

**Interim report to the Council for Geoscience, Pretoria
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The study of the fossil materials from Besaanklip, Western Cape Province (not for citation)

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Introduction

This report gives background to the fossil locality of Besaansklip, near Saldanha in the Western Cape Province, and provides a progress report on the study of the fossil materials.

The fossil collections from Besaansklip consist of two components, which represent two field seasons, in 1996 and on in 1998, when fossil were excavated at the Besaansklip fossil site. The initial phase of fieldwork in 1996 was conducted by members of the Florisbad Quaternary Research Department of the National Museum in collaboration with the Council for Geoscience. The Council for Geoscience conducted a second period of fieldwork in 1998 in collaboration with the Amateur Palaeontological Society of South Africa.

Initial sorting, identification and taxonomic classification of the 1996 specimens were done at the Florisbad Research Station of the National Museum, under the supervision of the author. However, in November 1996 this collection was transported back to the laboratory of the Council for Geoscience, Pretoria, for further study. The 1996 collection was complemented by the addition of the fossil materials from the 1998 excavation. Both excavations were conducted in the same locality and fossil assemblages generated from these excavations represent the same accumulation.

The fossil materials recovered from Besaansklip derive from ancient brown hyaena burrows. They are important, because they reflect terminal Last Glacial palaeo-environments in the Western Cape. This time witnessed the change from lowered sea levels to higher sea levels, reflecting the warming of the earth's atmosphere after the Last Glacial period. The Besaansklip fossil assemblage is unusually rich with over 40

vertebrate taxa (Table 1) and represents a post-glacial palaeo-environment that was remarkably productive.

Progress

In March 2003 the author re-organised in approximate taxonomic order the materials resulting from the first and the second period of excavation at the Council for Geoscience. These materials were packed and transported for further detailed study to the Florisbad Quaternary Research Station of the National Museum, Bloemfontein. It is foreseen that this study will include taxonomic description, quantification, a consideration of the context and taphonomy and a palaeo-ecological assessment of the material.

So far, we have started with the detailed consideration of alcelaphine bovids. The remains of black wildebeest, *Connochaetes gnou*, are of particular interest, since these fossils represent two distinct fossil populations in the Besaansklip palaeo-environment. One represents smaller-bodied Cape coastal populations, as is commonly found in Last Glacial deposits, while the other is more typical of the interior of southern Africa. This is significant, as it reflects the rapidly changing coastal environment after the Last Glacial, when sea levels returned to the present level. This process reduced the area of the Cape coastal platform as habitat for plains game and caused the extinction of the Cape coastal populations.

In addition my colleague, Lloyd Rossouw, has sampled fossil teeth for the extraction of fossil phytoliths. Phytoliths are the silica remnants of plant cells and they preserve under suitable conditions on fossil teeth and in fossil soils. When these silica bodies can be extracted from fossil teeth they provide an impression of the diet of the species. Those derived from fossil soils provide an impression of the grassland component of the palaeo-environment. Mr. Rossouw has also tested some fossil teeth for stable carbon isotopes as a control for his phytolith results.

Further work

We plan to continue with the systematic study of the collection in 2005 and hopefully to complete the initial descriptions. At the same time the work on fossil phytoliths is continuing. This work will complement the palaeo-ecological assessment of the fossil vertebrates.

TABLE 1. A TAXONOMIMC LIST OF THE FOSSIL REMAINS FROM THE 1996 AND 1998 EXCAVATIONS AT BESAANSKLIP

	NISP
REPTILIA	
Serpentes indet.	2 (ind.)
Testudinae indet	7
AVES	
<i>Struthio camelus</i>	15
Indet.	5

MAMMALIA	
Primates	
<i>Papio ursinus</i>	6
Insectivora	
Indet.	5
Tubulidentata	
<i>Oryctoropus afer</i>	1
Lagomorpha	
<i>Lepus</i> sp.	2
Rodentia	
<i>Hystix africae-australiss</i>	1
Indet.	10
Hyracoidea	
<i>Procavia capensis</i>	2
Carnivora	
<i>Aonyx capensis</i>	1
<i>Mellivora capensis</i>	10
<i>Ictonyx striatus</i>	2
<i>Herpestes ichneumon</i>	2
Otariidae indet.	3
Viverridae indet.	3
<i>Vulpes chama</i>	4
<i>Canis mesomelas</i>	31
<i>Lycaon pictus</i>	14
<i>Parahyaena brunnea</i>	9
<i>Crocuta crocuta</i>	22
Hyaenidae indet.	16
<i>Felis lybica</i>	2
<i>F. caracal</i>	10
<i>Acinonyx jubatus</i>	4
<i>Panthera pardus</i>	7
<i>P. leo</i>	10
Perissodactyla	
* <i>Equus capensis</i>	36
<i>Equus</i> sp. cf. <i>E. quagga</i> subsp.	6
Artiodactyla	
<i>Phacochoerus aethiopicus.</i>	7
<i>Taurotragus oryx</i>	37
* <i>Homoiceras antiquus</i>	18
<i>Syncerus caffer</i>	6
<i>Hippotragus leucophaeus</i>	33
<i>Redunca arundinum</i>	1
* <i>Damaliscus niro</i>	57
<i>D. pygargus</i>	6
<i>Alcelaphus buselaphus</i>	69

<i>Connochaetes gnou</i>	90
* <i>Megalotragus priscus</i>	9
<i>Pelea capreolus</i>	8
<i>Antidorcas marsupialis</i>	3
<i>Raphicerus</i> sp.	54
<i>Sylvicapra grimmia</i>	38

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