered from N5d AC had traces of ochre on it

Table 1 Summary of lithics recovered from the 2002 to 2007 excavations. (Qz= quartz, Qzt= quartzite, Silc= silcrete, Cal= Calcrete)

Unit	Hammerstone				Flake				Cortical Flake				Chunk				Cobble/manuport				Grinder			
	Qz	Qzt	Silc	Cal	Qz	Qzt	Silc	Cal	Qz	Qzt	Silc	Cal	Qz	Qzt	Silc	Cal	Qz	Qzt	Silc	Cal	Qz	Qzt	Silc	Cal
AA		1																						
AB						1								2										
ABA										2				2	1			1						
AC						1	1						2	1										
ACB					1	9		1		1			1	2	1									
ACC		1				2			1	1				1	1									
AD						2								3				3						
ADA		1														1								
AE								1						1				1						
AF														1	1									
AG						1	1			1					1									
AH						4				2			1	5	1							1		
AI						2	1			1				4		1		3				1		
AJ													1	4				8			1			
AK														3										
AL							1							1										
AM						3							3											
Total		3			1	25	4	2	1	8			8	28	6	2		16			1	2		

Flora

Plant material is well preserved in many of the layers, particularly geophytes (Fig.4). When a reasonable quantity ($n=50$) has been excavated they will be sent for specialist identification to Dr. Snyman at Kirstenbosch Botanical Gardens.



Figure 3 Plant remains from N5b ACB.

Fauna

Shellfish

Although both *Diloma sinensis* and *D. tigrina* were identified in the deposits, the high frequency of breakage resulted in a large number of *Diloma* apices that could only be identified as *Diloma sp.* (Table 2). Therefore the data for the 3 categories of *D. sinensis*, *D. tigrina* and *Diloma sp.* have been combined in Figure 6 and is referred to as *All Diloma*. The other *Diloma* species, *D. variegata*, does occur in the assemblage in very small numbers, but is considered too small to be a food item, and has therefore not been included here.

Perna perna is the most commonly occurring species in more than half of the units excavated, followed by the *Diloma* species (combined) and *Turbo sarmaticus*. *Haliotis midae* and *H. spadicea* occur fairly consistently throughout the sequence but mostly in lower frequencies than the aforementioned species.

A wide range of *Patella* species occur in the assemblage, but at fairly low frequencies relative to the other shellfish species mentioned above. The most commonly occurring *Patella* species are *Scutellastra argenvillei*, *S. barbara*, *S. longicosta* and *Cymbula oculus*.

It was noted that many of the *T. sarmaticus* shells in M5c AE had holes in them, several of which appeared to be perforated from the inside out (Fig. 5). A single *T. sarmaticus* shell from M5c ACB displayed a similar breakage pattern. Two *H. midae* shells from this square and unit were also

perforated (Fig.6). It is not clear whether this is due to cultural or taphonomic processes and will be investigated further.

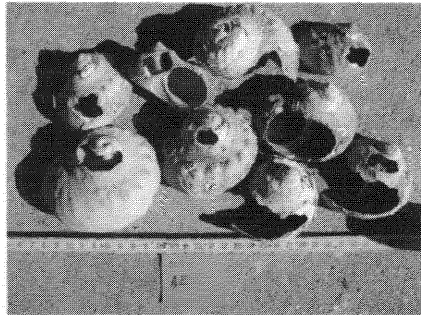


Figure 4. Perforated *T. sarmaticus* shells from M5c AE.

