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Field and Technical Report

# THE FAUNA FROM RESCUE EXCAVATIONS AT THE LATE IRON AGE SITE OF HOEKFONTEIN IN THE NORTH WEST PROVINCE, SOUTH AFRICA

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## ABSTRACT

*Hoekfontein is a Late Iron Age settlement in the Central Bankenveld of South Africa. Rescue excavations were undertaken at the site in 2002. The fauna indicates that livestock and wild animals are present in the sample. Cattle is the dominant taxon. This is also the case at other Late Iron Age settlements in the region, including mega-sites. The presence of expedient bone tools and worked freshwater mussel is similar to those found at other Late Iron Age sites.*

Keywords: Batswana, cattle, caprines, Central Bankenveld, expedient bone tools.

## INTRODUCTION

During the construction of a trench for a water pipeline and an adjacent 10 m-wide road on the farm Hoekfontein 432 JQ at the north-western part of the Swartkoppies Mountain near the town of Makau in the Brits District of North West Province, archaeological deposits were uncovered. This led to a rescue excavation of the deposits in 2002 (Küsel 2002), with human remains (Nienaber & Steyn 2005) and fauna recovered. We report the fauna in this article. Hoekfontein (24°44.12'S, 28° 12.10'E) consists of scalloped stone walls and stone-walled enclosures, with visible hut rubble, hut and living floors, broken grinding stones, iron slag and fragments of ceramics (Küsel 2002). Hoekfontein was occupied during the Late Iron Age. Radiocarbon dates from the human remains indicate two groups of dates: 40 ± 50 BP (Pta-8870), 40 ± 45 BP (Pta-8866) and 390 ± 50 BP (Pta-8864), with the rest of the dates falling between these. This may suggest two or more different occupations, or continuous occupation (Nienaber & Steyn 2005). However, the more recent dates are beyond the lower limit for radiocarbon, and they are probably invalid.

Prior to the rescue excavations, Van Schalkwyk *et al*. (2000) investigated archaeological sites at a nearby locality (25°35'S, 27°56'E). This study revealed Middle Stone Age lithic scatters over a large portion of the area, several Iron Age sites and rock art. Excavations were conducted on top of the nearby Swartkoppies Mountain range. Here, a Late Iron Age settlement was dated to between 290 ± 45 (Pta-7823) and 350 ± 60 BP (Pta-7824, Pta-7803). Fauna from these excavations yielded evidence of cattle, sheep/goat, kudu, rock hyrax, rodent, dog, bird and freshwater mussels (Van Schalkwyk *et al*. 2000). The relationship between the deposits excavated by Van Schalkwyk *et al*. (2000) and those discussed below is unclear, since a detailed survey of the area was never done (Küsel 2002).

Hoekfontein is located in the Central Bankenveld, which stretches from Rustenburg in the west to Onderstepoort in the east. The stone-walled settlements in the Central Bankenveld represent the rise of Batswana chiefdoms during the Late Iron Age such as those of the Fokeng, the Kgatla, the Kwena of Mogôpa and the Pô (Pistorius 1996). These settlements have been referred to as the Mabjanamatshwana complex (Pistorius 1995a,b), first recognised by Mason (1968; 1986). The Central Bankenveld and adjacent areas host several Late Iron Age mega-sites, notably Olifantspoort (Mason 1974), Molokwane, Bôitsêmagano, Mabjanamatshwana (Pistorius 1994), Marothodi (Anderson 2009) and Kaditshwene (Boeyens 2000), which housed thousands of residents (Pistorius 1992). Several other settlements are also found in the Central Bankenveld areas during the Late Iron Age (Fig. 1), such as Mmatshetshele (Pistorius 2001), Kamakwe, Sun City (Mason *et al*. 1983), and the sites in the Pilanesberg Nature Reserve (L'Abbé *et al*. 2008). After various episodes of unrest, Mzilikazi, the former lieutenant of King Shaka of the Zulus, invaded the region by AD 1827 (Smit 1960; Horn 1996) bringing an end to the mega-settlements in the Central Bankenveld. The Bamakau, belonging to the Bahurutshe-Bakwena who gave rise to the Bakwena, Bahurutse and possibly the Bakgatla chiefdoms, still live in the area today (Pistorius 1992), although their exact affinity to the site of Hoekfontein has not been determined (Van Schalkwyk *et al*. 2000).

