

**Phase 1 Archaeological Impact Assessment  
of a portion (Elsies Drift) of the farm  
Lanyonvale No. 376, Hay district, Northern  
Cape Province.**

Lloyd Rossouw

National Museum, Bloemfontein

## Executive Summary

- A series of heavily calcretized terraces, including a 60m Miocene, and a 30m to 45m Pliocene terrace remnant will be impacted by the proposed development.
- The surface terrain is of low archaeological significance and the exposed sections of intact gravel deposits show no evidence of fluvially transported fossil vertebrate remains or fossil bone assemblages derived from intrusive hyena lairs.
- However, potential exists for palaeontological impact with regard to the intact gravel deposits flanking the Gariep River at Elsie's Drift and it is recommended that follow-up investigations by experts take place occasionally.

## **Introduction**

The fluvial remnants deposited along major drainage systems of southern Africa have been of major importance to the diamond industry. Since the first diamond discoveries were made along the confluence of the Vaal and Gariep Rivers in the early 1800's, almost twenty million carats of diamonds have been produced from these alluvial deposits. Besides to the economic importance attached to palaeo-river systems in South Africa, the fluvial deposits also hold valuable information about past life on the subcontinent, in the form of archaeological as well as fossil mammal remains.

A portion of the farm Lanyonvale 376 is being allocated for diamond mining and an archaeological impact assessment (AIA) of the affected area is required as a prerequisite for the development in terms of the National Environmental Management Act. It is also called for in terms of the National Heritage Resources Act 25 of 1999. The author of this report was requested to carry out an impact assessment for the portion Elsie's Drift (Figure 1). This required the identification of archaeological sites / occurrences during a field survey, an assessment of their significance, the impact of the proposed development and recommendations.

The following is a report on the findings of the survey.

## **Description of the Affected Area**

### **Details of area surveyed**

#### Locality data

The farm is located about 70km southwest of Douglas (S 29° 19.748' E 023° 08.627). The vegetation is dominated by shrubland, Karoo shrubs and low trees.

#### Geology

The geology of the Gariep drainage between Douglas and Prieska consists of widespread gravel terrace deposits that occur up to a hundred meters above the present river level. The fluvial sediments are underlain by sedimentary rocks of the Transvaal Supergroup, which also include tillite, sandstones, mudstones and shale.

A series of heavily calcretized terraces, including a 60m Miocene, and a 30m to 45m Pliocene terrace remnant will be impacted by the proposed development (Figure 1). These gravel deposits correlate with the Holpan, Proksch and Wedburg terraces of the lower Vaal River. Younger, Pleistocene gravels occur at 10m to 20m elevations, but these terraces do not fall into the scope of this survey.

### **Survey Methods**

All structures, features and sites that were observed were recorded using a Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a Sony W17 digital camera.

