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THE FAUNA FROM RATHO KROONKOP, A RAIN-CONTROL SITE IN THE SHASHE-LIMPOPO CONFLUENCE AREA, LIMPOPO PROVINCE, SOUTH AFRICA

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ABSTRACT
Rain-control in the Shashe-Limpopo Confluence Area (SLCA) is one sphere in which hunter-gatherer and farmer interaction is archaeologically visible. One avenue of examining this interaction is through faunal analysis. This paper presents an updated taxa list for one of the identified rain-control sites in the SLCA – Ratho Kroonkop. By identifying the taxa accumulated at Ratho Kroonkop and contextualising them using radiocarbon dates and relevant ethnographies, we were able to determine that particular animals were significant to the people who utilised the location as a rain-control site. Additionally, we were able to establish that this significance continued from the K2 period (AD 1000-1220) to the historic period.

Keywords: faunal analysis, Shashe-Limpopo Confluence Area, rain-control, Middle Iron Age

1. Introduction

The Shashe-Limpopo Confluence Area (SLCA) is a biodiverse landscape that has played host to people since the Earlier Stone Age (Kuman et al. 2005; Pollarolo & Kuman 2009). Hunter-gatherers have occupied the broader area since at least ca. 10 890 BC (at Balerno Main Shelter; van Doornum 2008) and continued to do so after the first farmers moved into the SLCA at around AD 350 (Hall & Smith 2000; Huffman 2000; van Doornum 2008; Forssman 2013, 2014). In the Limpopo River Valley, there was also a succession of large, complex societies, beginning with the 10th century village of Schroda, followed by K2 (aka Bambandyanalo) and ending with Mapungubwe (Fouché 1937; Gardner 1963; Eloff & Meyer 1981; Hanisch 1981, 2002; Voigt 1981a, 1983; Calabrese 2000, 2007; Huffman 2000, 2009, 2015; Hanisch & Maumela 2002; Nettleton 2002; van Schalkwyk 2002; Antonites AR et al. 2016). The SLCA is an area of archaeological importance because, on both sides of the Limpopo River, it is a landscape within which hunter-gatherers interacted with farming communities, and it is where farming communities developed societal complexity and extensive trade links (e.g., Manyanga 2006; Huffman 2007; Chirikure et al. 2016; Manyanga & Chirikure 2019).

One of the contexts in which the interaction between hunter-gatherers and farmers in the SLCA has been studied is at rain-control sites. These sites (Fig. 1) are significant for understanding interactions between hunter-gatherers and farmers in the SLCA as these are spaces where hunter-gatherer meanings and thoughts of rain, and the landscape, were incorporated into farmer imaginings of rain and rain-control (Schoeman 2006a). Rain-control sites are hills that have links to water – rock tanks or places where water pools, or where it flows in streams and rivers at their base – or they are caves, crevices or cupules where rain medicine could be stored or placed (Schoeman 2006a). The term ‘rock tank’ denotes an eroded depression in the sandstone where water would have collected naturally (see Schoeman 2006a).

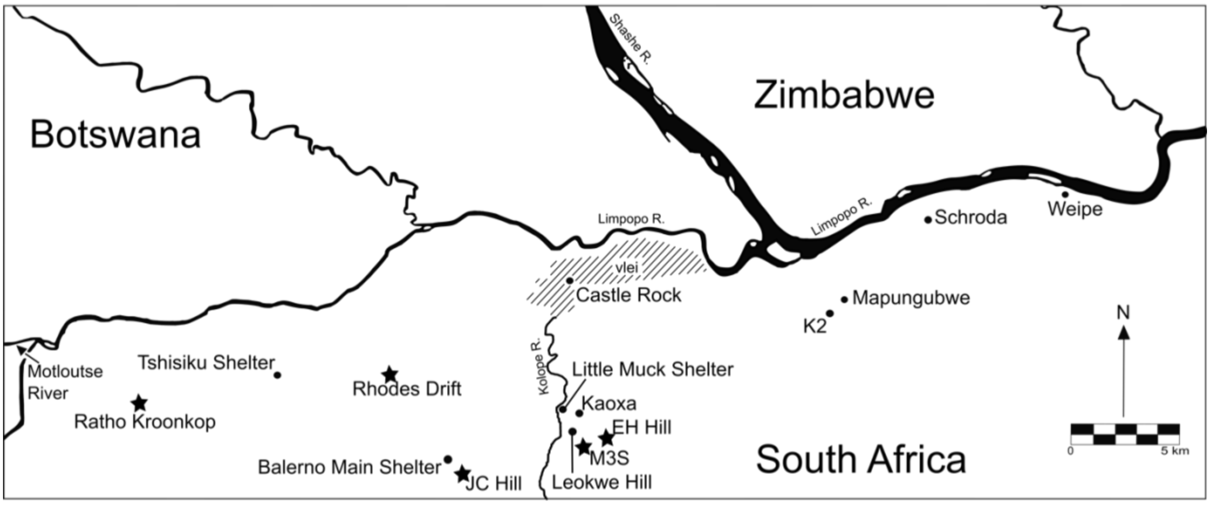

Figure 1. Map of the Limpopo Valley with important archaeological sites; rain-control sites are indicated by stars.

Initially four rain-control sites were identified, named JC Hill, M3S, EH Hill and Rhodes Drift (see Murimbika 2006; Schoeman 2006a, b) with a fifth, Ratho Kroonkop (Fig. 1), being identified later (Schoeman 2009, 2013, 2020; Brunton et al. 2013). From these sites, diagnostic ceramics, glass and shell beads, botanical and faunal remains, figurine fragments, gravel floors and the remnants of grain bins were recovered during excavations (Schoeman 2006a, b). Based on several lines of evidence, including historical and modern ethnography, Schoeman (2006a, b, 2009, 2013, 2020) and Murimbika (2006) argued that these sites were not residential sites, and that they were utilised by both hunter-gatherer and farmer ritual specialists potentially into the historic period (after AD 1600) due to the presence of Letaba ceramics (which are associated with Venda-speakers, e.g., Loubser 1989).

