

A desktop palaeontological impact assessment of the proposed project “Improvement of Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site”

By:

James S. Brink, D.Phil.
Florisbad Quaternary Research Dept.
National Museum, P.O. Box 266,
Bloemfontein, 9300, South Africa
jbrink@nasmus.co.za
Tel.: +27 51 4479609 (office); +27 827891374 (mobile)

Contents

| | |
|---|----------|
| Introduction | 2 |
| Review of background documentation | 2 |
| Assessment | 4 |
| Recommendations | 4 |

Introduction

I was approached by EcoAfrica Environmental Consultants Pty Ltd (EcoAfrica) to conduct a desktop palaeontological assessment of the proposed project “Improvement of Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site”. The scope of the study was given as:

- Review background documentation for the Taung Skull World Heritage Site (TSWHS).
- Review proposed project activities (broader and 17 specific current project components).
- Conduct a site visit, if necessary.
- Compile a PIA and submit to EcoAfrica.

Based on discussion with EcoAfrica it was decided that a site visit was not necessary for the purpose of the PIA and that a desktop study would be sufficient. Consequently I did not visit the Taung site complex. Therefore, this report is informed by previous site visits, in 1985 and in 2008, and by informal discussions with colleagues, but it is based on the documentation provided by EcoAfrica. The documents that were primarily used for this study are listed below, with dates indicated and abbreviations given in brackets. I use the abbreviations as references in the text.

- 2003 Cultural Heritage Resources Survey of the Taung Skull National Heritage Site (CHRS)
- 2004 Conservation Management Plan for the Taung Skull National Heritage Site (CMP)
- 2003 Nomination dossier for the inclusion on the world heritage list – the Taung Skull fossil site: an extension of the fossil hominid sites of Sterkfontein, Swartkrans, Kromdraai and environs (ND)
- 2010 Integrated Management Plan - Taung Skull World Heritage Site (IMP)
- 2014 Project Component Status and Details 16 June 2014 (PCS&D)
- 2015 Taung Skull World Heritage Site Heritage Impact Assessment: Report on Archaeology (HIA-A)

Review of background documentation

A very thorough documentation is provided by the CHRS and the CMP, which provides the basis of this report. It is clear from the given documentation that the driving force and main motivation in the listing of the Taung site complex as a World Heritage Site is the heritage value of the area (ND). Therefore, in the present project, which is to improve visitor facilities and site infrastructure, the palaeontological, archaeological and historical landmarks of the Taung site complex are centrally important. The central importance of the concept of heritage conservation cannot be overstated and it is the integrity of heritage site significance that is at the core of the Integrated Management Plan. It is stated as the primary management objective, i.e. “The protection and management of the TSWHS in a manner that is consistent with the objectives and principles of the World Heritage Convention Act. In order to accomplish this, particular attention must be given, amongst others, to retain heritage, site significance and authenticity of the Site” (IMP, p. 36). Without the conservation of the heritage sites the reason for being of the Taung site complex will be compromised and as a consequence the project will have reduced probability of success.

The CHRS listed the relevant palaeontological and archaeological sites in the Taung site complex. In addition, the HIA-A also lists some of these localities. It should be noted here that in younger geological ages, such as the late Cainozoic or Quaternary, there may some overlap in the definitions of what constitutes a palaeontological site as opposed to an archaeological site. The

distinction is technical and not very meaningful for conservation, since the conservation measures for both types of sites may be similar. In this sense Equus Cave is a mixed palaeontological and archaeological site, since the primary taphonomic agents of accumulation were brown hyaenas, which produced an abundant Late Pleistocene and Holocene vertebrate record, but stone artefacts also occur in the deposits as chance inclusions. A similar situation may apply to Black Earth Cave (see the CHRS and the HIS-A for more details and references). However, the list of sites given in the CHRS as vulnerable is the following:

- Quinney Cave
- Black Earth Cave
- Equus Cave
- Satan Cave

In addition, the HIA-A discusses the impacts on archaeological sites, but comments also on some sites with palaeontological significance and refers these for further review by a palaeontologist. These sites are:

- Hrdlička's Fossil Site
- Equus Cave
- Black Earth Cave
- Oxland Large Mammal Site

Hrdlička's Fossil Site is situated near the Dart Pinnacle and the memorial cairn and contains exposed fossils, but these are secure and not vulnerable. The site is assumed to date to approximately 2.4-2.6 million years ago and it has yielded primarily cercopithecoid fossils among the 43 mammalian species found (CHRS). The Dart deposits are somewhat older, and have been postulated to be the remains of the same cave infill from which the *Australopithecus* fossil came (CHRS). The consolidated nature of the *in situ* fossil occurrence would mean that the proposed removable board walk with interpretive signage, which is to enhance visitor experience (HIA-A), would not compromise the fossil site.