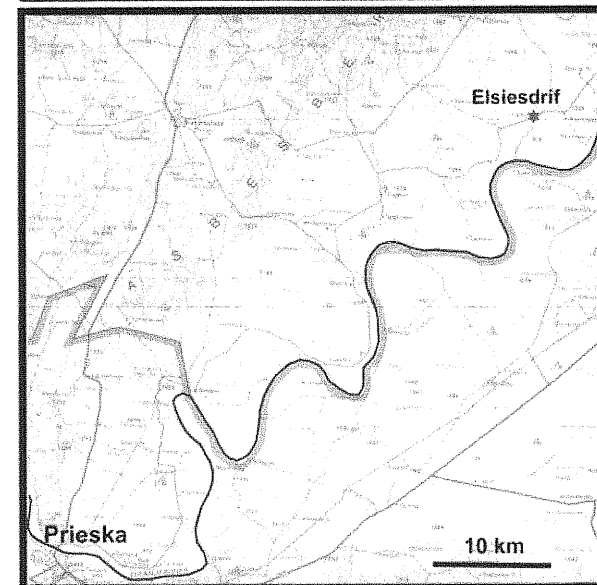
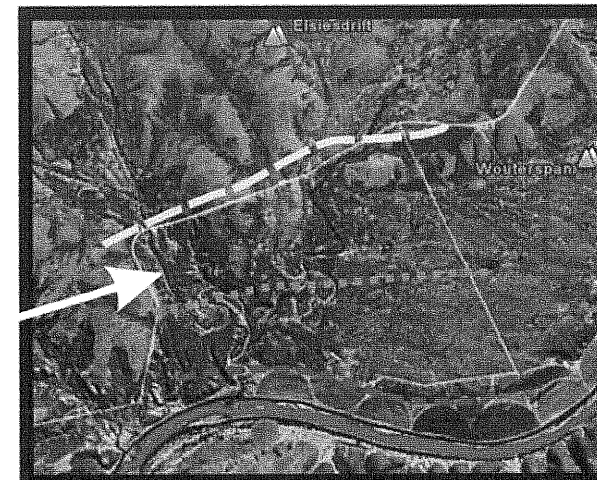
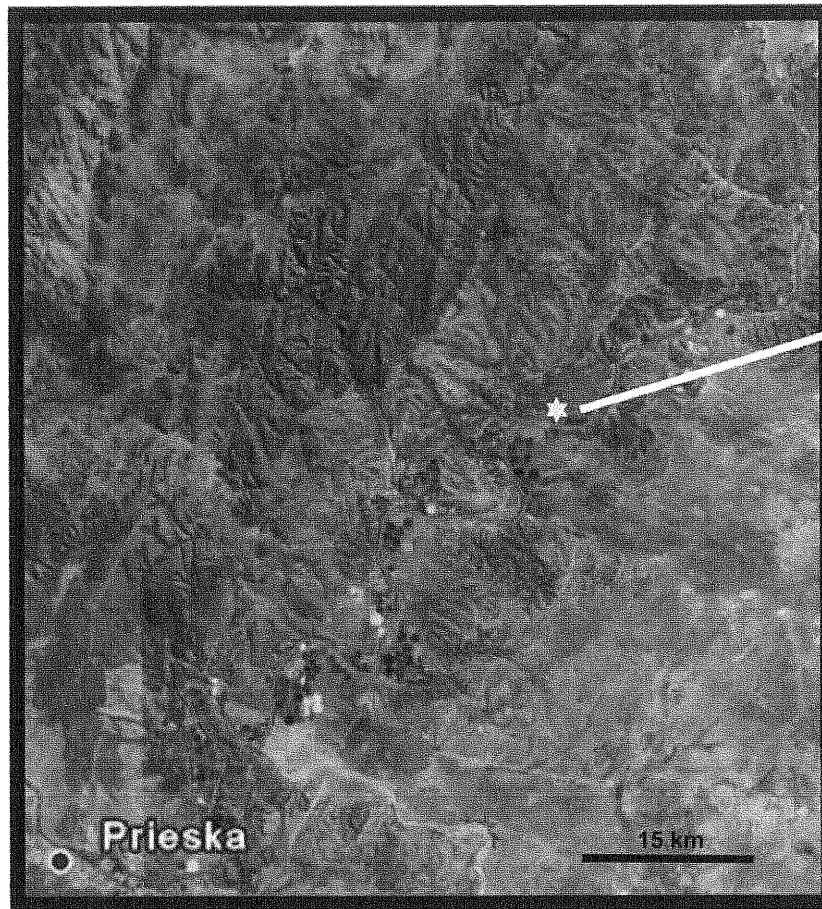


Figure 1. Location of Elsiesdrif in relation to the town of Prieska. Lines indicate approximate stratigraphy of Pleistocene (red), Pliocene (orange) and Miocene (yellow) gravel terraces.

## Palaeontological Background

The Middle and Lower Gariep basin cuts through a series of post-Karoo fluvial remnants. To the west of Prieska the landscape is dissected by the ancient Koa Valley, a Miocene relic with remnants of Cenozoic fluvial deposits that has produced fossil vertebrate bone as well as fossil wood. Southwards, the Koa Valley joins an extensive system of pans fossil where several Palaeogene and Neogene vertebrate fossil remains have been identified.