The large faunal assemblage from Ratho Kroonkop (discussed here) accumulated as part of the ritual rain-control process, however, ritual is not the only behaviour which forms large faunal assemblages. Feasting and consistent disposal in middens and near homesteads also results in large, concentrated faunal assemblages within a confined space. Many of the largest faunal assemblages analysed in the SLCA are the result of consistent disposal of faunal remains in middens or specific areas within or near residential sites (e.g., Voigt 1981a, b, 1983; Hutten 2005; Manyanga 2006; Badenhorst et al. 2011, 2016; Abatino 2021). In contrast to this, feasting is a time-specific event which results in large, concentrated faunal assemblages. It is a communal activity where food (often comprising species which are not normally consumed as part of every-day life) and drink are consumed (Dietler & Hayden 2001; Hayden 2001, 2009; Magoma et al. 2018). One way to differentiate between the behaviours that formed a faunal assemblage is to identify the taxa or species within that assemblage.

Identifying the taxa present at an archaeological site, both spatially and temporally, can reveal patterns in species selection. By utilising these data, researchers can identify the significance of certain taxa by, for example, examining relevant ethnographies and rock art in the SLCA and southern Africa more broadly. One example of this from past hunter-gatherer societies in southern Africa is the importance of the eland, both as a food source and spiritually (e.g., Lewis-Williams 1997; McGranaghan & Challis 2016), or the kudu (e.g., Eastwood & Blundell 1999; Eastwood 2006, Pwiti et al. 2007, Nhamo 2020a, b). Both wild and domestic taxa are important for archaeological and historically recorded farming societies, but the importance of particular species varies from context to context (e.g., Quinn 1959; Shaw 1974; Mönning 1978; Krige & Krige 1980; Voigt 1983; Schapera 1984; Aukema 1989; Ouzman 1996).

In the SLCA, previous faunal studies focusing on the Middle Iron Age (ca. AD 900-1300) have improved our understanding of livestock management (e.g., Voigt & Plug 1981; Plug & Voigt 1985; Plug 2000; Hutten 2005; Manyanga 2006; Fatherley 2009; Badenhorst et al. 2011, 2016; Raath 2014; Antonites AR et al. 2016; Abatino 2021). Most of these studies focused on assemblages from sites occupied by farming communities, and for those few focusing on hunter-gatherer sites they have not included in-depth faunal analyses. This has left a distinct bias in the faunal record.

South of the SLCA, in the Soutpansberg, faunal studies on archaeological material from Venda sites showed that there were some differences between the main settlements in the area, and that the faunal remains could be used to understand who occupied particular areas of the settlements (Loubser 1991; de Wet-Bronner 1994a, b, 1995a, b; Antonites AR & Kruger 2012). For example, cattle herds were maintained through timed slaughters (Thorp 1984; de Wet-Bronner 1994a) and the people who occupied these sites had varied diets (including riverine and wild animals), depending on their status or on external conditions such as the rinderpest (de Wet-Bronner 1995a, b; Antonites AR & Kruger 2012).

Adding to the above faunal studies from the SLCA is a previous study on the remains from Ratho Kroonkop (Brunton et al. 2013). Brunton and colleagues (2013) examined the faunal remains from one of the site's features, namely rock tank 2 (Fig. 1), and established a taxa list for the site that was subsequently used to support Schoeman's (2006a, b, 2009, 2013, 2020; see also Murimbika 2006) argument that Ratho Kroonkop is a rain-control hill.

In hunter-gatherer and farmer society, a variety of animals are associated with rain, places of water, and rain-control. Our information regarding this is derived from historically gathered ethnographies and we acknowledge the criticisms and drawbacks of using ethnographies to draw analogies (see Childe 1956; Ascher 1961; Gould & Watson 1982; Wylie 1985; Lane 1995, 1998). Our study attempts to overcome these critiques by drawing from multiple ethnographies collected from both hunter-gatherer (Bleek 1933a, b; Orpen 1984; Yellen 1993a, b; Tanaka 1996; Imamura 2001) and farmer groups (Krige 1957; Quinn 1959; Stayt 1968; Hammond-Tooke 1974a, b; Shaw 1974; Mönning 1978; Schapera 1984; de Heusch 1985; Aukema 1989; Matenga 1993), and the ethnoarchaeological study by Murimbika (2006), to form analogies to interpret the faunal remains from Ratho Kroonkop. Lastly, for hybrid groups, we use 19th century accounts of Northern Cape Korana (Engelbrecht 1936) and descriptions of the Kattea in Limpopo Province, provided by Van der Ryst (2003).

Among hunter-gatherer groups, several animal taxa were important for various reasons. In the context of rain, one of the most important was referred to as the "water-bull" (Bleek 1933a: 376). This term, denoting a rain animal in a painting, should be viewed in its post-contact context and can be seen as referring to a large animal (e.g., a large snake such as a python or large mammal such as a rhinoceros; Bleek 1933a). Other taxa directly associated with water and rain in hunter-gatherer ontology include fish, frogs, tortoises and snakes (Bleek 1933b; Brunton et al. 2013). Other animals in hunter-gatherer ontology also have *n!ow*, a life-force which can also influence the weather at times (Barnard 1992). These animals include giraffe, eland, gemsbok, kudu, red hartebeest and either black or blue wildebeest. Almost all these animals are also depicted in rock art throughout southern Africa (e.g., Lewis-Williams & Dowson 1990, 1993; Lewis-Williams 2003; Lewis-Williams & Pearce 2004; Challis 2005; Pwiti et al. 2007; Challis et al. 2008, 2013; McGranaghan & Challis 2016; Guenther 2017; Nhamo 2020a, b).