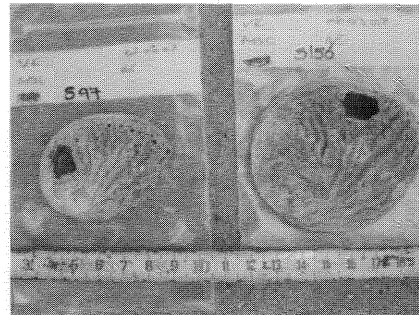


Figure 5 Perforated *H. midae* from M5c AE

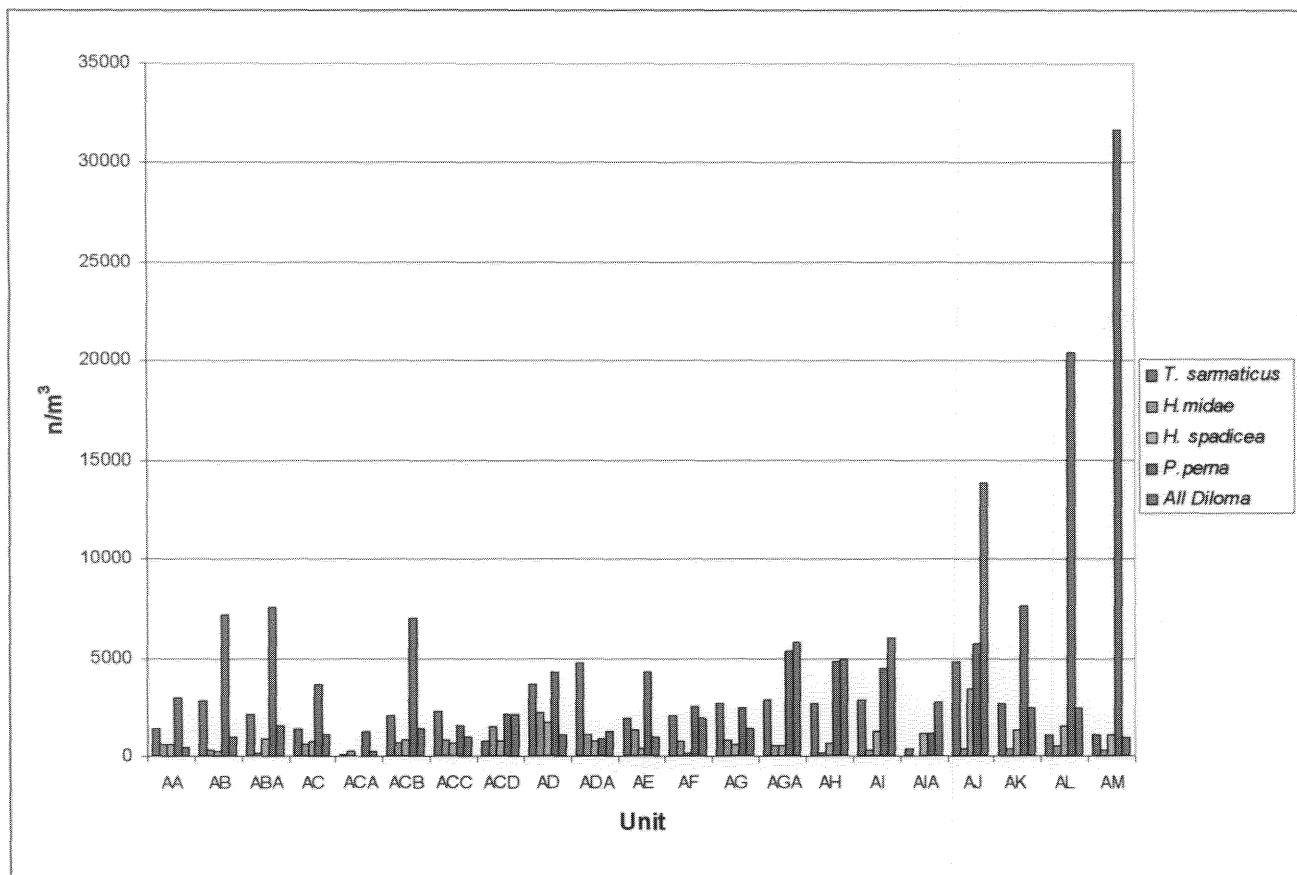


Figure 6 Density of the 5 most commonly occurring shellfish species per m3 per unit