Equus Cave was excavated in 1978 and in 1982. There is up to 2.5 m depth of sediments, divisible into four strata (1a - 2b), ranging from younger than 2.4 to before 27.2 kyr BP. These deposits produced a rich mammal fauna, including fragments of *H. sapiens*. Sporadic amorphous artefacts in the lower levels were probably washed in from the surrounding land surface (CHRS). Equus Cave is considered to be the most vulnerable of the sites, since the sections are open, uncovered and in the process of collapsing. Furthermore, although there is a protective fence around the site, the gate is not kept locked. The exposed sections are easily accessible and the site is on the main access route to the Blue Pool picnic area (CHRS). Although the CHRS was completed in 2003, my visit in 2008 confirmed the exposed and vulnerable condition of the deposits. According to recent discussions with colleagues the situation has deteriorated further and the Equus Cave fossil-bearing deposits are in serious need for protection and conservation.

Black Earth Cave is a remnant of a cave system in the Norlim Tufa that was largely destroyed by quarrying before 1947. The cave system consisted of a discontinuous series of galleries, of which Gallery A was recorded by Peabody in 1954 to consist of three successive fossiliferous strata (CHRS). The fossil-rich deposits appear to be hyaena-accumulated and are evidently pre-Holocene in age, given the presence of *Equus capensis*, and could even be of "MSA age" (CHRS, p. 40). The mitigation measures suggested by CHRS are intended to keep visitors away by non-disclosure. The

HIA-A seems to agree by mentioning a proposal for a rock barricade to prevent visitors from entering the site. It also mentions the need for a “generalised interpretive display material that does not draw attention to the particular locality of the cave” (HIA-A, p. 4).

The Oxland Large Mammal Site is listed by the CHRS as consisting of “large *ex situ* fossils visible in rock”, but which are secure due their inaccessibility (CHRS, p. 31). The information provided by the CHRS does not allow a detailed assessment and since I have not visited the Taung site complex, I cannot provide further comment on this site component as part of this report.

Given the above, the following palaeontological assessment of the project can be made:

Assessment

General

The general design of the project appears to be in line with the Conservation Management Plan. However, an aspect that is not addressed is the suggestion by the CMP for a Research Management Committee, or similar body. Such a body can provide long-term coordination for managing and monitoring research.

The need for better co-ordination between research activities, conservation and development activities is highlighted by the lack of consultation in the present project with the present permit holders. Scientists active in research at Taung are potentially a very useful source of up-to-date information and potentially in a favourable position to give detailed input.

Specific comments on project components

The most striking aspect of the listed project components (PCS&D, Table 4) is the absence of any planning for the protection and conservation of sensitive heritage sites, such as those mentioned above, but particularly Equus Cave. Other heritage and tourism related components are also either in “Layout” stage (points 10 and 11) or in “Concept” stage (point 14), and cannot be properly evaluated. It should be noted, however, that in Table 6 (PCS&D) it is mentioned that safety protection measures and heritage site conservation is recommend for a separate consultation, but evidently would not form part of the existing project.

For trails and signage (Point 10) it is mentioned the trails have been laid out with signage, but that the placement of the signs can be reviewed and modified. For the memorial site (point 11) and for the museum and amphitheatre (point 14) upgrades are suggested that would not impact on the palaeontological heritage, but would be very beneficial for visitors’ understanding of the palaeontological record of Taung.

Recommendations

In general the proposed project seems to be very suitable for the Taung Skull World Heritage Site complex.

However, given that the basis for the declaration of the Taung site complex as a World Heritage site is based primarily on its heritage, of which palaeontology forms the major component, it is unexpected that in the present project heritage conservation aspects have received the least attention. There is no planning in place to address the serious issue of heritage site conservation (PCS&D, Table 4, point 9). Also, heritage-related developments, such as trails and signage and the memorial site (PCS&D, Table 4, points 10 & 11), are in “layout” stage of planning or are in

“concept” stage, such as the museum and amphitheatre (PCS&D, Table 4, point 14). Also, the unprotected condition of some of the fossil localities, but in particular Equus Cave, is of concern.

I recommend that:

- The conservation of Equus Cave must be a priority before the public can be allowed access without supervision. The gate in the existing fence should be kept locked. The stabilisation of the deposits needs urgent attention, which can be done by using geotextile or sandbags (see also CMP, Appendix 4, p. 5). A roof cover will also be necessary to prevent rain water from eroding the deposit. The proper design of such heritage conservation measures would have to include specialists.
- Other vulnerable sites, as mentioned above, should also be conserved as a priority before public can be allowed without supervision.
- There should be some mechanism established to allow better coordination between the Management Authority and scientists studying the Taung site complex. The CMP suggested a “Research Management Committee”, but it could also be a different kind of body or mechanism.
- It is strongly recommended that consultation should take place with the scientists who hold the present SAHRA permits for palaeontological research at Taung, when planning the conservation of the vulnerable sites, as mentioned above.