Interestingly, farmer thinking about rain does not abandon wild animals entirely, although the main emphasis is on the use of domesticates in rain-control (e.g., Feddema 1966; Hammond-Tooke 1974b; de Heusch 1985; Murimbika 2006). These wild animals include guinea fowl, hyraxes, eland, monitor lizard, klipspringer, and the use of rhino horns to store rain medicine (Feddema 1966; Schapera 1971; de Heusch 1985; Murimbika 2006). The strongest hint potentially lies in the repeated links in both farmer and hunter-gatherer ontology about rain with snakes, and specifically a python (e.g., Schapera 1971; Schmidt 1975; de Heusch 1985; Hoff 1997; Hollmann 2007; also see Schoeman 2006, 2009, Whitelaw 2017 and Croll 2023 for discussions).

Several ethnographies of farming societies mention the slaughter of a 'black beast', usually a black bull or a black sheep (e.g., Feddema 1966; Hammond-Tooke 1974b; de Heusch 1985; Murimbika 2006; Shenjere-Nyabezi 2016, 2022). The colour of the animal was said to either call the dark rain clouds or imitate them (Murimbika 2006). Importantly, the animal being sacrificed must not make noise and thus would not disturb the ancestors (de Heusch 1985).

The purpose of this paper is to expand the previous taxonomic list, detail the taxa identified from all areas of Ratho Kroonkop, and explain spatial patterning in the faunal remains. This paper also seeks to identify whether we can gain deeper insights into ritual through examining the composition of the faunal remains, within the context of rain-control. This might be possible because animals do not only serve as a source of food for humans but also as pathways for expressing social concepts through feasting and ritual use (Morris 2012), and as expressions of social identity (e.g., as figurines or totems; Matenga 1993; Hanisch & Maumela 2002; Anderson 2009; Dietler 2011). Additionally, by contextualising animals using relevant ethnographies (e.g., Orpen 1874; Bleek 1933a, b; Quinn 1959; Hammond-Tooke 1974b; Shenjere-Nyabezi 2016, 2022), we can attempt to understand the potential significance of certain animals in the context of rain-control.

2. Site description

Ratho Kroonkop is on the far west of the SLCA in South Africa (Fig. 1), approximately 35 km from Mapungubwe (Schoeman 2009). It is a steep-sided sandstone hill that rises roughly 650 m above the valley floor. It is capped by exposed sandstone and flanked to the east by a sandstone ridge. To the west of Ratho Kroonkop is a flat plain, which the Limpopo River likely flooded. Mopane trees interspersed with grasses predominate in areas that are not currently farmed. The western edge of the flat plain is marked by a riparian forest lining the Limpopo River, which is 4.14 km from Ratho Kroonkop in a direct line.

Paleoclimatic records for the region – based on oxygen, nitrogen and carbon isotopes – show that the rainfall and temperature varied between AD 900 and the present (e.g., Smith et al. 2007, 2010; Woodborne et al. 2015). These isotopic analyses indicate that, during the Little Ice Age (AD 1300-1800; Tyson et al. 2000), there was a ±1.4°C decrease in temperature accompanied by a decrease in rainfall (Woodborne et al. 2015). The SLCA also plays host to several different environment types including woodland in the form of a riparian forest, rocky hills, and grasslands (e.g., Eastwood & Blundell 1999; Plug 2000; Rutherford et al. 2010). All of these are fed by numerous waterways (DWAF 2006; SANBI 2018).

Getting to the summit of Ratho Kroonkop is not an easy task; there are two possible entry points, one to the east and one to the northwest (Figs 2 & 3). The eastern route to the summit is an almost sheer rock face with few footholds. Access from the northwest is easier as most of the climb is up a gentler slope, with only a few metres of sheer rock face at the very top (currently made easier to climb by a ladder). This is followed by a tunnel formed by large sandstone boulders.

There are four visible rock tanks on Ratho Kroonkop, only two of which contained material culture (Fig. 4). The central site area also contained material culture as well as circular concentrations of gravel that may be remnants of floors, and *daga* fragments. Numerous cupules were carved into the sandstone on the hilltop, as was a *mankala* board near the top of the entrance tunnel (see Townshend 1979 for further description).

Ratho Kroonkop was excavated by Alex Schoeman, Bronwen van Doornum, and staff and students from the Universities of Pretoria and Botswana, from 2006-2008. They used standard archaeological techniques and all material was dry-sieved with a double sieve; the top sieve comprised 5 mm mesh while the bottom was a fly screen (<1 mm). Within rock tank 1, 1 m^2 was excavated; rock tank 2 had 3 m^2 excavated and the central area was spread over 33 m^2 (Fig. 3). Bedrock was reached in all excavated squares except in rock tank 2 where termite activity prevented further excavation due to the hardness of the soil and mixing of artefacts. The faunal remains from both rock tanks were deliberately placed in the tanks – in rock tank 2 this happened in one dumping episode and in rock tank 1 this occurred during at least three dumping episodes, based on stratigraphy. Temporally, there is little difference between the faunal assemblages dating to the K2 (area 1; rock tank 2 and area A) and the Venda/historic periods (area 2; rock tank 1 and areas B-D).

Figure 2. The narrow tunnel at the northwestern edge of Ratho Kroonkop, taken from the top of the ladder (photo by K. Croll).