No fossils have been explicitly reported from the terraces between Douglas and Prieska yet, but a variety of fossil fauna have been retrieved from gravel terraces along the Lower Vaal River basin. Here, gravel terraces between 21m and 30m above present river level, contain frequent sandy lenses and have yielded vertebrate fauna such as the extinct proboscidian, *Mammuthus subplanifrons* that are estimated to be ranging in age from 4.5 to 3.5 million years old. Other fossil remains include extinct suids and more proboscidian taxa, notably *Notochoerus capensis*, and *Elephas iolensis*.

## Archaeological Background

The Vaal-Gariep confluence region is generally rich in archaeological heritage, especially in terms of Stone Age human occupation on the landscape. An abundance of Acheulian (Early Stone Age) handaxes, cleavers and core-axes, primarily made from quartzite has been recovered from the gravel terraces of the Vaal River. In addition, the gravel deposits are largely mantled by Hutton Sands, of which the lower levels have shown evidence of high densities of Fauresmith blades, which is regarded as an important transitional stone tool industry at the beginning of the Middle Stone Age. The incidence of Later Stone Age artifacts as open-site scatters is also common on the modern landscape. Pan-centered Middle Stone Age settlements at Bundu Pan, fifty kilometers west of Prieska indicate ancient human occupation with large mammal fossil remains in association with MSA stone tools.

Evidence of Later Stone Age and Stone Age pastoralist archaeology is prominent especially regarding the origins and dispersal of the Khoikhoi peoples. It has been proposed that the ancestors of the Cape Khoikhoi traveled southward from Botswana, through the interior of the country until they reached the south – east coast. A group of Khoikhoi, remaining behind on the Gariep River traveled in a westerly direction until they reached the Atlantic Ocean where they subsequently split into two groups, one settling in Namibia while the other moved south through Bushmanland into Namaqualand (Figure 2) The Khoikhoi was a nation of widely scattered migrant pastoralist clans that were gradually driven northwards until they occupied only the most arid areas of the northern Cape. The confluence of the Orange and Vaal rivers became an important settlement area for the Khoikhoi in their search for new pastures and it is thought that the settlement split into three groups after a major dispute. One group, the Koranna, remained whilst the Nama moved towards the west coast and the Einiqua followed the Orange River westward. Koranna and Bushman bands occupied the Harts-Vaal valley by the beginning of the 19<sup>th</sup> century and competed for territory with the Tswana/Thlaping immigrants from the north. Another Khoikhoi group was the Griqua, who had moved into the region surrounding the confluence of the Gariep and Vaal rivers by the end of the 18th century. During the early part of the 1800's groups of Griqua people left their community and join up with groups of Koranna

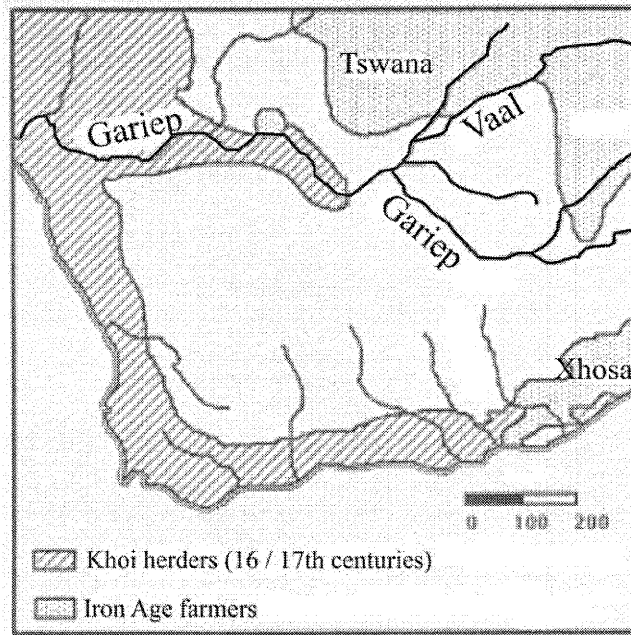


Figure 2. Generalized distribution of indigenous people

people. Together they raided cattle and attacked the various communities along the Orange and Vaal Rivers causing increased instability in the region. These roving bands were called “Bergenaars”

The region appears to have been marginal to the major settlement areas of Iron Age communities of the central Highveld. The southern limits of Iron Age settlement in the northern Cape appears to be just south of what is today the town of Postmasburg, at around AD 1700, after which it seems to have retreated to just south of Kuruman by AD 1800. Iron Age culture began around AD200 in Southern Africa when people with the knowledge for iron smelting moved from the north into Botswana, Mozambique, the northern parts and the eastern coastal regions of South Africa. Iron Age people were farmers in contrast to the hunter-gatherers and herders of the Later Stone Age.