## MATERIAL AND METHODS

The foothill on which Hoekfontein is located, is about three kilometres in length and two kilometres wide. The faunal remains were retrieved from a portion of the site containing hut floors overlying ashy deposits. Here, a 1 × 2 m block was excavated to a depth of 1.5 m (Fig. 2). The ash midden itself is about 6 m in length. The midden was excavated using 10 cm arbitrary layers. The deposits were sieved using a 1 mm mesh. The fauna was identified using the animal skeletal collection housed at the Ditsong National Museum of Natural History in Pretoria. The indeterminate bovid size classes follow Brain (1974). The age classes used for cattle and sheep/goat are those suggested by Voigt (1983: 47–48, 53). Measurements follow Von den Driesch (1976) and Peters (1986). All visible taphonomy was recorded (Lyman 1994; Fernández-Jalvo & Andrews 2016). The fauna was quantified using number of identified specimens (NISP) and minimum number of individuals (MNI), two common methods of quantification (e.g. Grayson 1984; Klein & Cruz-Uribe 1984).

## RESULTS

The excavation yielded a total of 1107 specimens, of which 230 (21%) were identified (Table 1). The sample is small (*cf.* Badenhorst *et al*. 2022). Cattle is the most common taxon, with evidence for mongoose, indeterminate medium carnivore, sheep, goat, scrub hare and freshwater mussel (Table 2). Most of the indeterminate Bovid III specimens are likely cattle. Similarly, the indeterminate Bovid II specimens are likely