Several radiocarbon dates have been obtained for Ratho Kroonkop, one of which was previously reported by Brunton et al. (2013). Samples (Table 1) were obtained from central area A (samples 613661 and 613662) and C (sample 613663), rock tank 1 (samples 613664, 613665 and 613666) and rock tank 2 (Beta-28653; Brunton et al. 2013), providing dates indicating the use and/or occupation of

Ratho Kroonkop during the K2 and K2-Mapungubwe transition periods (TK2), as well as its historical use. The dates from rock tank 1 were obtained from charcoal in the bottom, middle and top of the rock tank deposit. The dates from the central area were obtained from charcoal associated with gravel features and animal bone clusters. Overall, the dates indicate that different areas of the site were likely used at different times: first during the K2 and TK2 periods and second during the Venda and/or historic period.

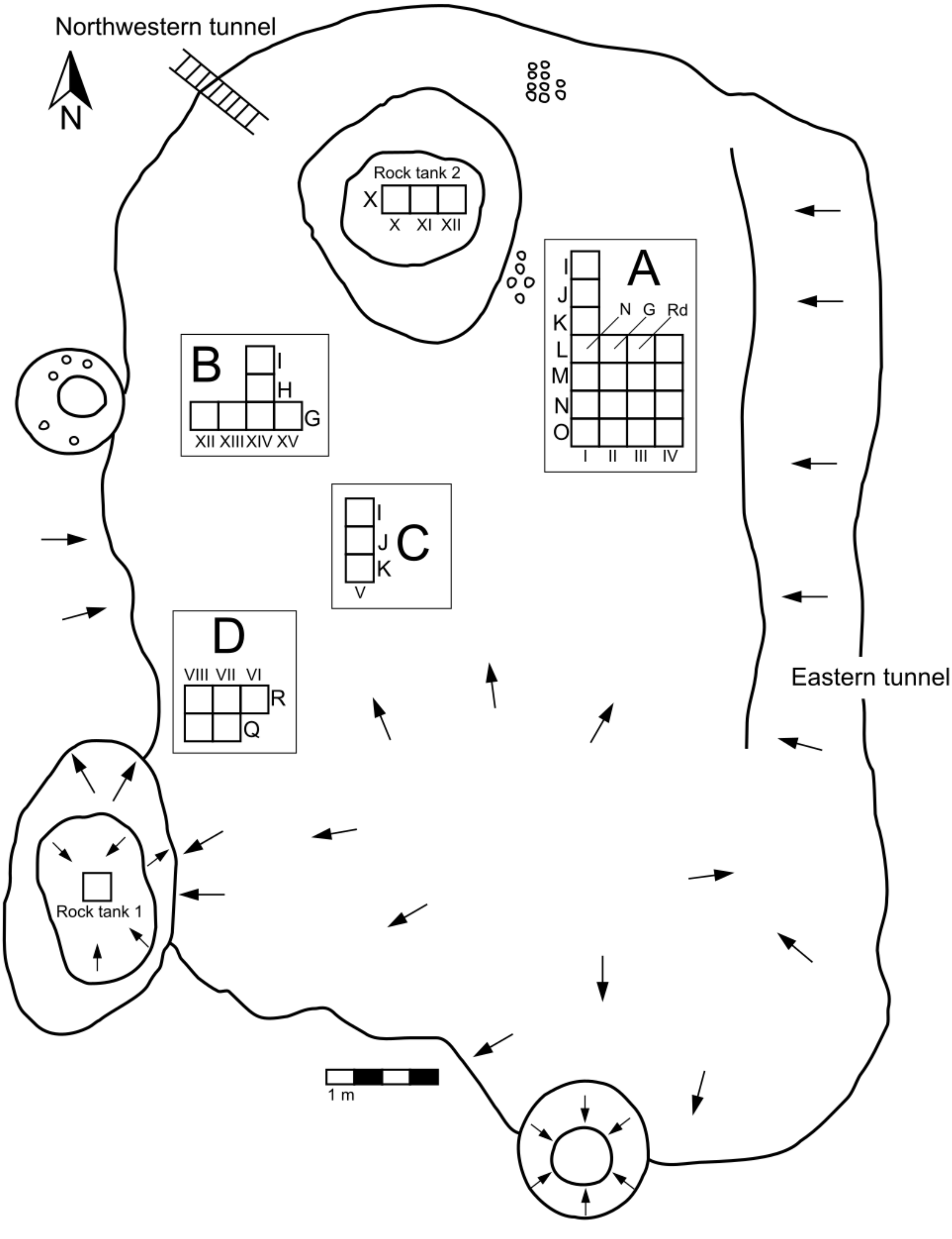

Figure 3. Plan view of the summit of Ratho Kroonkop showing the areas excavated (A-D), the location of cupules (circles) and the slope direction (arrows) across the surface.

Figure 4. Photo of rock tank 1, taken looking south (photo by A. Schoeman).

Table 1. List of calibrated dates and their locations; dates obtained from Beta Analytical and calibrated with OxCal (see Bronk Ramsey 2009, 2021) and SHCal20 (see Hogg et al. 2020).