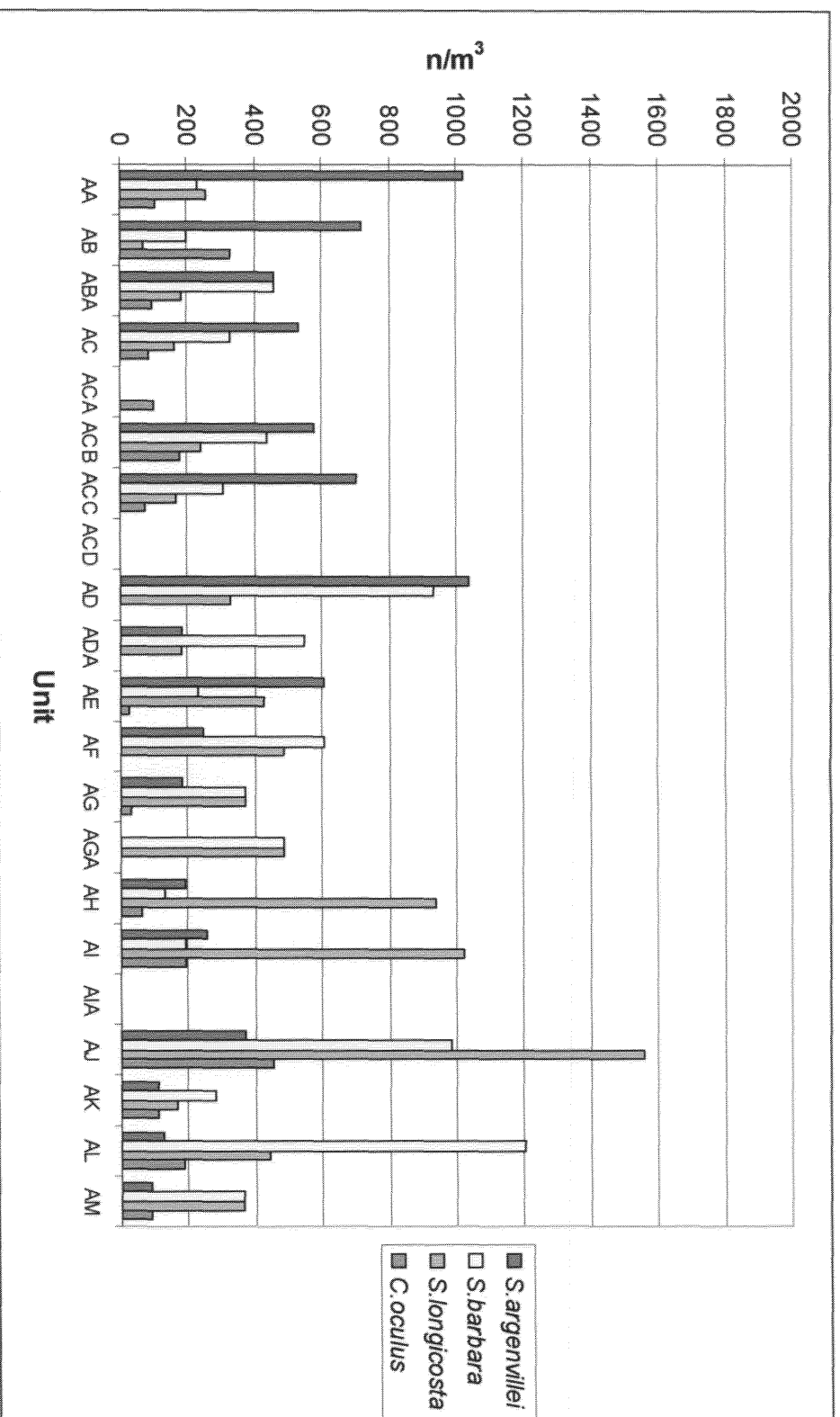


Figure 7 Density of the most commonly occurring *Patella* species per unit (2002 to 2007 excavations)

Table 2. MNI (n) and percentage frequency of Patella species out of all shellfish species found at Vaalkrans per layer (2002 to 2007 excavations).