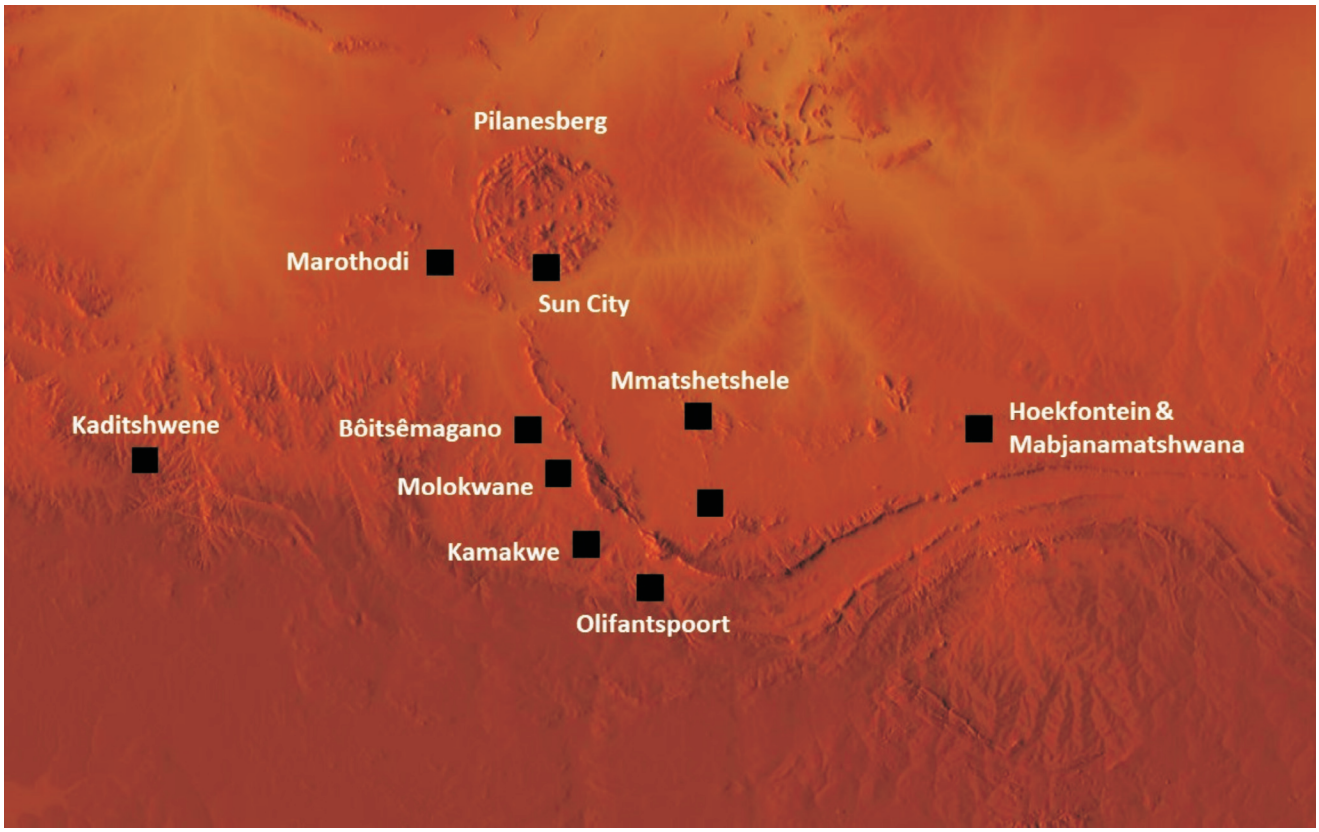



**FIG. 1**. *The location of Late Iron Age sites in the Central Bankenveld.*

**TABLE 1**. *The Hoekfontein faunal sample.*

| Specimens | Total |
|---|---|
| Identified specimens (NISP) | 230 |
| Enamel | 3 |
| Skull | 55 |
| Vertebra | 34 |
| Rib | 144 |
| Miscellaneous | 435 |
| Bone flake | 188 |
| Polished | 18 |
| Total unidentified specimens | 877 |
| **Total sample** | **1107** |
| Mass identified specimens (g) | 4119.3 |
| Mass unidentified specimens (g) | 2660.5 |
| **Total mass (g)** | **6779.8** |

caprines. Most layers contained both cattle and caprines. However, most of the identified ($n$ = 176, 77%) and unidentified ($n$ = 629, 72%) specimens were retrieved from the top four layers.

A total of 55 (5%) specimens was burnt (Table 3). The vast majority of specimens ($n$ = 42, 76%) were from the top four layers. The remaining layers only yielded a few isolated burnt specimens. The various colours noted in the sample range from light brown, dark brown, black to grey-white, grey and white. Chop marks were visible on 37 (3%) specimens and cut marks on 27 (2%) specimens. Most of the butchered specimens are from the uppermost four layers ($n$ = 49, 77%). Other modifications include carnivore chew marks on 20 (2%) specimens, and rodent gnaw marks on three (<1% from layers 1 and 2) specimens. A total of 22 bone and shell fragments were polished or modified (Table 4). These were all recorded from the upper nine layers. Most of the modified bone remains are rib fragments, followed by bone flakes. These fragments were mostly polished convex at one end.