Sample number	Location	Calibrated date	Uncalibrated date
R_Date 613661	I/L 38cm in situ charcoal	cal. AD 1045-1218 (cal. 905-732 BP)	940±30 bp
R_Date 613662	III/M FP 2A charcoal	cal. AD 994-1152 (cal. 956-798 BP)	1020±30 bp
R_Date 613663	V/J 2B	cal. AD 1666-post AD 1950 (cal. 284 BP-post 0 BP)	190±30 bp
R_Date 613664	Rock tank 1 last spotted dark khaki	cal. AD 1684-post AD 1950 (cal. 266 BP-post 0 BP)	150±30 bp
R_Date 613665	Rock tank 1 dark khaki	cal. AD 1696-1948 (cal. 254-2 BP)	120±30 bp
R_Date 613666	Rock tank 1 1A	cal. AD 1665-post AD 1950 (cal. 285 BP-post 0 BP)	200±30 bp
Beta-28653	Rock tank 2 (Brunton et al. 2013)	cal. AD 1040 – 1240 cal. AD	860±40 bp

3. Methods and materials

The faunal remains which form the basis of this study were excavated from Ratho Kroonkop during 2006-2008. A sample of faunal remains were previously analysed by Brunton et al. (2013). Our study expands on their work by including the fauna from all excavated areas of Ratho Kroonkop, the taxonomic results of which are presented here. This study utilised the method of Driver (1991, 2005), which facilitates data comparison with Brunton et al. (2013). Bovid size classes follow Brain (1974) and size classes for unspecified mammals, reptiles, carnivores, and birds were adapted from Reynard et al. (2016; Table 2).

Table 2. Groups and examples of indeterminate mammals, carnivores, and rodents (adapted from Reynard et al. 2016).

Group	Mammal	Carnivore	Rodent
Small	Bovid I, hyrax	Small wild cat	Mouse, shrew
Medium	Bovid II, pig	Jackal, dog	Rat
Large	Bovid III, horse	Lion, leopard	Porcupine
Very large	Bovid IV, elephant	-	-

The comparative faunal collections at the Evolutionary Studies Institute at the University of the Witwatersrand, and Ditsong National Museum of Natural History in Pretoria, were used to identify the faunal specimens to taxon, when possible. Peters (1988), Payne (1985), Prummel and Frisch (1986), Halstead et al. (2002), Zeder and Pilaar (2010) and Zeder and Lapham (2010) were used to confirm domesticates (*Bos taurus* and *Ovis/Capra*). Taxonomic classification follows Meester et al. (1986). Taxa were quantified by the Number of Identified Specimens (NISP; see Klein & Cruz-Uribe 1984) and normalised using normed NISP (nNISP; Grayson 1984; Grayson & Frey 2004; van Pletzen-Vos et al. 2019). Minimum Numbers of Elements (MNE; e.g., Lyman 2019a, b) were used to quantify faunal elements. Minimum Number of Individuals (MNI) were not calculated due to the difficulty of establishing a standardised method for determining the MNIs across the site. A full taphonomic analysis has been conducted on all identified remains (Croll 2023) and these data will be presented in a future publication.

The faunal remains were divided by excavated area and according to spits (excavated in 5 cm levels) to ensure comparability across the site, even where stratigraphy had been recorded. Radiocarbon dating of the site also allowed for temporal grouping of the different site areas – rock tank 2 was likely contemporaneous with central area A and rock tank 1 was likely contemporaneous with central areas B, C and D (Fig. 3). Of all these areas it was only in rock tank 1 that multiple dumping events of faunal remains occurred, and in central area A that multiple gravel floors were constructed (Schoeman 2006a, b, 2009), which indicates episodic use of the site.

4. Results and discussion

A total of 264 040 specimens from all excavated areas of Ratho Kroonkop were sorted into identifiable and non-identifiable categories (Table 3). Overall, the assemblage was highly fragmented. The faunal remains from rock tank 1 were the best preserved (25% of specimens were identified). The preservation of faunal remains from rock tank 2 was the lowest (7% of specimens identified), which was likely due to intensive termite activity within the rock tank.

Table 3. Number of Identified Specimens (NISP) from Ratho Kroonkop.

Location	# Identified specimens	# Unidentified specimens	Total # of specimens	% ID	% non-ID
Rock tank 1	9299	27 767	37 066	25%	75%
Rock tank 2	9814	127 813	137 627	7%	93%
Central area A	4865	25 042	29 907	16%	84%
Central area B	3679	20 603	24 282	15%	85%
Central area C	1747	17 317	19 064	9%	91%
Central area D	1844	14 250	16 094	12%	88%
Total	**31 248**	**232 792**	**264 040**		

Taxa

A total of 49 taxa were identified from the faunal remains from Ratho Kroonkop (see Supplementary Online Material [SOM] Table 1), excluding those specimens only identified to size class. Mammals, birds, reptiles, fish, and molluscs are present at Ratho Kroonkop. The most common animals identified are indeterminate small fish (NISP=11 594), indeterminate small terrestrial gastropods (NISP=5992), and indeterminate medium mammals (NISP=4005). *Barbus* sp. was identified from cranial plates. The most common bovid size class is Bov II (NISP=959), followed by Bov I (NISP=272). The most prevalent bovid identified to genus/species were *Aepyceros melampus* (impala, NISP=95) and *Redunca* sp. (reedbuck, NISP=35).

We have grouped the faunal assemblage from the whole of Ratho Kroonkop into two areas based on the radiocarbon dating of the site; area 1 includes rock tank 2 and central area A and area 2 includes rock tank 1 and central areas B, C and D. By doing so, we confirm that there are differences between the previous study by Brunton et al. (2013) and this study (SOM Table 1). First, this study analysed the entire faunal assemblage from all excavated areas of Ratho Kroonkop whereas Brunton et al. (2013) only analysed a sample from rock tank 2. Second, this study has identified several new taxa: cf. *Soricidae* (probable shrew), *Panthera pardus* (leopard), Hyaenidae gen. et. sp. indet. (hyena); *Felis silvestris* (African wild cat*)*, *Genetta* cf. *genetta* (probable small-spotted genet), Herpestidae gen. et. sp.

indet. (mongoose), *Phacochoerus africanus* (common warthog), *Hippopotamus amphibius* (hippopotamus), *Connochaetes taurinus* (blue wildebeest), *Alcelaphus buselaphus* (red hartebeest), *Oreotragus oreotragus* (klipspringer), *Pelea capreolus* (grey rhebok), *Hippotragus equinus* (roan), *Hippotragus niger* (sable), *Tragelaphus scriptus* (bushbuck), *Redunca fulvorfula* (mountain reedbuck), *Kobus ellipsiprymnus* (waterbuck) and *Pronolagus randensis* (Jameson's red rock rabbit). Many of the newly identified taxa were only found in rock tank 1 or the central excavated areas and thus would not have been in the assemblage analysed by Brunton et al. (2013).