Unit	<i>S. argenvillei</i>		<i>S. barbara</i>		<i>S. cochlear</i>		<i>S. granularis</i>		<i>S. longicosta</i>		<i>S. minutata</i>		<i>S. tubularis</i>		<i>C. granatina</i>		<i>C. oculus</i>		<i>Patella</i> sp.		<i>S. tubularis/ barbara</i>	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
AA	40	12.6	9	2.8	2	0.6	-	-	10	3.2	-	-	1	0.3	-	-	4	1.3	8	2.5	-	-
AB	11	5.0	3	1.4	1	0.5	-	-	1	0.5	-	-	-	-	-	-	5	2.3	5	2.3	-	-
ABA	5	3.0	5	3.0	3	1.8	-	-	2	1.2	1	0.6	-	-	-	-	1	0.6	3	1.8	1	0.6
AC	26	6.1	16	3.7	-	-	-	-	8	1.9	-	-	-	-	2	0.5	4	0.9	-	-	1	0.2
ACA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5.0	-	-	-	-
ACB	29	4.0	22	3.1	2	0.3	-	-	12	1.7	-	-	-	-	-	-	9	1.3	9	1.3	1	0.1
ACC	30	8.7	13	3.8	4	1.2	-	-	7	2.0	-	-	1	0.3	1	0.3	3	0.9	4	1.2	-	-
ACD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AD	41	6.4	37	5.8	6	0.9	-	-	13	2.0	1	0.2	3	0.5	-	-	-	-	3	0.5	-	-
ADA	1	1.8	3	5.5	-	-	-	-	1	1.8	1	1.8	-	0.0	-	-	-	-	-	-	-	-
AE	24	5.6	9	2.1	2	0.5	1	0.2	17	4.0	-	-	3	0.7	-	-	1	0.2	2	0.5	-	-
AF	2	2.7	5	6.7	-	-	-	-	4	5.3	-	-	-	-	-	-	-	-	-	-	-	-
AG	6	2.0	12	3.9	-	-	1	0.3	12	3.9	-	-	2	0.7	-	-	1	0.3	3	1.0	-	-
AGA	-	-	1	2.9	-	-	-	-	1	2.9	-	-	-	-	-	-	-	-	-	-	-	-
AH	6	1.2	4	0.8	1	0.2	2	0.4	29	6.0	-	-	5	1.0	-	-	2	0.4	3	0.6	-	-
AI	8	1.5	6	1.1	1	0.2	-	-	32	5.9	-	-	3	0.6	-	-	6	1.1	2	0.4	-	-
AIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AJ	9	1.1	24	3.0	-	-	1	0.1	38	4.8	-	-	4	0.5	-	-	11	1.4	7	0.9	-	-
AK	2	0.7	5	1.8	-	-	-	-	3	1.1	-	-	-	-	-	-	2	0.7	1	0.4	-	-
AL	2	0.4	19	4.1	-	-	-	-	7	1.5	-	-	-	-	-	-	3	0.7	2	0.4	-	-
AM	2	0.2	8	1.0	1	0.1	-	-	8	1.0	-	-	1	0.1	-	-	2	0.2	5	0.6	-	-

Table 3. MNI (n) and percentage frequency of Patella species out of all shellfish species found at Vaalkrans per layer (2002 to 2007 excavations).