**TABLE 2**. *Taxa present at Hoekfontein; NISP per layer.*

| Taxa | Common name | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | NISP | MNI | Mass (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Herpestidae | mongoose | | | | | | | | | 2 | 3 | | 5 | 1 | 3.8 |
| Carnivora medium | | | | | | | | | | | | 1 | 1 | 1 | 5.3 |
| *Bos taurus* | cattle | 39 | 37 | 34 | 49 | 8 | 11 | 3 | 2 | 2 | | 3 | 188 | 7 | 3966.6 |
| *Ovis aries* | sheep | | | | 1 | 1 | | | | | | | 2 | 2 | 20.4 |
| *Capra hircus* | goat | 1 | | | | | | | | | | | 1 | 1 | 3.1 |
| *Ovis/Capra* | sheep/goat | 1 | 4 | 1 | 4 | | 6 | | | 5 | | | 21 | – | 80.7 |
| Bovid I | | | | 1 | | 1 | | | | | | | 2 | 1 | 12.5 |
| Bovid II | | | | | | | | | | | 1 | | 1 | – | 2.4 |
| Bovid III | | 1 | 1 | 1 | 1 | | 1 | | | | | | 5 | – | 22.0 |
| *Lepus saxatilis* | scrub hare | | | | | | | 3 | | | | | 3 | 1 | 1.5 |
| Unionidae | freshwater mussel | | | | | | | 1 | | | | | 1 | 1 | 1.0 |
| Total | | 42 | 42 | 37 | 55 | 10 | 18 | 7 | 2 | 9 | 4 | 4 | 230 | 15 | 4119.3 |

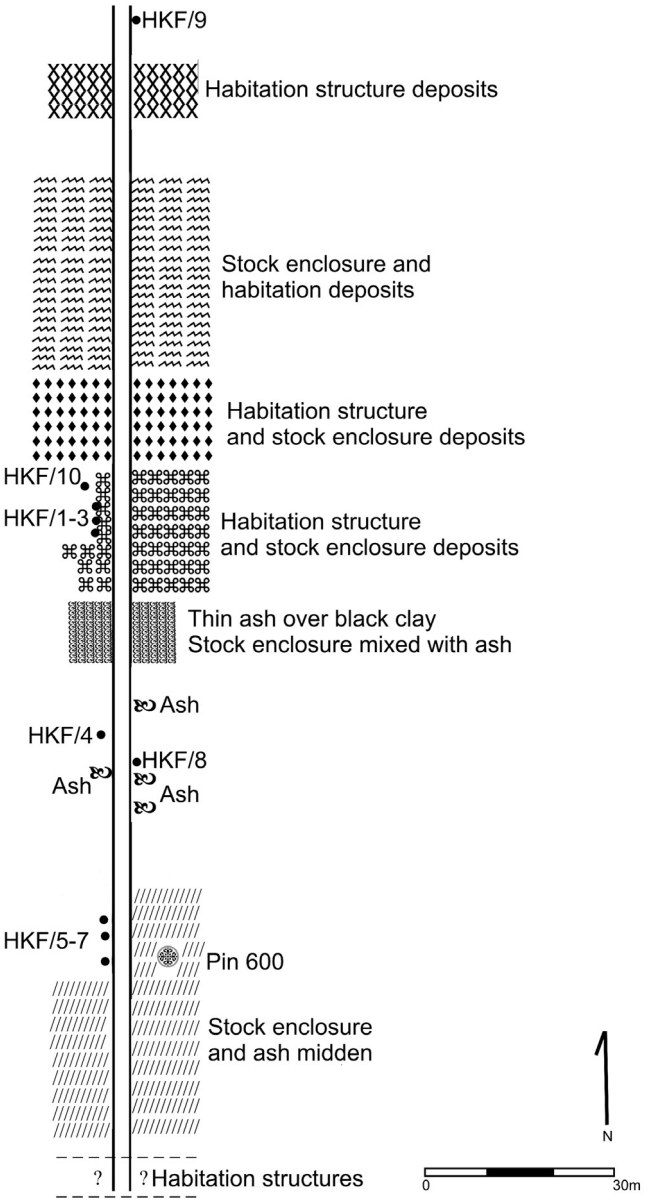



**FIG. 2**. *Site plan of Hoekfontein (redrawn from Nienaber & Steyn 2005: 2). The rescue excavations were conducted west of the road close to HKF/1–3 and HKF/10.*

Both young and adult cattle and caprines are present (Table 5). Based on the postcrania of cattle, 26 (24%) fragments are from young animals (juvenile and subadults), and 81 (76%) fragments are from adult individuals. The dominance of adult cattle (and caprine) is also reflected in the teeth age classes. For the Bovid III, most skeletal parts are present (Fig. 3). The more common elements of the Bovid III class are dense elements such as teeth and metapodia. In addition, there are elements such as skulls which often fragment into numerous specimens that remain identifiable.