The presence of *Diceros bicornis*/*Ceratotherium simum* (rhinoceros, NISP=14), *Hippopotamus amphibius* (NISP=3) and *Giraffa camelopardalis* (giraffe, NISP=3) are interesting due to these animals' links with rain, rain-animals and rock art (e.g., Lewis-Williams & Dowson 1990, 1993; Ouzman 1995a; Eastwood & Blundell 1999; Eastwood & Cnoops 1999; Hall & Smith 2000; Lewis-Williams 2003; Lewis-Williams & Pearce 2004; Challis 2005; Eastwood 2006; Challis et al. 2008, 2013; Boeyens & Van der Ryst 2014; McGranaghan & Challis 2016; Guenther 2017). The rhinoceros remains were identified exclusively from the two rock tanks, whereas only one giraffe phalange was identified from rock tank 2. All three of these animals are depicted in the engraved and painted rock art throughout southern Africa (Lewis-Williams & Dowson 1990, 1993; Ouzman 1995a; Eastwood & Blundell 1999; Eastwood & Cnoops 1999; Hall & Smith 2000; Lewis-Williams 2003; Lewis-Williams & Pearce 2004; Challis 2005; Eastwood 2006; Challis et al. 2008, 2013; Boeyens & Van der Ryst 2014; McGranaghan & Challis 2016; Guenther 2017). The placement of faunal remains from animal taxa strongly associated with rain and water, into wet places (i.e., the rock tanks), strengthens the case for Ratho Kroonkop being a rain-control site.

Many of the bovid and large mammal taxa represented are associated with water (Skinner & Chimimba 2005), for example *Syncerus caffer* (African buffalo), *Tragelaphus scriptus*, *Redunca arundinum* (southern reedbuck), *Redunca fulvorfula*, *Kobus ellipsiprimnus* and *Aepyceros melampus* (Skinner & Chimimba 2005). Additionally, *Tragelaphus strepsiceros* (greater kudu) and Rhinocerotidae sp. (black/white rhinoceros) are frequently represented in rock art in the Limpopo Province (e.g., Eastwood & Blundell 1999; Eastwood & Cnoops 1999; Eastwood 2006). Importantly, these large mammal taxa were regarded as spiritually potent and deemed important by both farmer (e.g., Hall & Smith 2000; Boeyens & Van der Ryst 2014) and hunter-gatherer communities (e.g., Eastwood & Blundell 1999; Eastwood & Cnoops 1999) in the Limpopo Province.

Only one definite *Ovis aries* (sheep) distal metapodial was identified from central area A. Identified *Ovis/Capra* remains from central area A comprised one upper premolar and one mandible with all teeth excluding the incisors. From central area C, two lower premolars, one mandible with one premolar and three molars (all worn), and one mandibular ramus, were all identified as *Ovis/Capra*. No *Ovis/Capra* remains were identified from central areas B and D. From rock tank 1, one mandible with one premolar and two molars, one upper premolar, one lower molar, and one maxilla with two premolars and one molar, were all identified as *Ovis/Capra*. Lastly, from rock tank 2 only two lower premolars were identified as *Ovis/Capra*. While this pattern suggests that cranial remains from *Ovis/Capra* were selected by the people using Ratho Kroonkop, the presence of the distal metapodial from *Ovis aries* indicates it is likely that other postcranial remains could also be part of the faunal assemblage. Given the large amount of indeterminate bovid size class II postcranial remains, it is likely that whole *Ovis/Capra* carcasses were brought to Ratho Kroonkop.

Bos taurus remains were also identified from Ratho Kroonkop from all excavated areas except central area B. From central area A, one distal phalange was identified along with an almost complete hyoid from central area C. A carpal, incisor and distal phalange were also identified from central area D. One first phalange was identified from rock tank 1 and a complete astragalus from rock tank 2. The presence of domesticates such as *Ovis/Capra* and *Bos taurus*, even though they are underrepresented when compared with wild bovid taxa, suggests the inclusion of these animals into farmer thinking about rain. Both these taxa are important and, at times, essential components of rain-control in farmer societies (e.g., Shaw 1974; Van der Vliet 1974; de Heusch 1985; Shenjere-Nyabezi 2016, 2022; Magoma et al. 2018). Historical ethnographies from farmer groups in South Africa emphasise the importance of domestic animals, especially black sheep (e.g., Feddema 1966; Hammond-Tooke 1974b, 1993; de Heusch 1985; Aukema 1989; Murimbika 2006), for farmer rain-control rituals; however, wild animals were predominantly chosen by both K2 farmers and Venda-speakers at Ratho Kroonkop even though domestic animals were available.

Skeletal elements

Across Ratho Kroonkop, indeterminate small and medium mammals are represented predominately by cranial and axial elements, with very few limb elements represented. Bovid specimens for size classes I-IV, from all areas of Ratho Kroonkop, are represented predominantly by facial and tooth fragments, maxillae and mandibles as well as fore- and hind-limb elements. Birds are represented by wing and distal limb elements along with a small sample of limb and axial elements. The fish are represented by cranial fragments, including teeth and mandibles, and ribs and vertebrae. Lastly, carnivores are represented predominantly by phalanges, teeth, and tarsals.