	<i>T. sarnaticus</i>		<i>T. cidaris</i>		<i>Turbo</i> sp.		<i>H. midiae</i>		<i>H. spudea</i>		<i>Haliotis</i> sp.		<i>P. perna</i>		<i>D. sinensis</i>		<i>D. aggrina</i>		<i>Diloma</i> sp.		<i>D. gigas</i>		<i>B. cincta</i>		<i>Barnapena</i> sp.	
Unit	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
AA	55	17.4	-	-	2	0.6	23	7.3	22	6.9	-	-	115	36.3	9	2.8	-	-	7	2.2	8	2.5	-	-	2	0.6
AB	43	19.6	-	-	-	-	4	1.8	3	1.4	-	-	110	50.2	7	3.2	-	-	8	3.7	18	8.2	-	-	-	-
ABA	23	13.8	-	-	-	-	2	1.2	10	6.0	-	-	82	49.1	2	1.2	1	0.6	14	8.4	12	7.2	-	-	-	-
AC	69	16.1	-	-	-	-	28	6.5	35	8.2	-	-	176	41.1	21	4.9	7	1.6	25	5.8	10	2.3	-	-	-	-
ACA	1	5.0	-	-	-	-	2	10.0	-	-	-	-	13	65.0	-	-	-	-	2	10.0	1	5.0	-	-	-	-
ACB	104	14.5	-	-	-	-	32	4.5	40	5.6	1	0.1	352	49.0	18	2.5	9	1.3	44	6.1	34	4.7	-	-	-	-
ACC	98	28.3	-	-	-	-	36	10.4	27	7.8	1	0.3	66	19.1	12	3.5	2	0.6	27	7.8	14	4.0	-	-	-	-
ACD	1	9.1	-	-	-	-	2	18.2	1	9.1	-	-	3	27.3	3	27.3	-	0.0	-	0.0	1	9.1	-	-	-	-
AD	143	22.4	-	-	-	-	89	14.0	67	10.5	-	-	169	26.5	18	2.8	2	0.3	23	3.6	22	3.5	-	-	-	-
ADA	26	47.3	-	-	-	-	6	10.9	4	7.3	-	-	5	9.1	-	-	1	1.8	6	10.9	1	1.8	-	-	-	-
AE	77	18.1	-	-	-	-	52	12.2	14	3.3	-	-	169	39.8	10	2.4	2	0.5	27	6.4	11	2.6	-	-	4	0.9
AF	17	22.7	-	-	-	-	6	8.0	1	1.3	-	-	21	28.0	1	1.3	-	0.0	15	20.0	3	4.0	-	-	-	-
AG	87	28.6	-	-	-	-	26	8.6	19	6.3	-	-	79	26.0	3	1.0	-	0.0	42	13.8	10	3.3	-	-	1	0.3
AGA	6	17.1	-	-	-	-	1	2.9	1	2.9	-	-	11	31.4	3	8.6	-	0.0	9	25.7	2	5.7	-	-	-	-
AH	82	16.9	1	0.2	-	-	5	1.0	21	4.3	-	-	149	30.8	45	9.3	6	1.2	101	20.9	16	3.3	6	1.2	-	-
AI	90	16.6	-	-	-	-	10	1.8	40	7.4	-	-	140	25.8	39	7.2	3	0.6	145	26.8	14	2.6	3	0.6	-	-
AIA	1	6.7	-	-	-	-	-	-	3	20.0	-	-	3	20.0	3	20.0	-	0.0	4	26.7	1	6.7	-	-	-	-
AJ	117	14.6	1	0.1	-	-	9	1.1	83	10.4	-	-	140	17.5	76	9.5	10	1.3	252	31.5	18	2.3	-	-	-	-
AK	48	17.3	-	-	1	0.4	6	2.2	24	8.6	-	-	137	49.3	3	1.1	7	2.5	34	12.2	5	1.8	-	-	-	-
AL	18	3.9	1	0.2	2	0.4	8	1.7	25	5.4	-	-	323	70.4	4	0.9	10	2.2	25	5.4	9	2.0	1	0.2	-	-
AM	24	2.9	-	-	-	-	6	0.7	24	2.9	1	0.1	696	83.6	6	0.7	4	0.5	11	1.3	34	4.1	-	-	-	-