Little is known about the size and stature of domestic animals during the Iron Age of southern Africa, with few published studies (Plug 1996). The size of the cattle from Hoekfontein overlaps with the small-statured cattle from Mutokolwe B (Table 6), a Late Iron Age settlement occupied by early Venda-speakers in the Soutpansberg region (Magoma 2014; Badenhorst & Magoma 2019). The goat from Hoekfontein falls within the variation of this taxon established for Iron Age settlements in southern Africa (Badenhorst & Plug 2003), albeit at the lower end of the scale (Table 7).

**TABLE 3**. *Taphonomy of the sample (indicating counts).*

| Layers | Burnt specimens | Cut marks | Chop marks | Carnivore chew marks |
|---|---|---|---|---|
| 1 | 12 | 2 | 7 | 2 |
| 2 | 4 | 7 | 7 | 3 |
| 3 | 12 | 2 | 7 | 5 |
| 4 | 14 | 10 | 7 | 5 |
| 5 | 1 | 2 | 3 | 2 |
| 6 | 1 | 1 | 3 | 2 |
| 7 | 3 | 2 | 1 | 1 |
| 8 | 3 | – | – | – |
| 9 | 2 | – | 2 | – |
| 10 | 3 | – | – | – |
| 12 | – | 1 | – | – |
| Total | 55 | 27 | 37 | 20 |

## DISCUSSION AND CONCLUSIONS

The major economic, sociopolitical and ritual importance of cattle among recent Bantu-speaking people is well established (e.g. Schapera 1953; Bruwer 1956; Krige 1957; Mönnig 1967; Van Zyl 1972; Schapera 1984), and this pattern is reflected in the faunal remains from Hoekfontein. The dominance of cattle over caprines at Hoekfontein is similar to other Late Iron Age sites in the Central Bankenveld (Table 8) and the interior of southern Africa (summaries in Plug & Badenhorst 2001; Badenhorst 2010, 2011; Fraser & Badenhorst 2014). The Cattle Index, which measures the ratio between cattle and caprines in samples, is calculated using the NISP (Badenhorst 2011). However, only the MNI were reported for Kamakwe, Sun City and Olifantspoort. Nevertheless, MNIs can provide similar results using the Cattle Index (Fraser & Badenhorst 2014). Indigenous cattle kept by the Batswana were big-horned with long limbs, yet small in stature (Curson 1936; Van Zyl 1972). Similarly, sheep and goats were hardy and smaller than modern improved breeds (Van Zyl 1972; Badenhorst & Magoma 2022). While the slaughtering of cattle was historically reserved for ceremonial occasions, caprines had no major social role and they were more readily slaughtered for meat (Van Zyl 1972).

Hunted animals are present at many other Late Iron Age sites (Plug & Badenhorst 2001) including those in the Central Bankenveld and adjacent areas (Mason *et al*. 1983; Badenhorst & Plug 2001; Plug & Badenhorst 2006; Boeyens & Plug 2011). The small diversity of hunted animals at Hoekfontein is likely owing to the small sample size. Late Iron Age sites, including the mega-sites, have yielded evidence of a variety of wild carnivores (Plug & Badenhorst 2006; Boeyens & Plug 2011). This is also the case at Hoekfontein where remains of mongoose were found. Today, various species of mongooses are found in the area of Hoekfontein, including the yellow (*Cynictis penicillata*), slender (*Galerella sanguinea*), white-tailed (*Ichneumia albicauda*), marsh (*Atilax paludinosus*), banded (*Mungos mungo*), and dwarf (*Helogale parvula*) mongoose (Skinner & Chimimba 2005). Wild carnivores such as mongooses may have been obtained for ritual uses (Mönnig 1967; Plug 1988), pelts (Brown 1926: 51), or they could have been included in the diet (Grivetti 1981).