## Rock Art

There are plentiful rock art sites with petroglyphs in Middle Orange River Basin particularly the area around Prieska. Rock engravings have been recorded on the farms Wonderdraai, Uitdraai, Sandfontein, Rooilaagte and Niekerkshoop (Figure 3).

## Results of Survey

An area adjacent to but approximately 1km north of the river was surveyed. This included the dry course of a small tributary, the Lanyon Spruit (Figure 4). A historical burial site containing two graves was recorded in the veld (S 29° 19.292’ E 023° 08.148’), while a more recent graveyard is located at the local homestead (Figure 5). No historical structures were recorded. The Stone Age artifact component comprises

individual pieces as well as scatters that moderately cover the survey area (Figure 6). All the artefacts observed are surface occurrences and because of their exposed state, most likely derived to a certain degree. The density of scatters is low and the majority of the stone tools observed were located as individual finds. The stone tools are made almost exclusively of banded ironstone.

The stratigraphic context of the gravel deposits in the area proposed for development suggests that it most likely predates the earliest component of stone tool industries found in South Africa. Investigation of the exposed gravels has indicated no evidence of fossil material, but it should be taken into consideration that the fluvial geology of the Vaal-Gariep drainage basins bears significant palaeontological potential.

### **Statement of Significance**

Regarding the terrain's surface, it is unlikely that archaeological heritage remains will be found *in situ*, but in the unlikely event of such finds being uncovered during any phase of mining activity, the material must be reported to the nearest museum, archaeologist or to the South African Heritage Resources Agency. The responsibility lies with the developer to ensure that this agreement is honoured in accordance with the National Heritage Act No.25 of 1999.

The surface terrain is of low archaeological significance and the exposed sections of intact gravel deposits show no evidence of intact fossil vertebrate remains.

### **Recommendations**

It is recommended that

- The unmarked graveyard is clearly demarcated and fenced off.
- Follow-up investigations by experts take place occasionally with regard to the intact gravel deposits.