Mammalian and reptilian fauna

The bone recovered in 2006 and 2007 has not been analysed to genus or species. This will be carried out when the sample is larger by a specialist analyst. Our preliminary analysis shows most bone derives from small mammals, and the likely genus/species are similar to that previously analysed from earlier excavations at the site. *Bathyergus suillus* is common and several of the recovered mandibles show signs of burning on the maxillae which suggests that the agency of accumulation is human (Henshilwood, 1997). *Chersina angulata* is also well represented in the site, and the recovery of several scutes attest to the good preservation of organic material at this site. Fish scales and vertebrae were present and in N5d ACB the premaxillae of a *Sparidae* species was found.

Discussion

Excavations at the Vaalkrans site since 2002 have resulted in the removal of less than .5 cu. m of deposit. This is largely due to the careful excavation techniques that have been employed, namely point plotting (X,Y,Z) all stone and bone and all shells that are countable. The initial quadrats excavated N5 a&c and M5 b&d have been excavated to a depth of > 40 cm. At this stage it is not practical to excavate deeper in these squares until the surrounding quadrats have been excavated which will then allow access to these deeper levels. In 2006 the excavations were hence expanded eastwards to include quadrats N5b & d 2005. A further expansion is planned for 2008 that will provide better resolution of the use of space within the site and also allow deeper excavations in the first quadrats excavated.

Excavations at Vaalkrans are limited at this stage but are providing an interesting background to the final stages of the Later Stone Age in this region. The presence of copper and an iron chunk in the upper layers suggest the final San occupants at the site had some contact with early European travellers. Excellent preservation of plant material, shell and bone provides the potential of detailed insights into the subsistence practices of the San people in the De Hoop region and will complement the results from LSA sites closest to Vaalkrans, namely Blombos Cave, 120 km to the east (Henshilwood, 1995, 1996) and Die Kelders (Schweitzer, 1979), Pearly Beach (Avery, 1974, 1975, 1976; Avery & Siegfried, 1980) and Byneskranskop (Schweitzer & Wilson, 1982), all situated >60 km to the west. The information from the few sites previously excavated within or close to the De Hoop area, Koppie Alleen (unpublished, Mike Wilson) and a cave on the farm Windhoek (Grobelaar & Goodwin, 1952) roughly excavated by guano diggers in 1949 provide limited information on Khoisan subsistence practices. In the latter report the authors propose that the Windhoek finds consisting of bone tools, a polished stone adze, OES beads, cordage, a coarse knotted net, an iron point, a bored stone, grinders and hammerstones and pottery were, in their estimation, no more than 150 - 300 years old based on the presence of a buck horn and the fats, resins and other organic residues on some of the finds. If correct the time of occupation at Windhoek may overlap that at the Vaalkrans site (Unit ACB = 140 ± 35 b.p. & Unit ACA = 220 ± 45 b.p.). The complexity of the material culture from the Windhoek site contrasts with the simplicity of the few tools and implements found at Vaalkrans.

[In our 2006 report we recommended that conservation measures for the site are urgently required. In late 2006 we installed a row of sandbags at the western neck of the shelter to channel water away from the deposits. A conduit of c. 40 mm diameter and 4 m length has been installed to channel the water. We wish to report that this has action has helped protect the site from some

flooding that occurs annually and that results in considerable waterflow over the rim of the cliff above the cave and into the site. However in early 2007 heavy flooding in the area resulted in further washaways at the back of the site along the rear cave wall. Deposit in this area has been further disturbed resulting in some deposit being translocated to the western end of the shelter. The sandbags that we placed over the deposit in the centre of the shelter have held against the flood waters and this deposit is undamaged. In early 2007 we reinforced the sandbags at the eastern end of the site to contain further flooding and to direct the excess water, via a 40 mm pipe, away from the deposit.

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