Spatial patterns

Spatial patterns were identified in the distribution of the faunal remains from Ratho Kroonkop. The two largest assemblages are from the two rock tanks. Central area A, however, has the largest frequency of medium mammal remains (Fig. 5). The majority of the faunal remains from Ratho Kroonkop are classified as indeterminate medium mammals, due to the high amount of rib and vertebral fragments. It is likely that these are bovid remains which could not be identified to taxa. The skeletal elements represented in the faunal assemblages indicate that smaller mammals (i.e., from bovid size class II to hyraxes) were killed and transported to the summit of Ratho Kroonkop where they were then dismembered, whereas larger animals (bovid size class III to rhinoceros) were killed and dismembered elsewhere with only certain body parts transported to the summit of Ratho Kroonkop.

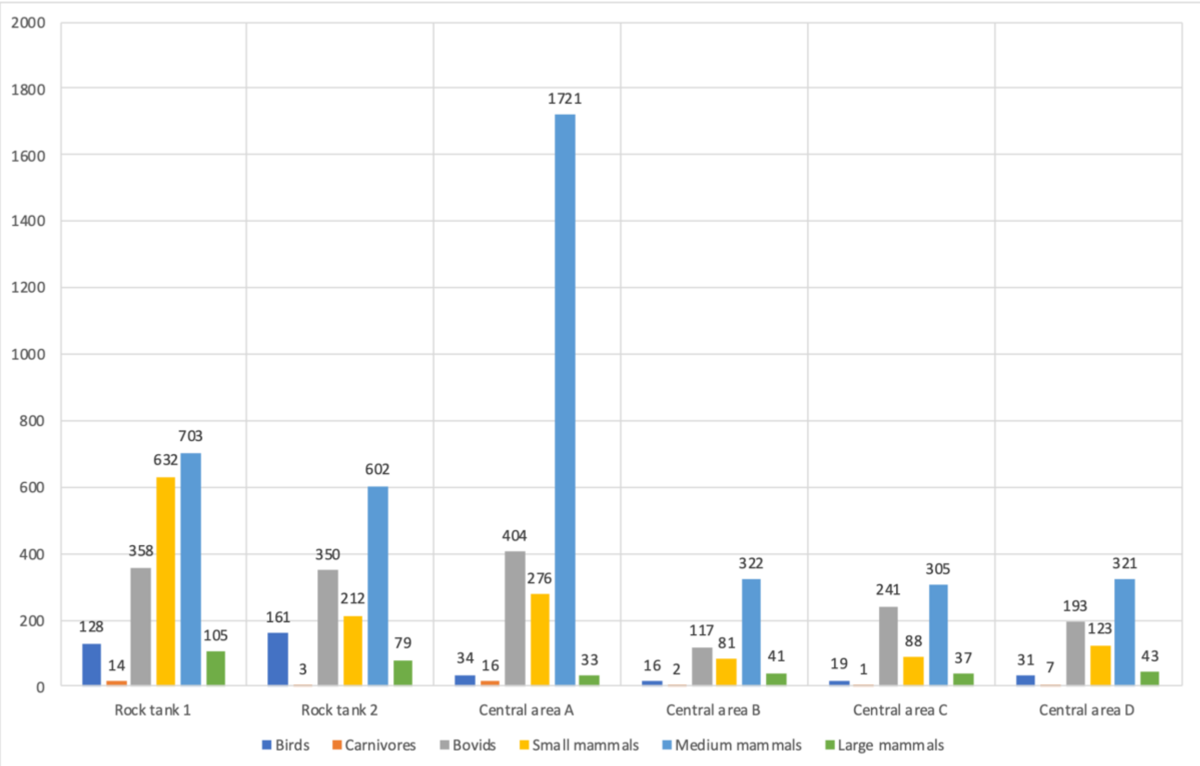

Figure 5. NISP of birds, carnivores, bovids, and small, medium and large mammals from the different areas of Ratho Kroonkop.

Fish remains were identified from all excavated areas of Ratho Kroonkop (Fig. 6). The highest frequencies of fish were from rock tank 1 (NISP=5936) and rock tank 2 (NISP=3819). The large number of fish remains from the two rock tanks further strengthens the possibility that the two rock tanks were used for ritual deposits associated with rain-control. There are strong links elsewhere in southern Africa between fish and rain-control, represented in hunter-gatherer rock art (e.g., Woodhouse 1989; Ouzman 1995b; Challis et al. 2008). Perhaps most important is the link made in the hunter-gatherer ethnography between rain-shamans and going 'underwater' (Orpen 1874), and that fish and other water-dependent animals were considered the "rain's things" (Bleek 1933a: 303; Challis et al. 2008). Thus, while fish are not commonly consumed by farming communities (for exceptions see Engelbrecht 1936 and Shaw 1974), fish were related to rain and potentially rain-control by hunter-gatherer groups in the past (e.g., Orpen 1874; Bleek 1933a, b; Challis et al. 2008).