### **References**

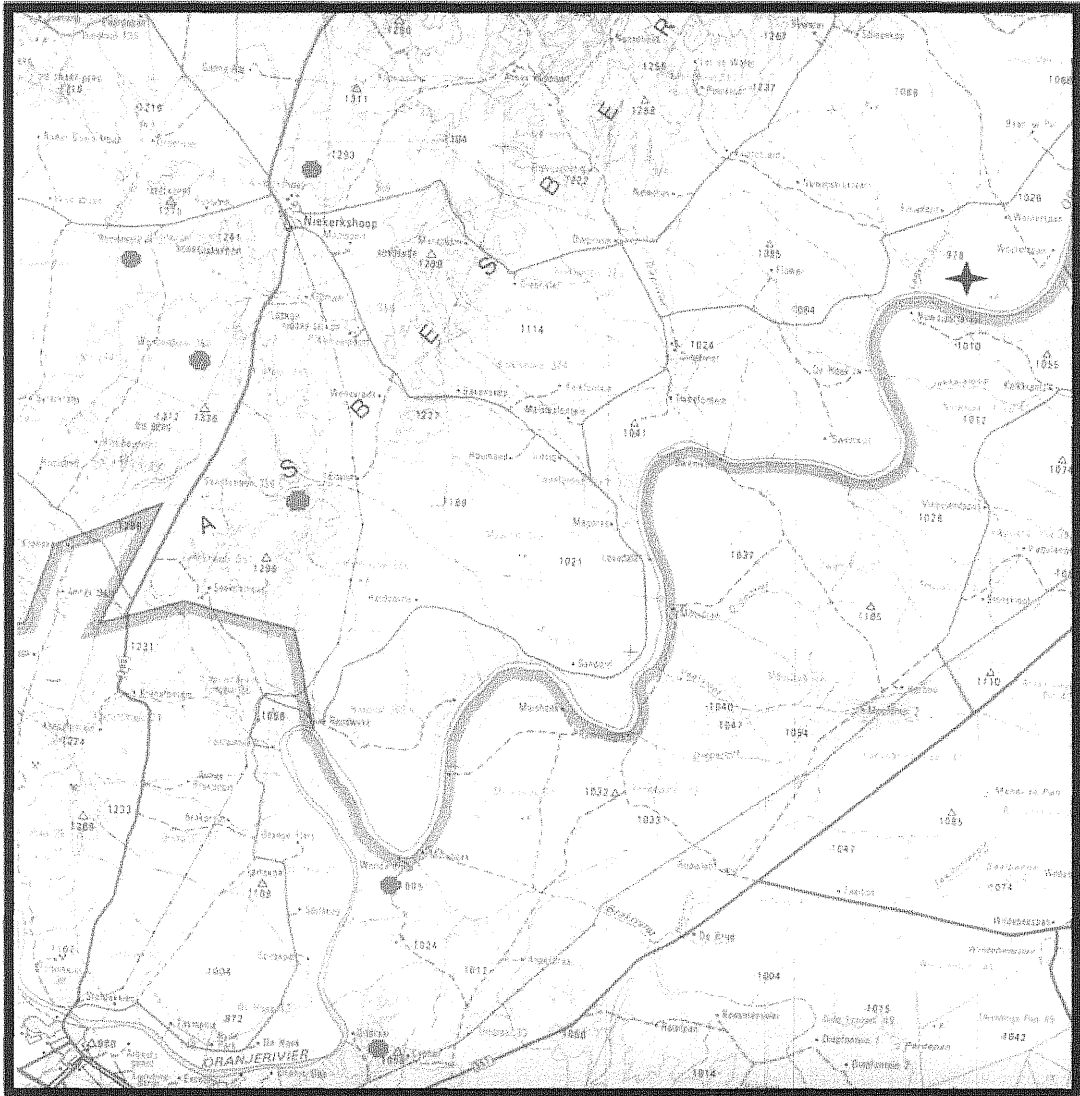
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◆ Elsiesdrif

● Rock Engraving Sites

Figure 3. Indication of rock art sites in the region.