The scrub hare from Hoekfontein would have been trapped and eaten (Van Zyl 1952; also Boeyens & Plug 2011). In historical times, hares had a special significance to the Batswana, and these animals were revered for their cleverness. Many tales are told of the hare, and the foot of a hare was often worn as a charm (Willoughby 1905). At Bôitsêmagano, a hare metatarsal was perforated on the proximal side and worn as

**TABLE 4**. *Hoekfontein modified bone and shell specimens. The tools are no longer available for study, and no photographs were taken at the time.*

| Layer | Length (mm) | Element | Complete | Description |
|---|---|---|---|---|
| 1 | 46 | Rib | No | One end polished convex |
| 1 | 131 | Rib | No | One end polished into a point |
| 2 | 65 | Flake | No | One end polished into a point |
| 3 | 49 | Flake | No | Both ends polished |
| 3 | 43 | Rib | No | One end polished |
| 3 | 101 | Rib | No | One end polished convex |
| 4 | 85 | Rib | No | One end polished convex |
| 4 | 103 | Rib | No | One end polished convex |
| 4 | 82 | Flake | No | Both ends polished convex |
| 4 | 77 | Cattle metacarpal shaft | No | One end polished convex |
| 4 | 125 | Cattle femur shaft | No | One end polished convex |
| 4 | 117 | Cattle metatarsal shaft | No | Both ends polished convex |
| 6 | 80 | Flake | No | Both ends polished convex |
| 6 | 32 | Rib | No | One end polished convex |
| 6 | 53 | Rib | No | One end polished |
| 7 | 35 | Rib | No | One end polished |
| 7 | 33 | Flake | No | One end polished convex |
| 7 | 155 | Rib | No | Both sides polished |
| 7 | 23 | Freshwater mussel | No | Surface and rim polished |
| 8 | 29 | Rib | No | One end polished |
| 9 | 38 | Flake | No | One end polished convex |
| 9 | 158 | Rib | No | Both ends, sides and surface polished |

decoration (Plug & Badenhorst 2006) seemingly supporting this historical account.

The freshwater mussels at Hoekfontein were likely consumed. These shells were often used for tasks such as smoothing clay objects (Voigt 1983) and other purposes. Finding that these shells were used as tools is common (Badenhorst & Plug 2002; Badenhorst & Plug 2004/2005; Plug & Badenhorst 2006; Boeyens & Plug 2011).

The upper four layers yielded the most specimens, and the most evidence for burning and butchery. This may suggest the

**TABLE 5**. *Hoekfontein age classes for cattle and sheep/goat per NISP.*

| Age class | Cattle | Cattle age | Sheep/Goat | Sheep/Goat age |
|---|---|---|---|---|
| II | 2 | 6–15 months | – | – |
| III | 3 | 15–18 months | 2 | 10–16 months |
| V | – | – | 7 | 30–60 months |
| VI | 1 | Older than 42 months | – | – |
| VIII | 17 | Mature | – | – |
| IX | 3 | Aged | – | – |