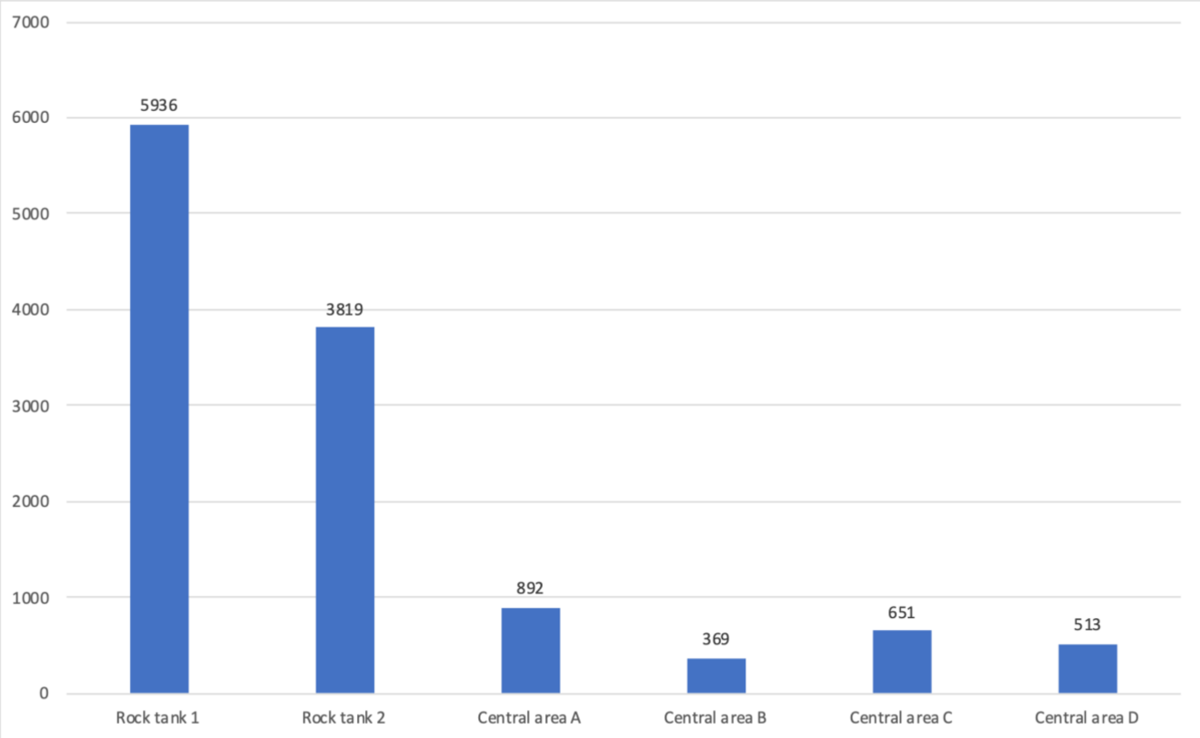

Figure 6. Distribution of fish remains throughout Ratho Kroonkop, represented by NISP.

Spatially, both rock tanks have the most taxonomic diversity and they contained the largest fauna (e.g., rhinoceros, hippopotamus, buffalo and eland); they (especially rock tank 1) also contained the most fish specimens. The central areas predominately have smaller taxa (including bovid size class II, small mammal and some carnivore remains). Overall, there seems to be continuity in animal selection and disposal between the two time periods. The predominant differences lie in the increased frequency of fish remains from rock tank 1 (Venda/historic period), and the increased frequency of indeterminate medium mammal remains from central area A (K2 period). These differences could indicate a change in diet from medium-sized mammals to one more focused on fish, or a change in animal selection for rain-control rituals with increased emphasis on fish from the K2 period to the Venda/historic period.

Accumulation

The faunal assemblages from Ratho Kroonkop could have accumulated during the course of long-term occupation on the summit, or as a result of episodic feasts; however, the faunal assemblages from rock tank 1, rock tank 2 and the four central areas comprise more wild than domesticate species, the former of which were historically and archaeologically important to farmer communities in both mundane and feasting contexts (e.g., de Wet-Bronner 1994a, b; Plug 2000; Manyanga 2006; Badenhorst 2008; Raath 2014; Badenhorst et al. 2016; Magoma et al. 2018; Abatino 2021). The small summit area likely also restricted long-term occupation of the site by the number of people it would have required to form such a large faunal assemblage (e.g., Voigt 1981a, b, 1983; Plug & Voigt 1985; Plug 2000). Given this, along with the dumping episodes in the two rock tanks, it suggests the use of Ratho Kroonkop (and thus the accumulation of the faunal assemblage) occurred on an irregular or intermittent basis by a small group of people.

The combination of taxa associated with water, the deliberate placement of animals into wet places (in this case, the two rock tanks), and the location of Ratho Kroonkop away from homesteads all suggest that this site was used for rain-control purposes. Wet places are important for rain-control and the storage of rain medicine for both hunter-gatherers and farmer communities (e.g., Bleek 1933a, b; Schapera 1971; Berglund 1976; Murimbika 2006; Schoeman 2006a). The vocabulary surrounding rain and rain-control, including the physical materialisation of these rituals, has elements of continuity from hunter-gatherers to farmers in the Limpopo Province.

5. Conclusion

Overall, medium-sized bovids predominate the faunal assemblages from all areas of Ratho Kroonkop. Small mammals are present in the assemblage and were likely snared to add to the diet of the people using the site. Larger bovids, such as eland, buffalo and kudu, are also present. The small sample of domesticates at Ratho Kroonkop indicates the presence of farmers either at the site or nearby. Ultimately, the variety of animals, especially those associated with rain and rain-control by both hunter-gatherers and farmers, suggests that Ratho Kroonkop is a site where practices drew on both hunter-gatherer and farmer cosmologies. This could indicate long-term continuities in how people thought about and related to animals in the SLCA. This study's significance is two-fold: first, the species list presented here provides a fuller picture of the animals which formed part of the rain-control rituals performed at Ratho Kroonkop; and second, it provides a fauna-based perspective on rain-control in the SLCA. Future research should perform similar analyses on the other rain-control sites identified by Schoeman (2006a, b) and conduct surveys on both sides of the Limpopo River to potentially identify additional rain-control sites in the broader confluence area.

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Supplementary online material

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