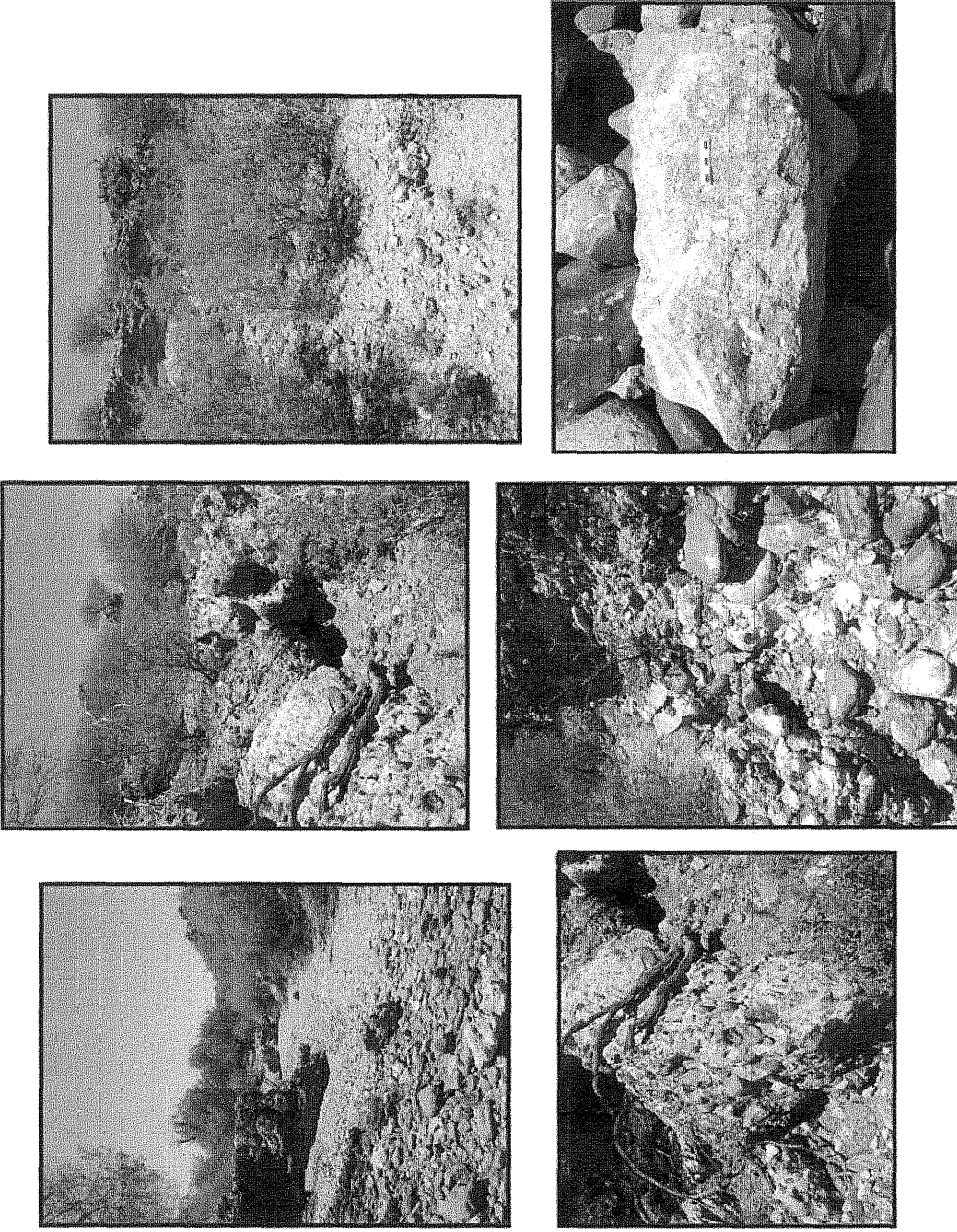
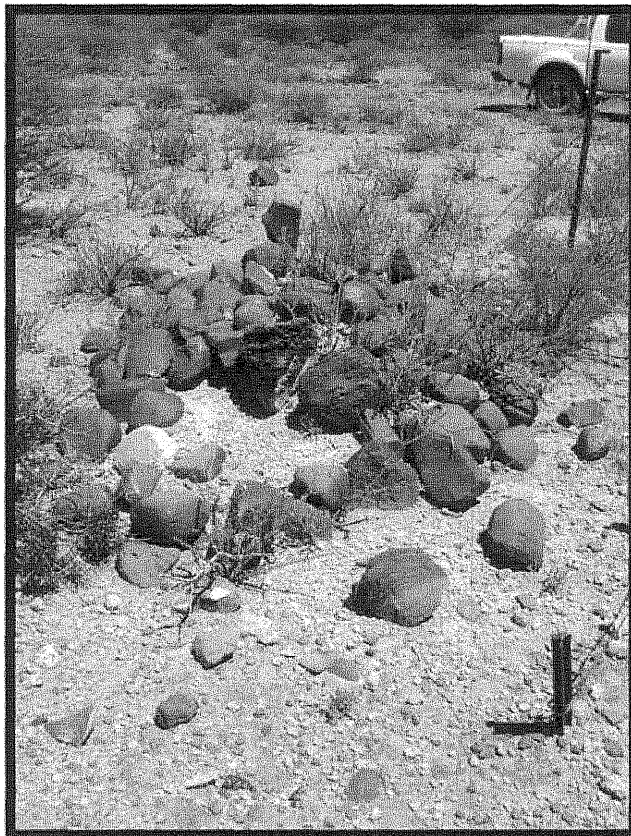


Figure 4. A dry river course cutting through Mio-Pliocene gravel breccia deposits.