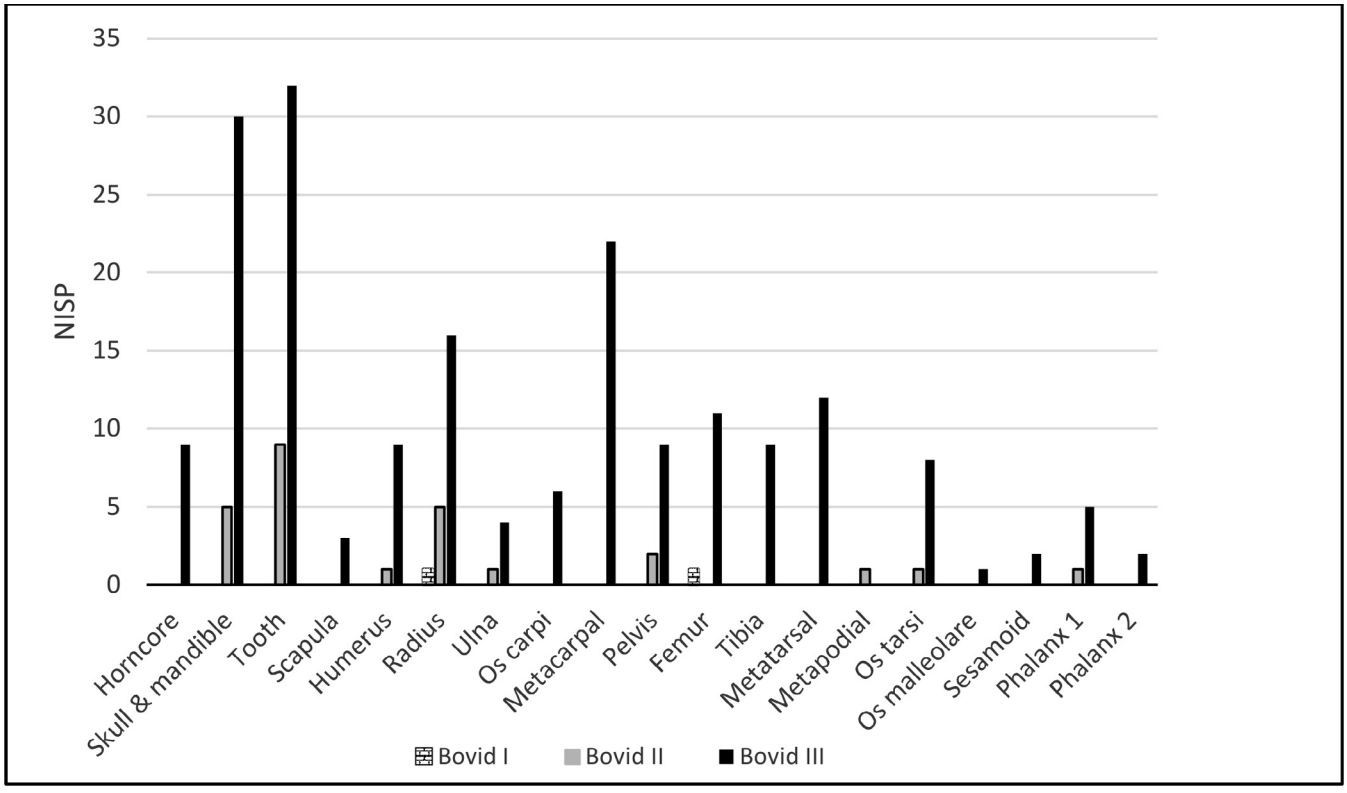



**FIG. 3**. *Hoekfontein bovid skeletal part representation (NISP).*

**TABLE 6**. *Cattle postcranial measurements from Hoekfontein and Mutokolwe B (Magoma 2014). All measurements in mm.*

| Element | Measurement | Hoekfontein | Mutokolwe B: Average or single measurement (range) |
|---|---|---|---|
| Humerus | Bd | 82.8 (est) | 76.33 (71.41–79.48) |
| | BT | 74.2 | 73.23 |
| | Dmd | 83.4 | 72.83 (70.36–75.30) |
| Radius | Bp | 74.8 | 75.28 (73.0–75.85) |
| | BFp | 71.1 | 67.01 |
| | Dp | 38.4 | 37.86 (36.36–39.36) |
| Intermediate carpal | GD | 44.5 | 40.57 (38.30–42.60) |
| | GH | 26.8 | 27.02 (26.61–27.55) |
| Radial carpal | GH | 27.3; 29.4 | 27.36 (26.07–28.65) |
| | GD | 39.0; 42.1 | 40.0 (36.16–42.03) |
| | BFd | 22.0; 25.5 | 22.67 (21.10–24.23) |
| Ulnar carpal | GL | 36.5 | 41.67 |
| | BFp | 14.6 | 21.73 |
| Metacarpal | Bd | 53.5 | 54.26 (51.11–62.46) |
| | Dd | 29.4 | 30.09 (28.90–31.48) |
| Femur | DC | 46.5 | – |
| Tibia | Bd | 69.0 | 60.26 |
| | Dd | 45.4 | 44.64 |
| Lateral malleolus | GD | 33.2 | – |
| Calcaneum | GB | 38.8; 45.7 | – |
| | DS | 39.2; 47.4 | – |
| | Dd | 45.8; 53.9 | – |
| Metatarsal | Bd | 50.1; 52.8 | 52.20 (48.61–56.08) |
| | Dd | 28.4; 32.7 | 29.18 (26.81–30.64) |

