

19 July 2023

South African Heritage Resources Agency
111 Harrington Street
Cape Town RSA 8001

Final Report for Case ID 9849 (Sampling Permit)

Case ID 9849 granted permission to remove a single sterile calcified sediment (e.g., breccia) block from the site of Legaga within the nominated and defined Fossil Hominids of South Africa UNESCO World Heritage Site. Issued in 2019 and valid to 28 February 2022, this allow for the removal of a dump pile block for assessment and processing to evaluate reactivity to standard chemical processing with acetic acid, and identification of any fossil materials that might support a full excavation permit.

This final report covers the very brief activities covered by this Case.

In June 2019 a single, apparently sterile reddish-grey calcified sediment block was removed from the nominated site of Legaga and transported to the Ditsong National Museum of Natural History for acetic acid processing. As defined in the original application Mr. Lazarus Kgasi, junior collections manager of the Plio-Pleistocene Section of the Ditsong, and senior fossil processing technician, handled all processing. As is standard, a small reference sample (approx.. 6cm³) was mechanically separated to serve as a catalogued record of the block prior to processing.

The block was progressed through a standardized acetic acid processing regime, consisting of 24 hour submersion in 5% acetic acid, removal and submersion in clean circulating water, and then removal after 48 hours for drying of the block. Initial rounds of processing exposed small portions of fossil materials which were treated with Paraloid™ B72 (acrylic resin in acetone suspension) for stabilisation against the processing routine.

As sequential processing progressed across 2019, a partial maxilla and dental fragments were exposed and stabilised. Eventually the full processing of the block exposed a highly fragmentary set of associated maxillary remains that have been provisionally attributed to the extinct felid *Dinofelis barlowi* and currently catalogued at the Ditsong National Museum of Natural History as LG-1.

Given the interruptions in workflows experienced in South Africa (and globally) due to the COVID-19 pandemic, analysis of this specimen is only just progressing (with the resumption of my own fieldwork in 2023 following a 4 year hiatus). My goal will be to integrate the specimen into a more

comprehensive analysis of *Dinofelis* remains in South Africa in subsequent field seasons. A determination regarding application for excavation permissions for the Legaga site are in discussion, but are not formally advancing at present.

I appreciate the support of SAHRA in granting the initial approval for this Case to allow for sampling to occur at the Legaga site, which both demonstrated the responsivity of the matrix to acetic acid processing (our effectively singular goal) but also serendipitously added a partial maxilla to the limited record of *Dinofelis barlowi* currently described from South Africa. I hope that subsequent analysis will provide greater depositional and chronological context (given the known time range for the taxon), and potentially support further investigations at the site in the future.

Sincerely

A handwritten signature in black ink, appearing to read 'Justin Adams', written in a cursive style.

Justin W Adams
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