**Figure 5. Unmarked graves.**

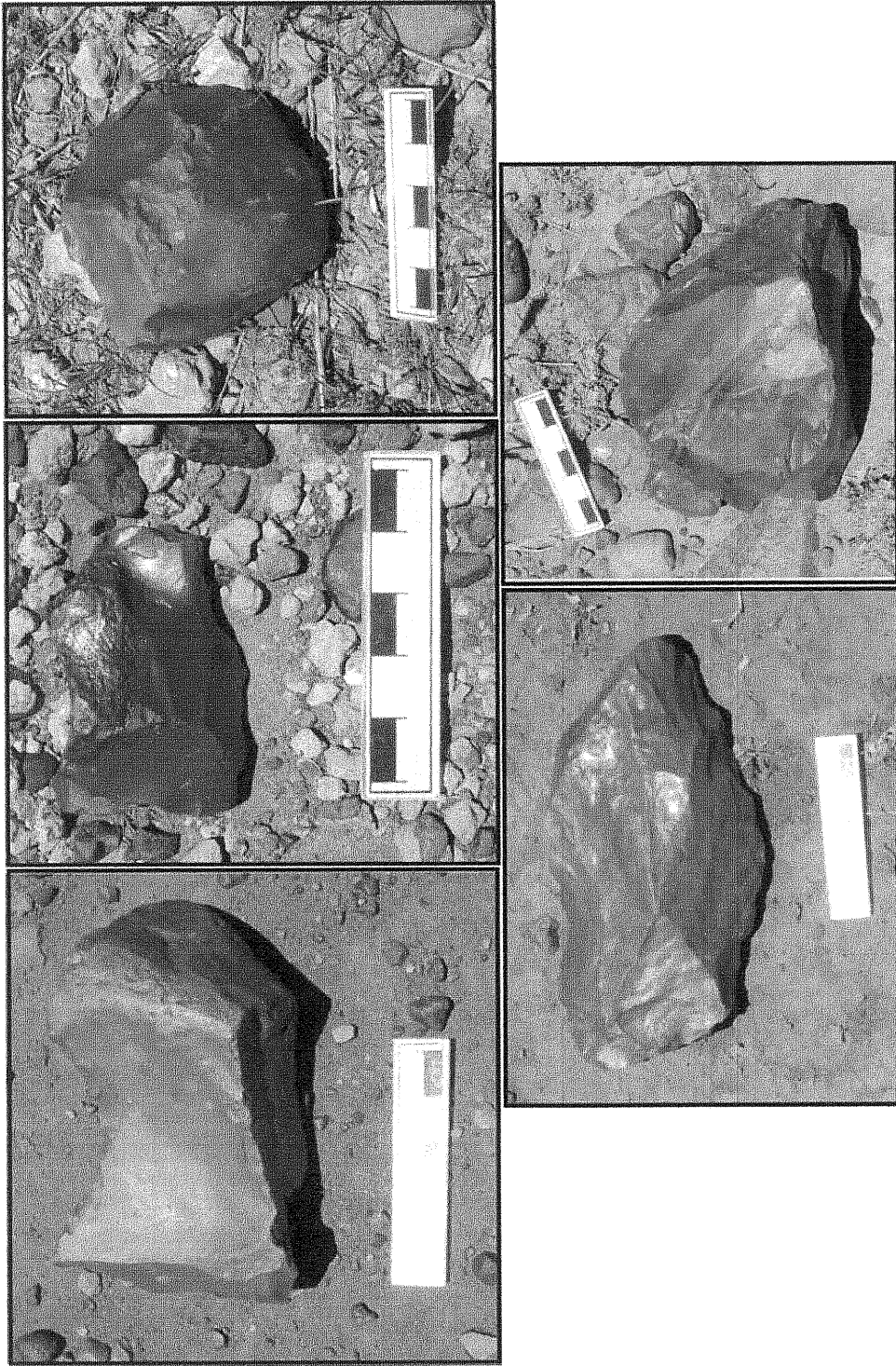


Figure 6. Examples of stone tool surface scatters. The choice of raw material is mostly banded ironstone.