**TABLE 7**. *Goat measurements from Hoekfontein and Iron Age sites from southern Africa (Badenhorst & Plug 2003). All measurements in mm.*

| Element | Measurement | Hoekfontein | Iron Age sites. Average measurement (range) |
|---|---|---|---|
| Radius | Bp | 26.4 | 30.6 (26.0–35.3) |
| | BFp | 25.3 | 28.9 (25.0–33.1) |
| | Dp | 14.0 | 16.2 (13.4–18.3) |

earlier occupation was less intense in duration or represented a smaller population size, or changes over time in the use of areas at the settlement. The burnt specimens from the sample displayed a range of colour variations. These variations are related to the proximity of the heat source in relation to the bone remains, the time of exposure and the presence, absence or amount of flesh on the bone (Buikstra & Swegle 1989; Marshall 1989; Shipman 1989). The cut and chop marks were inflicted during butchery. Iron Age people kept dogs (Plug & Voigt 1985), and the carnivore gnaw marks were probably caused by these animals.

**TABLE 8**. *Cattle usage at Late Iron Age sites in the Central Bankenveld.*

| Settlement | Cattle Index (Badenhorst 2011) | Reference |
|---|---|---|
| Hoekfontein | 0.89 | Table 2 |
| Mmatshetshele | 0.55 | Badenhorst & Plug 2001 |
| Kamakwe | 0.65 | Mason *et al*. 1983 |
| Sun City | 0.59 | Mason *et al*. 1983 |
| Mabjanamathswana | 0.79 | Plug & Badenhorst 2006 |
| Olifantspoort 20/71 | 0.74 | Mason *et al*. 1983 |
| Bôitsêmagano | 0.75 | Plug & Badenhorst 2006 |
| Molokwane | 0.80 | Plug & Badenhorst 2006 |
| Kaditshwene | 0.78 | Boeyens & Plug 2011 |

The modified bone fragments from the sample are similar to those classified by Voigt (1983: 109) as informal bone tools. Such expedient tools consist of minimally modified bones which were used resulting in a polished or worn surface (Plug & Voigt 1985; Antonites *et al*. 2016). The tools from Hoekfontein were not subjected to use-trace analyses to determine their function(s). Their function could have varied and included tasks such as scraping and softening hides (Voigt 1983; Badenhorst 2009; Antonites *et al*. 2016) and working plant materials (Moifatswane 1990). Such tools are common in Late Iron Age sites (Badenhorst & Plug 2001; Badenhorst & Plug 2004/2005; Plug & Badenhorst 2006). Just as at K2 and Mapungubwe (Antonites *et al*. 2016), and several Late Iron Age sites (e.g. Plug & Badenhorst 2006), the expedient tools from Hoekfontein were made using mostly ribs and bone flakes. At Kaditshwene, these tools were found in the *kgotla* (Campbell 1815: 183; Boeyens & Plug 2011). However, considering their possible multifunctional use and that they are often found in varied contexts (Antonites *et al*. 2016), these informal tools cannot yet be linked to any gender-specific tasks.

This study on the fauna from Hoekfontein adds to the growing research on the Batswana and their way of life in the past in the Central Bankenveld. The fauna from the Late Iron Age of Hoekfontein shows that cattle were central to the economic, social and political life of the community.

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